

Adolescent

Early sexual abuse

Early sexual abuse increases heart risks: US study (World Newspapers: 14.11.2011)

Women who were repeatedly sexually abused as girls have a 62 per cent higher risk of heart problems later in life compared with women who were not abused, US researchers said on Sunday.

The findings, presented at the American Heart Association meeting in Orlando, Florida, underscored the lasting physical effects of early sexual abuse.

Much of the increased risk was related to coping strategies among abuse survivors such as overeating, alcohol use and smoking.

"The single biggest factor explaining the link between severe child abuse and adult cardiovascular disease was the tendency of abused girls to have gained more weight throughout adolescence and into adulthood," Janet Rich-Edwards of Brigham and Women's Hospital in Boston, who led the study, said in a statement.

The team analyzed data from a study of more than 67,000 nurses. Nine percent of these women had reported severe physical abuse and 11 percent reported being raped in their childhood or adolescence.

The team found that repeated episodes of forced sex in childhood or adolescence translated into a 62 per cent higher risk of heart attacks and strokes later in life.

Physical abuse also took a toll. Women who had been beaten in their youth had a 45 per cent higher risk of heart trouble.

There was no increased heart risk in women who reported mild to moderate physical or sexual abuse.

Much of the effect was related to higher rates of obesity, smoking, alcohol use, high blood pressure and diabetes, which accounted for 41 per cent of the increased risk of heart problems among women who had been physically abused and 37 per cent of the association with sexual abuse, the team said.

The findings suggest severe physical and sexual abuses are significant risk factors for future heart disease, and women and their doctors need to take steps to reduce this risk.

"We need to learn more about specific psychological, lifestyle, and medical interventions to improve the health of abuse survivors." Rich-Edwards said in a statement.

Teen Motherhood

Driven by ignorance into teen motherhood (The Indian Express: 19.12.2011)

Under no circumstances will we keep the baby," says the mother of a pregnant girl, 15, whose 17-year-old boyfriend is in a remand home and accused of rape. "It was conceived in an act of sin and it deserves to be given away," says the mother, though the daughter is hoping the boy will marry her when the baby is born.

"We may be poor, but we have dignity. For the past four days, the entire neighbourhood has been talking about it," adds the mother, who earns a living as a vendor on Mumbai's streets.

The teen pregnancy has highlighted not only its social implications and a trend — 6.7 per cent of girls aged 15 to 19 in Mumbai were or had been pregnant, or were already mothers, according to the National Family Health Survey (NFHS) in 2005-06 — but also how little many such girls know of contraceptive measures or the consequences of unsafe sex.

The 15-year-old, currently in Mumbai's Bhagwati Hospital, recalls how her boyfriend of almost a year had used birth control measures only in the initial phases. Later, he claimed it was not required since he would marry her anyway.

"Premarital sex is definitely more rampant today than it was 10 years ago. Girls today are more aware of the consequences of unwanted pregnancies and HIV. Unfortunately, most often, they are dangerously ill-informed," says Dr Duru Shah, former president of the Federation of Gynaecologists and Obstetrics Societies of India (FOGSI).

"Ninety-five per cent of girls don't use protection the first time they have sex. Many of them are unaware of the morning-after pill and come to me asking for the best methods of contraception only after they've undergone an abortion." Shah says.

The girl now in Bhagwati Hospital had missed four periods before she informed her boyfriend, who got her a pregnancy kit and an abortion pill. It was only around the 24th week that her parents noticed and approached a private clinic for an abortion, which was denied as her pregnancy was past the legal limit.

Teen mothers and their babies are also vulnerable to health complications. In a study headed by Dr Ashwini Bhalerao Gandhi at Nowrosjee Wadia Maternity Hospital, it was found that younger girls are more likely to give birth to low-weight babies (see chart).

“The pregnant teenager is often not fit enough to bear the burden of another individual inside her. Under-nutrition, anaemia, toxicaemia of pregnancy, premature deliveries, stillbirths and perinatal morbidity are common hazards among pregnant teenagers,” says Dr Gandhi.

Experts feel that mandatory sex education and responsibility on part of the girl will help curb unwanted pregnancies and consequent abortions. “Despite all the modernisation around, even upper-class urban parents are unwilling to talk to their children about sex,” says Usha Rane, regional head of NGO Pratham. “As a consequence, children get information from wrong sources...”

Aging

Aging Process

Aging Process could be slowed Down by Getting Rid of Senescent Cells (Med India: 4.11.2011)

Researchers at Mayo Clinic in Minnesota have identified a group of cells, known as senescent cells, which play a key role in the aging of tissue and suggested that cleaning the body of such cells could slow down the aging process.

The study was led by Darren Baker and Jan van Deursen who found that senescent cells accumulated in aged tissues, such as cataracts, arthritic knees and in the plaque that line the arteries among the elderly. The researchers tested the effect of such cells in mice and found that they accelerated the process of aging.

The researchers then gave the mice drugs which destroyed the cells and found that those tissues which initially contained senescent cells displayed significant improvement relating to aging disorders such as cataracts or the natural wasting of muscles seen among the elderly.

Commenting on the study, Dr van Deursen said, “This research has identified a cell class that makes you old and makes you have age-related declines. We can now start to think about how you can get rid of them”. The study has been published in the journal Nature.

Aging brain

How to revive aging brain in older adults (New Kerala: 16.11.2011)

A new study has suggested the benefits of exercise, hormone treatment, and social interaction for the improvement of the aging brain.

The study investigated common characteristics of normal aging — including memory loss, reduced sleep quality, and decision-making problems.

By better understanding the aging brain, researchers hope to benefit the 500 million people worldwide who are 65 or older.

The study found that physically fit older adults have fewer signs of aging in their brains, and they outperform their peers in memory tests and suggested exercise may reduce age-related changes in the brain.

Short-term estrogen treatment leads to growth in brain regions known to be involved with attention and memory in post-menopausal women.

The findings proposed the brain's plasticity may be key to preserving cognitive function.

Sleep fails to enhance the memory of older adults, unlike their younger counterparts.

The brain's ability to process social cues is preserved as people age, despite cognitive decline and other age-related changes.

The study suggested older adults might better retain information presented in a social context.

"Even as the body begins to slow down as we age, the brain, when challenged by physical and mental activities, continues to grow and change," said Barbara Sahakian, PhD, of the University of Cambridge, who studies ways to improve cognition.

"These findings offer new information about how the brain ages, and also highlights ways to educate older adults about playing a more active role in their brain health," she added.

The findings were presented at Neuroscience 2011, the annual meeting of the Society for Neuroscience.

Aging

Key to Aging? Key Molecular Switch for Telomere Extension by Telomerase Identified (Science Daily: 25.11.2011)

Researchers at the University of Illinois at Chicago College of Medicine describe for the first time a key target of DNA damage checkpoint enzymes that must be chemically modified to enable stable maintenance of chromosome ends by telomerase, an enzyme thought to play a key role in cancer and aging.

Their findings are reported online in Nature Structural and Molecular Biology.

Telomeres are the natural ends of chromosomes, consisting of specialized DNA-and-protein structures that protect chromosome ends and ensure faithful duplication of chromosomes in actively dividing cells. An essential player in telomere maintenance is an enzyme complex called telomerase. Without telomerase, telomeres become progressively shorter each time the cell divides.

If telomeres become too short, chromosome ends will be recognized as broken, prompting DNA-damage checkpoint proteins to halt cell division and DNA repair proteins to fuse or rearrange the chromosome ends. Telomere dysfunction has been linked to tumor formation and premature aging in humans.

The UIC study, led by Toru Nakamura, associate professor of biochemistry and molecular genetics, focused on understanding how two DNA-damage checkpoint enzymes called ATM and ATR contribute to the regulation of telomerase.

"Our current study found that ATM and ATR help to switch on the telomere complex by chemically modifying a specific target protein bound to telomeric DNA, which then attracts telomerase, much like honey bees are attracted if flowers open and show bright colors," Nakamura said.

The study was done in fission yeast cells, a model organism that utilizes very similar protein complexes as human cells do to maintain telomeres. Previous discoveries in fission yeast have provided key information that helped identify several key factors required in maintenance of human telomeres.

Nakamura thinks that a similar ATM/ATR-dependent molecular switch may exist in human cells to regulate telomere maintenance. However, certain details of the protective complex regulation may be different, he noted.

Because deregulation of telomere maintenance mechanisms is a key event in tumor formation, understanding how cellular components collaborate to generate functional telomeres may be important to finding ways to prevent cancer, Nakamura said.

The study was supported by grants from the National Institutes of Health and the Federal Work Study Program. Bettina Moser, UIC research assistant professor in biochemistry and molecular genetics, was first author of the study. Graduate student Ya-Ting Chang and undergraduate student Jorgena Kosti also contributed to the study.

Old age

Old age: Regular physical activity can keep you fit (The Tribune; 7.12.2011)

It is true that old age brings with it many physical and physiological changes. But it is also true that by undertaking appropriate strengthening and endurance activities one can remain fit and at least postpone many changes. There is also a change in thinking that much of the deterioration in various body tissues is more due to disuse than the aging process.

The saying that “One is as old as one thinks” conveys a lot. The general feeling is that if one becomes old, one is too weak to exercise. This brings in lack of physical activity leading to a decrease in strength, stamina and also self-confidence. Having a positive attitude vis-à-vis aging makes an individual not only more confident and physically active but also mentally healthy. Exercise is a must for a person above the age of 40 years. Such people need to do physical activity more than a youngster, whose metabolism is very strong.

The effects of aging are as under:

Muscle strength decreases particularly after the age of 60 years. The reduction in the muscle mass associated with aging appears to be predominantly in the number rather than the size of muscle fibers.

Bone mass declines slowly after peaking in the second and third decades, especially in women after menopause, due to hormonal imbalance. In the spine, bone mass loss can cause fracture of the vertebrae, resulting in upper back hump. Osteoporosis can also cause hip fractures. Although it is difficult to increase bone minerals among senior citizens, appropriate physical activity can reduce the rate of loss.

Heart muscles become weak to propel a large quantity of blood to the body. Cardiac output decreases by about 20 per cent among the seniors than in a young adult. Exercise tends to lower the resting heart rate and the resultant increased diastolic time allows improved coronary blood flow.

Exercise also has an effect on blood lipid levels, raising the levels of high density lipoprotein (HDL) called good cholesterol and lowering the levels of low density lipoprotein (LDL) — bad cholesterol.

Blood pressure increases by 10 mm due to the decreased elasticity of blood vessels. Exercise lowers blood pressure and reduces obesity. A combination of these two factors in addition to the reduction in cholesterol decreases the risk of Ischemic heart disease.

There is lack of coordination due to slow reaction time.

Joints become inflamed and arthritic as the cushioning cartilage begins to break down from a lifetime of use.

Aging decreases the lungs' vital capacity. Exercise/ praynam improves the pulmonary function in older people with obstructive airway disease.

The following exercises lead to all-round physical well-being:

Cardio exercises for seniors: Walking, swimming, biking, gardening, golfing, playing tennis, etc, is important. It is recommended that seniors should do cardio exercise daily for at least 30 minutes. If they cannot exercise for some reason, they can start with 5-10 minutes of cardio three times a week to allow their body to get used to it. Each week add a few minutes until you can move continuously for half an hour or more.

Strength training: It is believed that 'resistance exercises may forestall a decline in strength and muscle mass for decades.' Performing strength exercises at least twice a week but not for the same muscle group on any two days in a row is ideal.

Wrist/ biceps strengthening: Sitting on a chair, place one end of the stretch band under your foot and hold the other end in your hand with the palm up. Bend the wrist upwards and downwards 10 times. Now rest the forearm on the thigh. Bend your elbow upwards and downwards 10 times.

Rowing: Sitting on a chair with one leg extended, loop the band around the ball of the foot and hold the ends with the hands. Now pull the band towards the chest. Return back, repeat 10 times.

Calf strengthening: Sitting with one leg outstretched, loop the band around the ball of the foot. Pull the band towards the body. A stretch shall be felt in the calf muscle. Stay for a count of 10. Return back, repeat 10 times.

Quadriceps strengthening: While lying on the back, wrap the band around both ankles. Raise one leg towards the ceiling. Feel tension in the front of thigh muscle. Repeat 10 times.

Hamstring strengthening: Lying your face downwards, loop the band around the ankles. Bend one leg towards the hips and feel the tension in the back of the thigh muscles. Return back, repeat 10 times.

Lack of physical activity leads to early osteoporosis and a reduction in muscle strength and this causes long-term physical and mental disability with associated complications.

The writer is a former doctor/physiotherapist, Indian Cricket Team.

Aging

Aging Human Bodies and Aging Human Oocytes Run On Different Clocks (Science daily; 9.12.2011)

Reproductive and somatic aging use different molecular mechanisms that show little overlap between the types of genes required to keep oocytes healthy and the genes that generally extend life span, according to Coleen Murphy, Ph.D., of Princeton University, who described her new findings on oocyte aging at the American Society for Cell Biology Annual Meeting Dec. 6 in Denver.

The different genetic pathways help explain why a woman's fertility begins to decline after she is 35 years old, while her other cells do not show significant signs of aging until decades later, Murphy explained.

To compare the molecular mechanisms that are switched on or off with the aging of oocytes and somatic cells, Murphy's lab turned to the model organism, *Caenorhabditis elegans* (*C. elegans*), the worm-like nematode that set off the whole field of longevity research with the discovery in the 1990s that gene mutations affecting insulin regulation doubled the worm's life span. Insulin/insulin-like growth factor (insulin/IGF) signaling pathways also have been identified in humans. These pathways also seem to regulate longevity in humans.

Using DNA microarrays to measure the expression levels of genes, Dr. Murphy and her colleagues noted a distinctive DNA signature for aging oocytes. They also found that the oocytes of aging insulin and transforming growth factor-beta (TGF-beta) mutant mice had the same DNA profile that characterized young females.

The researchers then compared the oocyte gene expression patterns with microarray transcription data on worms carrying the famous long-life mutations. Murphy and her colleagues found that even though somatic and reproductive aging in *C. elegans* both involve the insulin regulation pathway, the molecular mechanisms to maintain youthful oocyte function and to combat body aging are very different.

"It seems that maintaining protein and cell quality is the most important component of somatic longevity in worms," Dr. Murphy said, "while chromosomal/DNA integrity and cell cycle control are the most critical factors for oocyte health."

In previous studies, the Murphy lab showed that worm oocytes reach the end of their viability about halfway through the *C. elegans* lifespan, a pattern that also characterizes human eggs. Oocyte aging is delayed in mutant worms with decreased signaling activity in both the insulin/IGF and the TGF-beta pathways.

Using microarray technology, Murphy's lab identified the *C. elegans* genes that were being switched on or off as oocytes aged. The researchers revealed a distinctive genetic signature for aging oocytes that is reversed in insulin and TGF-beta mutants.

They then compared the oocyte gene expression patterns with microarray transcription data from whole worms carrying the famous long-life mutations.

Surprisingly, the patterns were different. Even though somatic and reproductive aging in *C. elegans* both involve the insulin regulation pathway, the mechanisms to maintain youthful oocyte function and to combat body aging are very different.

"It seems that maintaining protein and cell quality is the most important component of somatic longevity in worms," Murphy said, "while chromosomal/DNA integrity and cell cycle control are the most critical factors for oocyte health."

Finding ways to delay oocyte aging would reduce an older woman's risk of giving birth to a child with birth defects, Murphy said.

Anti-aging gene

'Anti-aging' gene helps slow progression of Huntington's disease (New Kerala: 19.12.2011)

A gene (SIRT1) linked to slowing the aging process in cells also appears to dramatically delay the onset of Huntington's disease (HD) and slow the progression of the relentless neurodegenerative disorder, researchers have discovered.

HD in humans is a rare, fatal disorder caused by a mutation in a single gene and marked by progressive brain damage.

Symptoms, which typically first appear in midlife, include jerky twitch-like movements, coordination troubles, psychiatric disorders and dementia.

Although the gene responsible for HD was identified in 1993, much is still unknown about the biology of the disease. There is no cure, and there are no effective treatments.

In studying two separate mouse models of HD, Johns Hopkins researchers found that mice bred with Huntington's disease and a greater than usual amount of the enzyme whose blueprint is carried by the SIRT1 gene had improved motor function and reduced brain atrophy.

Other studies have suggested SIRT1 has anti-aging and anti-inflammatory properties that scientists are only beginning to understand.

“Our research opens new avenues in the fight against HD, suggesting that if we target SIRT1, we may be able to find drugs that offer help to patients for whom we currently have really nothing that works,” said Wenzhen Duan, M.D., Ph.D., an associate professor of psychiatry and behavioural sciences at the Johns Hopkins University School of Medicine.

Duan and her colleagues have determined that SIRT1 seems to prevent a decline in levels of brain-derived neurotrophic factor, or BDNF, which acts as nutrition for brain cells. People with HD tend to have low levels of BDNF.

The findings will be published online in Nature Medicine.

Elderly Care

For a secure life ahead (The Times of India: 23.12.2011)

Planning is the key for ensuring a smooth and financially independent life after retirement

Retirement is the beginning of the second innings in life. The transition takes one from an active public life to a more relaxed lifestyle. However at the same, during this phase financial stability is of utmost importance. With no regular source of income, senior citizens are generally dependent on the savings made during their working years. It requires that retirement planning should be given its due importance and started as early as possible. With careful planning and small savings a good corpus of funds can be created for one's retirement days.

For senior citizens there are several opportunities for saving as well as investment. One can choose from these investment avenues based on the needs. "What is crucial here is understanding one's needs and then forming a portfolio based on the same. There are several sources from where senior citizens receive money at the time of retirement. These include money from voluntary retirement scheme or saved up money over the years from salary and pension. This amount can be invested in various ways including stocks, bonds, gold, mutual funds, fixed deposits and post office schemes. These financial schemes and plans are offered by banks as well as other financial institutions," says Akhilesh Sharma, a financial advisor.

At present there are several saving and investment options which can provide a steady flow of income. Senior Citizens Savings Scheme (SCSS) is for those who are above 60 years of age and can be started with the minimum investment of Rs 1,000. Investments in the scheme are eligible for tax benefits under Section 80C of the Income Tax Act. Post Office Monthly Income Scheme (POMIS) is also quite popular among senior citizens. The scheme runs over a 6 year period and offers a return of 8.2 percent per year. In this scheme apart from the monthly interest payouts, premature withdrawals are permitted

after one year from the date of investment. Fixed Deposits have always been a popular saving instrument for senior citizens. They offer a higher interest rate (generally 0.50 per cent more than regular rate) to senior citizens. Monthly Income Plans (MIPs) and Fixed Maturity Plans (FMP) are investment avenues from the mutual funds segment. Senior citizens may also go for tax-free bonds offered by the Reserve Bank of India.

Providing further relief to senior citizens, Finance Minister, earlier this year announced the creation of a new category of 'Very Senior Citizens'- 80 years and above - and announced an exemption limit of upto Rs 5 lakh on their net taxable income beginning fiscal 2012. They will thus have no tax liability on incomes below that level. He also reduced the qualifying age of senior citizens from 65 years to 60, and raised the exemption limit for the 60-79 age bracket from Rs 2,40,000 to Rs 2,50,000 thus providing them an additional savings of Rs 1,030.

Financial planning during the retirement phase can make life really comfortable and tension free. "Proper financial planning allows senior citizens to plan any kind of activities they want to do and also achieve various goals such as buying a new asset, paying for health expenses or going on foreign vacations. I visit my son, who stays in Australia, every year for two months on my own expenses," shares LN Sagar, a retired academician. Here, senior citizens can also opt for the services of a qualified and experienced financial advisor and can help living a financially secure life after retirement.

Elderly

Healthy Eating Keeps Elders Mentally Sharper: Study (Med India: 30.12.2011)

Elderly people who ate healthy food and had higher levels of certain vitamins and omega 3 fatty acids in their blood scored better on mental acuity tests than those who ate junk food, a study released Wednesday showed.

The study published in *Neurology*, the journal of the American Academy of Neurology, also showed that eating better could help reduce the brain shrinkage commonly associated with Alzheimer's disease.

"This approach clearly shows the biological and neurological activity that's associated with actual nutrient levels, both good and bad," said Maret Traber, a principal investigator at the Linus Pauling Institute and study co-author.

Researchers at the institute at Oregon State University conducted the study, one of the first of its kind, along with scientists at the Oregon Health and Science University in Portland.

The study, carried out among 104 people at an average age of 87, specifically measured a wide range of blood nutrient levels instead of basing results on food questionnaires, which are less precise and less reliable.

"The vitamins and nutrients you get from eating a wide range of fruits, vegetables and fish can be measured in blood biomarkers," Traber said.

"I'm a firm believer these nutrients have strong potential to protect your brain and make it work better."

Researchers noted the positive effects of high levels of vitamins B, C, D and E, as well as the healthy oils most commonly found in fish, on mental quickness and brain size.

Those with a higher intake of trans-fats -- commonly found in fried foods, fast foods and other less healthy diet options -- did not perform as well on cognitive tests.

Researchers found that while age and education affected performance on the cognitive tests, nutrient status accounted for 17 percent of the variation in scores, and 37 percent of the differences in brain volume.

Of those who took part in the study, seven percent showed a vitamin B12 deficiency, and 25 percent did not have enough vitamin D in their systems.

Scientists tested 30 different nutrient biomarkers. In addition, 42 participants had MRI scans to measure their brain volume.

"These findings are based on average people eating average American diets," Traber said.

"If anyone right now is considering a New Year's resolution to improve their diet, this would certainly give them another reason to eat more fruits and vegetables."

Study co-author Gene Bowman of the Oregon Health and Science University added while results needed to be confirmed, "it is very exciting to think that people could potentially stop their brains from shrinking and keep them sharp by adjusting their diet."

Alcohol dependent

Alcohol dependent

Alcohol dependent? Facebook can tell it all (The Times of India: 5.10.2011)

College students' Facebook pages may hold clues as to which of them are at risk for alcohol dependence and abuse, according to a US study.

Researchers led by Megan Moreno from the University of Wisconsin-Madison found that students who had pictures or posts about getting drunk or blacking out were more likely to be at risk of drinking problems, based on a screening test. That was not necessarily the case for students who mentioned alcohol or drinking on their pages, but not in a way that showed they drank too much or in unhealthy situations.

"Results suggest that clinical criteria for problem drinking can be applied to Facebook alcohol references," Moreno and her colleagues said.

They added that it was possible that Facebook pages could help schools find out who needs to be assessed for alcohol-related problems —although privacy and ethical concerns might make that complicated. Moreno led a team of researchers from her university and the University of Washington in Seattle who surveyed the Facebook pages of 224 undergraduates.

'Drunkorexia'

'Drunkorexia' may cause long-term health problems in teens (New Kerala: 19.10.2011)

The combination of disordered eating and heavy alcohol consumption dubbed as "drunkorexia" by the media may lead to long-term health problems among teens and college students, according to a new study from the University of Missouri.

Researchers found that 16 percent of those surveyed reported restricting calories to "save them" for drinking.

Of the respondents, about three times as many women reported engaging in the behaviour than men.

Motivations for “drunkorexia” include preventing weight gain, getting intoxicated faster and saving money that would be spent on food to buy alcohol.

According to Victoria Osborne, assistant professor of social work and public health, “drunkorexia” can have dangerous cognitive, behavioural and physical consequences. It also puts people at risk for developing more serious eating disorders or addiction problems.

“Apart from each other, depriving the brain of adequate nutrition and consuming large amounts of alcohol can be dangerous,” she noted.

“Together, they can cause short- and long-term cognitive problems including difficulty concentrating, studying and making decisions,” she added.

People who participate in disordered eating combined with binge drinking are also more at risk for violence, risky sexual behaviour, alcohol poisoning, substance abuse and chronic diseases later in life.

Osborne said women are at higher risk for health problems related to binge drinking because they metabolise alcohol differently than men.

This means women can get sick faster and suffer damage to vital organs sooner than men might.

Hypertension Drugs

Could Hypertension Drugs Help People With Alzheimer's? (Science Daily: 19.10.2011)

Within the next 20 years it is expected the number of people with Alzheimer's disease (AD) will double from its current figure of half a million to one million. A new study has looked at whether certain types of drugs used to treat high blood pressure, also called hypertension, might have beneficial effects in reducing the number of new cases of Alzheimer's disease each year.

The team of researchers from the University of Bristol have looked at whether drugs already being used to treat hypertension, particularly ones that specifically reduce the activity of a biochemical pathway, called the renin angiotensin system, might reduce the occurrence of Alzheimer's and another common type of dementia called vascular dementia.

The study, conducted with the support from North Bristol NHS Trust and published online in the Journal of Alzheimer's Disease, stems from work by one of the team's members, Dr Patrick Kehoe. Dr Kehoe, who is a Reader in Translational Dementia Research and co-leads the Dementia Research Group at Frenchay Hospital, Bristol, is a leading authority on the possible role of the renin angiotensin system in Alzheimer's.

This pathway is very important in blood pressure regulation and, for at least a decade, links between hypertension and dementia have been known but poorly understood.

In more recent years it has been shown that certain signals produced by this pathway contribute to a number of the damaging effects often seen in the brains of people with Alzheimer's. These include memory loss, lowered blood circulation in the brain, higher levels of brain inflammation and increased levels of brain cell death due to reduced oxygen circulation.

Dr Patrick Kehoe said: "Drugs that can prevent Alzheimer's occurring at all, or delaying its onset would have a substantial benefit on the lives of future sufferers, their families, as well as an overstretched health care system.

"Current Alzheimer's drugs treat memory loss by attempting to correct chemical imbalances in the brain but these only work for a limited time. This limited treatment period is because the drugs are unable to stop the underlying mechanisms that cause the disease. Therefore the need to find new ways of stopping Alzheimer's goes on."

Dr Kehoe's research led him to experts in the study of risk factors for disease in large populations and datasets. Professors Richard Martin and Yoav Ben-Shlomo, and researcher Neil Davies in the University's School of Social and Community Medicine, used the General Practice Research Database, which holds anonymised data on approximately ten million people who attend General Practitioner surgeries around the UK. The research team made some very interesting observations in what is one of the largest studies of its kind on dementia in the UK.

The researchers found people over 60 years, who had ever taken one of two different groups of drugs that target the renin angiotensin system in the previous ten years, had a 50 per cent lower risk of developing Alzheimer's with a more modest 25 per cent reduced risk for forms of vascular dementia compared to patients on any other types of hypertension drugs. This suggests that these benefits, if truly causal, are not merely due to a blood pressure lowering effect and may involve specific biochemical alterations.

Professor Richard Martin added: "Whilst our findings are interesting, these are not conclusive findings. We now need to do the clinical trials to properly test our observations."

Dr Kehoe and colleagues are now currently in the process of trying to obtain funding to undertake this necessary further research. If found to be successful, these treatments

could be relatively quickly entered into Alzheimer's care since these drugs are already used for other conditions and are thought to have reasonably low side effect issues.

Alcohol

How alcohol damages our health (The Tribune; 19.10.2011)

The alacrity and vehemence with which drinking has been accepted in our society during the last few decades is a phenomenon which needs studying. Ninety per cent of men drink alcohol, 40-50 per cent have temporary alcohol-induced problems and 10-20 per cent of men and 3 to 10 per cent of women develop pervasive and persistent alcohol-related problems. These are figures relating to foreign countries. This is what we are trying to achieve desperately.

Dangerous behavioural effects, tolerance and dependence on alcohol constitute a slow and body mechanism-aided phenomenon. Ethanol (the stuff we drink at parties) produces changes that, with persistent and increased usage, our body gets used to and adapts accordingly. The same way as Anna's body adapts to fasting. It produces simultaneous changes in many neurotransmitters and also increases the fluidity of cell membranes. What the above statement means is that the body adapts to increased dosages of alcohol.

How does this happen? First, after two weeks of daily drinking the liver can increase the rate of alcohol metabolism by as much as 30 per cent — metabolic or pharmacokinetic tolerance. This disappears as rapidly as it develops. The second level is cellular or pharmacodynamic tolerance. This is by complex changes in brain chemistry and is known as cellular or pharmacodynamic tolerance. Third, this happens even at the same alcohol concentration level in blood. Organisms (human beings) can learn to adapt their behaviour so as to function better than expected under drug influence (behavioural tolerance).

The body systems that alcohol harms, depending on its intake, are:

Brains — Behavioural changes, blackouts, sleep latency, peripheral neuropathy (nerve damage), alcohol-induced persisting amnesic disorders, progressive unsteady stance, cognitive problems manifested by the impairment of recent and past memory, severe anxiety and hallucination.

Pancreatitis — A life threatening condition that can be caused by bingeing.

Intestines — Gastritis, bleeding and a tear (Mallory Weiss syndrome).

Liver — Hepatitis, sclerosis, cirrhosis and finally cancer.

Heart — Modest doses of alcohol can have both deleterious and beneficial effects on the heart. A maximum of one or two drinks a day over long periods may decrease the risk of cardiovascular death. Chronic heavy drinking causes hypertension, heart muscle disease and cardiomyopathy. Binging on alcohol on a holiday causes what is known as a holiday heart condition which can lead to paralysis of one side of the body.

This far and no further from what we all want to know. What is safe drinking a gentleman can do without phenomenally deleterious effects is two drinks every second day and four drinks on a particular day once in a month, considering all the known facts.

Sir Winston Churchill died on the pot at 91 years of age with nicotine and alcohol in abundance in his blood stream, after coping with dangerously high levels of stress (remember World War II) while thin, with good non-imbibing habits, target-chasing CEOs of small and big firms flood the intensive coronary care units throughout the world.

Truly strange and mysterious are the ways of life. The larger your heart, the less vagaries it faces.

Not all chemicals are bad. Without chemicals such as hydrogen and oxygen, for example, there would be no way to make water, a vital ingredient in alcohol.

The writer is a Ludhiana-based diagnostic expert.

Antibiotic

Antibiotic shows promise in silencing resistant bugs (New Kerala: 31.10.2011)

Antibiotics are still the primary mode of overcoming infections but they are becoming less and less effective against bugs causing them, new research says.

A University of Wisconsin-Milwaukee (UWM) microbiologist has argued against killing these bugs when they can be disarmed, silencing antibiotic resistance for good.

Ching-Hong Yang, associate professor of biological sciences, has developed a compound that shuts off the "valve" in a pathogen's DNA that allows it to invade and infect.

The research is so promising that two private companies are testing it with an eye towards commercialization, reports the journal Antimicrobial Agents and Chemotherapy.

"We analyzed the genomic defence pathways in plants to identify all the precursors to infection," says Yang, according to a UWM statement.

"Then we used the information to discover a group of novel small molecules that interrupt one channel in the intricate pathway system."

Yang and collaborator Xin Chen, professor of chemistry at Changzhou University in China, have tested the compound on two virulent bacteria that affect plants and one that attacks humans.

They found it effective against all three and believe the compound can be applied to treatments for plants, animals and people.

The economic costs and health threats of antibiotic resistance have become so serious that the World Health Organization this year dedicated the World Health Day to call global attention to the issue.

Alcohol Consumption

Low Levels of Alcohol Consumption Associated With Small Increased Risk of Breast Cancer, Study Finds (Science Daily: 2.11.2011)

Consumption of 3 to 6 alcoholic drinks per week is associated with a small increase in the risk of breast cancer, and consumption in both earlier and later adult life is also associated with an increased risk, according to a study in the Nov. 2 issue of JAMA.

"In many studies, higher consumption of alcohol has been associated with an increased risk of breast cancer. However, the effect of low levels of drinking as is common in the United States has not been well quantified," according to background information in the article. "In addition, the role of drinking patterns (i.e., frequency of drinking and 'binge' drinking) and consumption at different times of adult life are not well understood."

Wendy Y. Chen, M.D., M.P.H., of Brigham and Women's Hospital and Harvard Medical School, Boston, and colleagues examined the association of breast cancer with alcohol consumption during adult life, including quantity, frequency, and age at consumption. The study included 105,986 women enrolled in the Nurses' Health Study who were followed up from 1980 until 2008 with an early adult alcohol assessment and 8 updated alcohol assessments. The primary outcome the researchers measured was the risk of developing invasive breast cancer.

During the follow-up period, there were 7,690 cases of invasive breast cancer diagnosed among the study participants. Analyses of data indicated that a low level of alcohol consumption (5.0 to 9.9 grams per day, equivalent to 3-6 glasses of wine per week) was modestly but statistically significantly associated with a 15 percent increased risk of breast cancer. In addition, women who consumed at least 30 grams of alcohol daily on

average (at least 2 drinks per day) had a 51 percent increased risk of breast cancer compared with women who never consumed alcohol.

The researchers also found that when examined separately, alcohol consumption levels at ages 18 to 40 years and after age 40 years were both strongly associated with breast cancer risk. The association with drinking in early adult life still persisted even after controlling for alcohol intake after age 40 years.

Binge drinking, but not frequency of drinking, was also associated with breast cancer risk after controlling for cumulative alcohol intake.

The authors add that although the exact mechanism for the association between alcohol consumption and breast cancer is not known, one probable explanation may involve alcohol's effects on circulating estrogen levels.

"In summary, our study provides a comprehensive assessment of the relationship between alcohol intake and breast cancer risk in terms of timing, frequency, quantity, and types of alcohol in a large prospective cohort with detailed information on breast cancer risk factors," the researchers write. "Our results highlight the importance of considering lifetime exposure when evaluating the effect of alcohol, and probably other dietary factors, on the carcinogenesis process. However, an individual will need to weigh the modest risks of light to moderate alcohol use on breast cancer development against the beneficial effects on cardiovascular disease to make the best personal choice regarding alcohol consumption."

Alcohol, smoking

Alcohol, smoking may trigger fatal allergies (New Kerala: 9.11.2011)

Alcohol and tobacco can lead to life-threatening reactions including asthma attacks and anaphylaxis, and worsen existing allergy symptoms, according to experts.

"Although it's rare, allergies to alcohol can cause symptoms such as red, itchy eyes, nasal congestion, upset stomach and difficulty breathing," said allergist Sami Bahna, MD, ACAAI past president, and chief of Allergy and Immunology at Louisiana State University Medical School in Shreveport.

Reactions can be triggered by naturally occurring ingredients in beer and wine, including barley, ethanol, grapes, histamine, hops, malt, oats, tryptamine, tyramine, wheat, and yeast.

Other potential allergens may be introduced to beer and wine during processing, including egg whites, which are sometimes used as a filtering agent, and sulfites, which occur naturally in wine but also may be added as a preservative.

Dr. Bahna noted case studies of patients who experience symptoms of asthma and anaphylaxis after drinking wine or beer. He points out that wine, particularly red wine, contains chemicals called tyramines that commonly cause headache.

“Individuals can be allergic to the alcohol itself or an added ingredient, but even when people are not allergic, they may not realize that alcohol can worsen existing allergy symptoms, particularly food allergies,” he stated.

While it may seem like common sense that tobacco smoke as a strong irritant worsens asthma, it can also affect seasonal allergy sufferers, revealed Dr. Bahna.

Studies show that exposure to smoke can enhance sensitivity to airborne substances like pollen and mold spores, which wreak havoc during spring and fall allergy seasons each year.

The risks were reported at the annual scientific meeting of the American College of Allergy, Asthma and Immunology (ACAAI) in Boston, Nov. 3-8.

Alcohol

Alcohol behind alarming rate of throat, liver cancer (The ribune: 16.11.2011)

Alcohol and obesity are to be blamed for the alarming rate of throat and liver cancer in the UK as compared to anywhere else in Europe, a new study has claimed. The oesophagus is the tube that links the back of the mouth to the stomach, and around 8,000 oesophageal cancer cases are diagnosed in the UK each year and more than 7,000 die from it. According to the league table compiled by the World Cancer Research Fund, about 6.4 out of every 100,000 people develop cancer of the oesophagus in Britain each year, which is almost double the European average of 3.3.

Alcohol

Serotonin System in Women's Brains Is Damaged More Readily by Alcohol Than That in Men's Brains, Study Finds(Science Daily: 18.11.2011)

After only four years of problem drinking, a significant decrease in the function of the serotonin system in women's brains can be seen. This is the system that regulates such functions as impulse control and mood. It takes 12 years before a corresponding decrease is seen in men. This is the conclusion of multidisciplinary research carried out at the Department of Psychology and the Sahlgrenska Academy at the University of Gothenburg, Sweden.

The research group in the multidisciplinary project Gothenburg Alcohol Research Project (GARP) has studied for the first time three of the major neurotransmitter substances in the brain in a single individual. They have studied a group of women and a group of men with alcohol dependence. The results will be published in January 2012 in the journal *Alcoholism: Clinical & Experimental Research*.

"We have used what is known as neuroendocrine techniques to show that it is principally the serotonergic system in the brain that is seriously impaired by alcohol. This is the system that regulates impulse control and mood, among other functions," says Kristina Berglund, scientist at the Department of Psychology and representative for the research group.

Both men and women suffer adverse effects, but the effects arise much more rapidly in women. The results show that the function of women's serotonin system has fallen by 50% after as little as four years with problematic alcohol consumption, while it takes 12 years before the function of men's systems is halved.

"It is important to note that the damage is just as serious in men and women, but the time courses are different. We still don't know whether the serotonin system can repair itself, but there are research results showing that other damage to the brain can heal after a certain period without alcohol," says Ulf Berggren of the Sahlgrenska Academy, University of Gothenburg.

Alcohol

Alcohol Use cans spur People towards Risky Sexual Behavior (Med India: 13.12.2011)

New research has pointed out that the tendency to engage in risky sex increases with alcohol consumption and is pronounced if a person drinks a lot.

Infact, when people begin to consume alcohol and the quantity increases, the tendency to have unprotected sex also rose.

Consumption of alcohol affects decision-making negatively. Research has also shown that for every increase in blood alcohol level of 0.1 mg/ml, there was a 5% increase in the desire to have unprotected sex.

"Alcohol use is an independent risk factor for intentions to engage in unprotected sex, and as risky sex intentions have been shown to be linked to actual risk behaviour, the role of alcohol consumption in the transmission of HIV and other sexually transmitted infections may be of public health importance,"researchers said.

Alcohol

Can You Get Aggressive If You Go Overboard on Alcohol?(Med India: 22.12.2011)

Recent research holds a clue as to what the chances are of people turning aggressive when they drink excessively.

Researchers think that people who live for the day and the moment, callous about the consequences of their actions are the ones who are likely to get aggressive when they go overboard with drinks.

‘People who focus on the here and now, without thinking about the impact on the future, but the effect is magnified greatly when they're drunk. If you carefully consider the consequences of your actions, it is unlikely getting drunk is going to make you any more aggressive than you usually are. Alcohol makes you 'short-sighted' - it narrows your attention to what is important to you right now. That may be dangerous to someone who already has that tendency to ignore the future consequences of their actions and who is

placed in a hostile situation,' said Brad Bushman, lead author of the study and professor of communication and psychology at Ohio State University.

Alcohol

Alcohol Problem among Elderly People (Med India: 27.12.2011)

One in five elderly people binge on alcohol beyond recommended levels, shows study.

According to the study, one in five men and ten per cent of women over 65 were found to drink too much.

The experts said that impending arrival into old age of the "baby boomer" generation, who have tended to drink more heavily than previous generations, is expected to dramatically increase the problem, the Telegraph reported.

While a lot of attention is given to the drinking problems among young people, the elderly are most at risk as they have more time on their hands, may be lonely and often have plenty of disposable income.

Older people are also more likely to face conditions, which ought to prevent them from drinking in the first place, like diabetes or high blood pressure, or to be using medications, which should not be mixed with alcohol.

"There is no reason why people can't drink in old age but for some people, in particular those over 75, the body really finds it hard to metabolise alcohol," Dr Sarah Wadd, who led the study for Alcohol Research UK, said.

"The biggest problem we face is that drinking problems are harder to spot in older people."

"We think they are less likely to come forward to ask for help due to the shame or feeling it is not appropriate for them to have an alcohol problem in old age, and GPs and social workers are less likely to ask older people about alcohol because they tend to feel very uncomfortable about it," Wadd added.

Arthritis

Jab

Soon, a jab that can help grow a new knee (The Times of India: 5.10.2011)

It Will Help Arthritis Patients Avoid Replacement Surgeries

A jab that will let arthritis sufferers grow a new knee or hip joints, say British scientists.

A team, led by Newcastle University, claims the injection will “revolutionize” the treatment of osteoarthritis, the most common form of the condition — in fact, given in a person’s 40s or 50s, just as arthritis begins, the jab could remove the need for hip or knee replacements in some cases.

Andrew McCaskie at Newcastle University said, “Every patient has their own ‘repair kit’. Whereas joint replacement uses metal and plastic to replace the severely damaged joint, we’re trying to treat at an earlier stage and assist the body to repair itself.”

Arthritis is caused by wear and tear of cartilage that helps our joints take the strain of bending, lifting, gripping and kneeling. With no cure, painkillers and physiotherapy are the main forms of treatment. Joint replacement surgery can help, but it is a complicated and not successful in all cases.

The new technique, which could be in use within five years, will harness the power of stem cells — “master cells” that can turn into other cell types —in patients who are still in their prime.

The scientists are working out how to regrow enough cartilage for an entire joint. And, in future, someone whose cartilage is wearing away could go to hospital to have a sample of stem cells drawn from their bone marrow or muscle.

The cells would then be fed a cocktail of vitamins and chemicals that trick them into becoming cartilage cells.

These would be injected into the patient’s joint on a second visit to shore up the ailing knee or hip, they say.

Another possibility being investigated is “switching on” a person’s stem cells when they are still inside their joints, so they can be turned into cartilage without leaving the body.

Alan Silman, medical director of Arthritis Research UK, also involved in the research, said that the ease of the technique should make it possible to treat people while they were still relatively young.

Ankle injuries

Ankle injuries: Time is of the essence (The Tribune: 5.10.2011)

Ankle joint is an extremely common joint to be afflicted by injuries and the most common form is sprain.

Anatomically, various ligaments that are stretched or torn surround the ankle joint when ankle is forced to land in varied unnatural positions. Ankle sprain ranges in severity from grade-I to grade-III depending on the extent of injury to the ligaments, which may range from partial tear to complete tear with symptoms of the ankle swelling and discoloration (due to the accumulation of blood and fluid).

Prolonged immobilisation, improper rehabilitation, returning to activity without proper healing may result in instability vis-à-vis a balance deficit that increases the risk of re-injury.

Individuals, when not treated adequately, experience a feeling of “giving away” of the ankle. On an uneven surface, while climbing stairs, such individuals are good candidates for recurrent ankle sprain. Recurrence causes chronic ankle laxity that is manifested as follows:

Pain or soreness.

Recurrent swelling.

Loosening of ankle.

General disability — locking or giving away.

Treatment at the initial stage aims to reduce post-injury swelling, bleeding and pain, especially during the first 24 hours.

Protection of ankle during the initial healing phase is extremely important. Ankle support, crepe bandage and in severe cases leg cast is applied. In some cases, crutches are used until pain-free weight bearing is achieved.

In the next stage, the priority is to increase motion and strength that help in facilitating circulation and inhibit swelling.

Start with upward/ downward movement of the ankle, progressing to inward/ outward movement of the ankle up to the point of pain.

Walking on toes/heels improves the strength of the muscles supporting the ankle joint.

Balance exercises: While standing, raise one foot off the floor and balance on the other foot with the arms raised at the shoulder level for a count of 10. Increase the count gradually to 20. Start this exercise with your eyes open and later on close the eyes also.

Wobble board exercises: When the patient achieves full weight bearing without pain, exercises are started for the recovery of balance and postural control on a wobble board. The patient is instructed to stand on the board on both feet and maintain the balance.

Once pain-free motion is attained, strengthening exercises are advised with a stretch band. Sitting on the floor/ chair, looping a band over one's foot with the heel on the floor ankle is moved outwards/ inward, upward and downward.

Patients can be declared fit to return to normal activity only during the following conditions:

When there is a full range of motion of the ankle.

Ability to walk without a limp.

Pain-free hopping possible on the affected limb.

If ankle pain is managed properly and well in time, the incidence of chronic pain can be effectively reduced.

Arthritis

Suffering from arthritis? 'Move to improve (The Tribune; 12.10.2011)

Today one in five adults suffers from arthritis. Beyond the human pain, the disease also carries a high economic tag. The good news is that arthritis is not inevitable or untreatable. Relief is available for many forms of arthritis. Apart from specific treatments, a person afflicted with arthritis needs to follow self-help strategies to manage the disease better in coordination with the healthcare provider. Dr Christian Bernard, the

famous cardiovascular surgeon who performed the first successful human heart transplant operation, himself suffered from arthritis. He once said, "Control your arthritis, do not let it control you." Physical activity is a key self-management strategy for persons with arthritis.

"Move To Improve" is the theme for World Arthritis Day-2011 which falls on October 12. Being physically active is good for general health and can have specific benefits for people with rheumatic or musculo-skeletal disease (RMDs), such as helping to keep our joints mobile. The most appropriate form of activity will depend on a number of factors, including the type of RMD you have, which joints are affected, the level of joint damage, etc. This is why it is important to consult your doctor about the type of exercise you need therapeutically, as well as the type of activities you enjoy doing to keep you healthy.

The common factor for most people with arthritis is the pain it can cause and this can be a major reason why they feel put off exercising, but regular and appropriate exercise can have enormous benefits. An appropriate exercise programme can reduce joint pain and stiffness, strengthen the muscles affecting the arthritic joint and improve the flexibility and joint mobility apart from other benefits like weight reduction and improvement in cardio-respiratory functions. It also helps promote overall health and fitness by giving you more energy, helping you sleep better, controlling your weight, decreasing depression, and giving you more self-esteem. Furthermore, exercise can help stave off other health problems such as osteoporosis and heart disease.

So, it's obviously a no-brainer. You've got to move. But sometimes it's not so easy to get started. The important thing to remember is to start slow and make it fun. It is always good to start with flexibility exercises, which are basically stretching exercises that will improve your range of motion and help you perform daily activities. Once you feel comfortable, you can move on to weight training and endurance exercises such as bicycling.

Level of exercise

What will be a hard or difficult form of exercise for one person may be much easier for someone else. For example, walking, cycling or swimming at a gentle pace (low intensity) might have an aerobic effect (increase your heart rate and breathing) for some people, while others would need to exercise at a moderate-to-high intensity to experience the same effect. This will depend on a number of factors such as your age, your general state of health, disease progression and how regularly you have been exercising. Choose a level of exercise that works for you.

Starting out

Always begin gently and build up slowly over time. It is better to do little and often than to try and overdo things and to push yourself too hard when you start exercising. If you do need to stop exercising for any reason, always start again gently and build up slowly.

When you reach your required level of function, you will need to keep up regular activities to maintain this level.

How much exercise

When you repeat activities regularly your body will adapt to the new situation over time and you will find that you can do more with less effort. Regular exercise can also help slow or prevent the loss of function due to disease progression. Ideally, you should try and do some stretching/flexibility exercises every day, muscle strengthening and endurance exercises two to three times a week and some form of aerobic exercise for 20 minutes three times a week. Luckily, different types of exercises can be combined in one programme!

The key is to find things you enjoy doing so that being active is something you look forward to and this becomes part of your daily life.

How to choose the best exercise programme

A comprehensive exercise programme for a person with arthritis includes flexibility, strengthening and aerobic activities. The content and progression of the programme depends upon individual needs and capabilities. Persons with long-standing or severe disease or multiple joint involvement should undertake exercises in collaboration with a healthcare team. The most successful exercise programmes begin with the knowledge and support of people like rheumatologists, who are experienced with both arthritis and exercise.

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Did you know?

The word 'fit' comes from the following:

Frequency – how regularly you exercise

Intensity – how hard you exercise

Time – how long you exercise

Now the word fitness is used to describe health and the ability to meet the demands of a physical task.

Joint woes can crop up early

Children and People of 35-40 yrs Falling Prey to Arthritis (The Times of India: 12.10.2011)

It was supposed to be a condition affecting the elderly. But not anymore. Arthritis can strike early, said doctors.

According to orthopaedic surgeons and rheumatologists, sedentary lifestyle and high prevalence of obesity have contributed to an increase in the number of patients suffering from osteoarthritis, a degenerative disease where cartilage of the joints wears out. People as young as 35 years are being diagnosed with the disease with many of them having to undergo joint replacement surgeries, doctors said. World Arthritis Day will be observed on Wednesday. The doctors said there was need for raising awareness about the disease so that patients can approach them on time. They said those unaffected should maintain a healthy lifestyle to keep the disease at bay.

According to Dr P K Dave, head of orthopedic department, Rockland Hospital, osteoarthritis usually affects the elderly — those above 60 years. “These days, we are seeing cases where patients in the age-group of 35-40 years suffer from joint problems. Joint replacement surgeries have to be carried out in some of the patients,” he said. “Those having a sedentary lifestyle have weak muscles resulting in the pressure of the body centering on the joints. This causes early depletion of cartilage. Other risk factors in the young include injury and genetic predisposition,” said Dr Anmol Maria, consultant orthopedic surgeon at Rockland Hospital.

Dr Uma Kumar, professor of medicine and head of clinical immunology and rheumatology division at AIIMS, said, “Osteoarthritis is a degenerative disease which is age-related and caused due to sedentary lifestyle. It is being reported early these days. A number of young patients also suffer from disorders like rheumatoid arthritis, ankylosing spondylitis and juvenile idiopathic arthritis. Delay in diagnosis makes the body part inactive.”

She said patients suffering from arthritis go to orthopaedics, however, it is a rheumatic disease for which a rheumatologist should be consulted. Kumar said replacement surgeries should be the last resort because most the cases can be managed by lifestyle changes and medicines. AIIMS organized a patient awareness programme on Tuesday in which many people suffering from the disease participated. The common symptoms of arthritis are redness of the skin around joints, stiffness, warmth around joints, vision loss, fever and rashes among others, doctors said. Almost 80% cases are treatable with timely medical intervention and lifestyle changes. Smoking and consuming alcohol must be avoided,” said Kumar.

CREAKING JOINTS

What is Arthritis | It is inflammation of one or more joints

Symptoms |

Pain and swelling in joints, redness of skin around joint, stiffness, especially in morning, warmth around a joint

How arthritis hurts |

Two types of arthritis damage joints in different ways:

Osteoarthritis |

Wear-and-tear of cartilage results in bone grinding on bone. This causes pain and restricts movement. Wear and tear can occur over many years, but hastened by injury or infection

Rheumatoid arthritis |

Immune system attacks joints causing swelling, redness and pain. Can eventually destroy cartilage and bone

Risk Factors

More likely to develop arthritis if parents or siblings have the disease

Risk increases with age of the person

Women prone to rheumatoid arthritis, men vulnerable to gout

Old, nagging injury in a joint likely to develop into arthritis

Excess flab puts stress on knees, hips and spine. Obese at greater risk of developing arthritis. Smoking and drinking aggravates it

Treatment |

No cure for disease. Treatment mostly symptomatic and includes medicines to reduce pain, improve function and prevent further damage

Lifestyle changes can help

Low-impact aerobic activity Range of motion exercises for flexibility Strength training for muscle tone Weight loss can alleviate joint pain

Arthritis

Living with rheumatoid arthritis (The Tribune: 13.10.2011)

In India, there is poor awareness about the disease and treatment options available. Not only that, there is also dearth of trained rheumatologists
Dr Shefali Khanna Sharma

Over seven million people in India suffer from rheumatoid arthritis (RA) and yet its diagnosis and treatment rates are low. With a prevalence of 0.5 per cent to 0.75 per cent, RA is a serious autoimmune disease that has debilitating and devastating impact on the quality of a patient's life, often causing extreme fatigue, severe pain that worsens over time and irreversible physical deformities. Inadequate awareness among the patients, caregivers and even general practitioners and orthopaedicians results in prolonged symptomatic treatment, increasing incidence of morbidity and mortality.

What is rheumatoid arthritis?

Rheumatoid arthritis is an inflammatory disease, a form of chronic arthritis mainly affecting joints and tendons. An inflamed joint looks swollen and red, and appears warm to the touch. The disease usually starts in the wrists, hands or feet, and can spread to other joints and other parts of the body, if untreated it can lead to deformities that affect the quality of life. Not only this, it could also lead to premature atherosclerosis and heart attacks and affect other organs like lungs, abdominal organ and kidneys. RA is one of the most common chronic inflammatory arthritis that causes disability.

A positive outlook on the part of the patient as well as the doctor helps in coping with the difficulties in the treatment of RA. In India, there is poor awareness about the disease and treatment options available along with a dearth of trained rheumatologists. Preliminary treatment is most often symptomatic relief for joint pain and swelling, reducing chances of appropriate treatment for arresting the disease and slowing down its progression by a rheumatologist, this approach needs to change. Early detection and right medicines now make the dream of a pain-free life possible for patients with RA.

RA has Female: Male ratio of 3:1 and most of the females in India do not get proper diagnosis and treatment. People of any age can develop it, but it is most common between the ages of 30 and 50 years, and among women. Usually, inflammation is the body's way of healing, in rheumatoid arthritis; however, the immune system starts to attack the body instead of defending it. The immune system contains a complex organisation of cells and antibodies designed normally to "seek and destroy" invaders of

the body, particularly infections. Patients with autoimmune diseases have antibodies in their blood that target their own body tissues, where they can be associated with inflammation.

Systemic illness

Because it can affect multiple other organs of the body, rheumatoid arthritis is referred to as a systemic illness and is sometimes called rheumatoid disease. The inflammation affects:

Thin synovial membrane lining the joint capsule

Tendon sheaths (tubes in which the tendons move)

Bursae (sacs of fluid that allow the muscles and tendons to move smoothly over each other)

There is also a systemic inflammation throughout the body producing excessive fatigue and stiffness in the morning. Studies have shown there are certain genes that make one susceptible to the disease. RA however does not run in the family according to experts.

It is true that the exact cause of the disease is not known but many symptoms are due to excess antibodies produced by cells populating the synovium which are involved in the immune function of the body. These cytokinins facilitate the release of powerful enzymes that destroy the synovial lining and bone of the joints.

Diagnosis

The diagnosis of patients with established RA is generally difficult as it is based upon symmetrical polyarthritis characteristically involving small joints of the hands with/without deformities, subcutaneous nodules, radiological changes (cartilage loss, juxtrarticular osteopenia, erosions) and the presence of rheumatoid factor. The diagnosis is predominantly clinical and is supported by imaging and laboratory investigations.

Typical onset of the disease is anywhere between age 20 and 45. RA can affect any joint throughout the body but is most often seen in joints in the hands (wrist joints and the finger joints closest to the hands). It can also affect other parts of the body. Any joint damage done by the disease is permanent, therefore early detection and drug treatment is essential to minimize or even prevent any permanent joint damage. RA can be a little difficult to diagnose as it begins with only subtle symptoms such as achy joints or a little stiffness in the morning. There is no single confirmatory test which diagnoses early RA with 100 per cent certainty. Instead the diagnosis is based on a variety of factors as mentioned above.

Not all symptoms are present in people with early RA and these problems may be present in some people with other rheumatic conditions as well. RA independently increases the mortality and other complications. RA is considered as malignant disease with poor prognosis and increased mortality. Life expectancy is reduced by 3-10 years in RA depending on age of onset and severity of symptoms.

RA is associated with serious co-morbid conditions like infections, cardiovascular complications, respiratory disorders etc. Rate for work disability in RA is almost 40 per cent after 10 years of disease onset. Today, doctors believe there's an early window of opportunity as little as 3 -4 months to treat rheumatoid arthritis before the onset of irreparable joint damage. Studies show that taking action quickly may even put the disease into remission.

Treatment

Education and counseling: Successful management of patients with RA depends upon empowering the patients with the knowledge about the chronic and fluctuating course of the disease, side effects and costs of the drugs and the rigorous and continuous need of physiotherapy. The communication depends upon the patient's educational and social background and may require several sessions. More the time spent in counseling, more the chances that patient comes to terms with the chronic nature of the disease and adheres to treatment.

Patients are likely to follow up with the same doctor/hospital if they have been counseled well. Patient's anxiety regarding various diets, climatic conditions and other personal habits should be addressed. Smokers should discontinue smoking as it adversely affects the course of the disease and alcohol intake should be restricted in view of the hepatotoxicity of drugs used in RA.

The positive aspect of therapy has to be spelt out that patients with drug therapy can hope to live a better quality of life. The goals of treatment are to relieve pain and swelling of the joints so that cartilage and bone loss are minimised with improvement in functional quality of life. In terms of disease activity, the aim would be monitoring for side effects of drugs. This is to be done by judicious use of DMARDs (Disease Modifying Anti-Rheumatic Drugs).

Therapy is to be individualized in each patient to ensure sustained tight control of inflammation for better long-term outcome. At a given time, depending upon the disease burden, a particular patient will have features of both disease activity and damage (the later accruing with progress of time). Drug therapy will help to resolve activity while rehabilitation including surgery is required to restore functionality.

Multidisciplinary approach

Drug therapy is advised by the internists/rheumatologists, physiotherapy and rehabilitation by trained physiatrists and surgical care by the orthopedic surgeons when necessary.

Pharmacotherapy of RA consists of the following:

Anti-inflammatory drugs: Non-steroidal anti-inflammatory Drugs (NSAIDs) reduce both pain and inflammation. These include ibuprofen, diclofenac and nimesulide.

Steroids are the most potent anti-inflammatory drugs. They should be used judiciously by a physician as they have long term side effects.

Conventional disease modifying anti rheumatoid drugs (DMARDs): Methotrexate is the 'anchor' drug that should be used first in patients at risk of developing persistent disease. Others include sulfasalazine, leflunomide and hydroxychloroquin.

Biologicals: DMARDs are anti-TNF, Tocilizumab, Abatacept, and Rituximab. The newer category of drugs is agents which block the key mediators of inflammatory response. These drugs have dramatically improved the outcome of the disease and will contribute to the future improvements in the management of RA, thus preventing long term disabilities with the disease. At the present time, these drugs are expensive and can be afforded by a minority of patients.

Symptoms

Morning stiffness that lasts at least an hour and is experienced for at least six weeks.

Swelling in three or more joints for at least six weeks.

Swelling of the wrist, hand, or finger joints for at least six weeks.

Swelling of the same joints on both sides of the body.

Changes in hand X - rays that are characteristic of rheumatoid arthritis.

Rheumatoid nodules on the skin.

Blood positive for rheumatoid factor and/or anti- citrullinated peptide/protein antibodies.

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Orthopedic surgery

New technology launched in orthopaedic surgery (WorldNewspapers: 3.11.2011)

Nigdi-based Lokmanya Hospital on Monday announced the launch of a new technology for computer guided assistance in orthopaedic surgery.

The machine called orthopilot is an advanced technology for navigation in orthopaedic surgery that guides the surgeon to make precise cuts in the knee and remove the deformities, claimed joint replacement surgeon Dr Narendra Vaidya.

“It helps eliminate human errors in the surgery and is nearly 100% accurate in fixing artificial implants. Orthopilot uses infrared camera and sophisticated software to provide real time information during the surgery which is specific to patients. This helps in

eliminating expensive and radiation intensive CT and MRI scans before the surgery,’’ he added.

The technology is used extensively in United States of America and Europe for joint replacement surgery as it claims to have high level of accuracy.

Speaking about the benefits of using the technology, doctors claimed that it helped to increase the life of implants and less blood was lost during the surgery. They claimed that patients can be discharged in one week after the surgery and that patients even comfortably fold their legs and sit cross legged after the surgery due to better high flex design.

Arthritis

Soon, jab made from 'tummy fat' cells could halt arthritis (New Kerala: 14.11.2011)

Dutch and French researchers have revealed that a revolutionary jab made from stem cells found in tummy fat could soon stop osteoarthritis in its tracks.

The breakthrough provides hope for millions of people who suffer from the incurable condition and could potentially save thousands from needing joint replacement surgery, the Daily Mail reported.

The researchers found that injecting stem cells harvested from a patient's own waistline protects joints against crippling damage.

The therapy works by stopping destruction of cartilage and by protecting ligaments.

Researchers at Radboud University in the Netherlands, and the National Institute of Health and Medical Research in France, injected adipose stem cells into the joints of mice with arthritic knees.

Some mice received the jab seven days after osteoarthritis first set in, others 14 days after – which would translate into a few weeks or months in humans.

When it was given sooner, the jab cut destruction of cartilage by 54 per cent compared with those injected with a dummy jab. After six weeks, they had half the amount of ligament damage.

The jab also slowed a process called synovial activation, where the soft membrane around the joint becomes inflamed, in some cases by as much as 30 per cent.

Meanwhile, Robert Moots, professor of rheumatology at the University of Liverpool, warned it was not yet certain how stem cells will behave in human joints.

But he added: "It is the strongest clue yet that stem cell treatments could make a big difference."

The study has been revealed at the American College of Rheumatology in Chicago.

Intensive diabetes

Intensive diabetes treatment halves long-term risk of kidney disease (New Kerala: 14.11.2011)

A new study has found that using intensive therapy to control blood glucose early in the course of type 1 diabetes halves the risk of developing kidney disease later in life.

The Diabetes Control and Complications Trial (DCCT) and Epidemiology of Diabetes Interventions and Complications (EDIC) Research Group said that compared to conventional therapy, near-normal control of blood glucose beginning soon after diagnosis of type 1 diabetes and continuing an average six and a half years reduced by half the long-term risk of developing kidney disease,

The risk of kidney failure was also halved, but the difference was not statistically significant, perhaps due to the relatively small total number of patients who reached that stage of the disease.

Participants entered the DCCT on average six years after onset of diabetes when complications of diabetes were absent or very mild. Half aimed for near-normal glucose control (intensive therapy) and the others received what was then standard glucose control.

After an average 22-year follow-up, 24 in the intensive group developed significantly reduced kidney function and 8 progressed to kidney failure requiring dialysis or transplantation. On conventional therapy, 46 developed kidney disease, with kidney failure in 16.

"Achieving near-normal glucose levels in type 1 diabetes can be challenging. But our study provides strong evidence that reinforces the benefits of reaching the goal as early as possible to slow or prevent kidney disease and other complications," said first author Ian H. de Boer, M.D., a kidney specialist at the University of Washington, Seattle.

The finding was published online in the New England Journal of Medicine Nov. 12 to coincide with presentation at a scientific meeting.

Osteoarthritis

Osteoarthritis may be treated Via Implantable Replacement Cartilage (med India: 7.12.2011)

A new study says that using body's own cells to engineer cartilage replacement shows promise to heal knees, shoulders, ears and noses damaged by osteoarthritis, sports injuries and accidents.

Self-assembling sheets of mesenchymal stem cells permeated with tiny beads filled with growth factor formed thicker, stiffer cartilage than previous tissue engineering methods, researchers at Case Western Reserve University have found.

"We think that the capacity to drive cartilage formation using the patient's own stem cells and the potential to use this approach without lengthy culture time prior to implantation makes this technology attractive," said Eben Alsberg, senior author of the paper.

Alsberg and his team put transforming growth factor beta-1 in biodegradable gelatin microspheres distributed throughout the sheet of stem cells rather than soak the sheet in growth factor.

Alsberg said that the process showed a host of advantages.

The microspheres provide structure, similar to scaffolds, creating space between cells that is maintained after the beads degrade. The spacing results in better water retention - a key to resiliency.

The gelatin beads degrade at a controllable rate due to exposure to chemicals released by the cells. As the beads degrade, growth factor is released to cells at the interior and exterior of the sheet, providing more uniform cell differentiation into neocartilage.

The rate of microsphere degradation and, therefore, cell differentiation, can be tailored by the degree to which the microsphere are cross-linked. Within the microspheres, the polymer is connected by a varying number of threads. The more of these connections, or cross-links, the longer it takes for enzymes the cell secretes to enter and break down the material.

The researchers made five kinds of sheets. Those filled with: sparsely cross-linked microspheres containing growth factor, highly cross-linked microspheres containing growth factor, sparsely cross-linked microspheres with no growth factor, highly cross-linked microspheres with no growth factor, and a control with no microspheres. The last three were grown in baths containing growth factor.

After three weeks in a petri dish, all sheets containing microspheres were thicker and more resilient than the control sheet. The sheet with sparsely crosslinked microspheres grew into the thickest and most resilient neocartilage.

The results indicate that the sparsely cross-linked microspheres, which degraded more rapidly by cell-secreted enzymes, provided a continuous supply of growth factor throughout the sheets that enhanced the uniformity, extent, and rate of stem cell differentiation into cartilage cells, or chondrocytes.

The tissue appeared grossly similar to articular cartilage, the tough cartilage found in the knee: rounded cells surrounded by large amounts of a matrix containing glycosaminoglycans. Called GAG for short, the carbohydrate locks water ions in the tissue, which makes the tissue pressure-resistant.

One major advantage of this system is that it may avoid the troubles and expense of growing the cartilage fully in the lab over a long period of time, and instead permit implantation of a cartilage sheet into a patient more rapidly.

The research has been published in the Journal of Controlled Release.

Chronic arthritis

New lease of life for chronic arthritis patient (The Hindu: 7.12.2011)

Doctors at Apollo Hospital here have successfully operated upon a 32-year-old woman for multiple joint replacements after she was admitted this past month with a history of multiple joints pain in hips, elbows, wrists and fingers.

“Severe pain and joint stiffness had crippled her mobility and disabled her from performing daily activities for the past many years. But after the operation she is much better. The patient had juvenile chronic arthritis which is equivalent to rheumatoid arthritis in adults. It is a very uncommon disease for young patients, which if not diagnosed and treated in time leads to severe disability in individuals,” said the hospital's senior consultant orthopaedics and joint replacement surgeon Dr. Raju Vaishya.

Speaking about her condition before the medical intervention, the patient said: “I had pain and disability which I was battling for the past four years. My deformities did not allow me to sit, walk or even sleep on my back and my life had become very difficult.”

She underwent four joint replacements in the past three weeks including both hip replacements (in a single sitting) and both elbow replacements, which is rarely done in India. Post operations, she has started walking with a frame and has also been doing the

physiotherapy exercise of the elbow and hip joints to gain the mobility of these joints. However, she is still to go for surgeries for her wrists, fingers and knees joint involvements.

“Multiple major joint replacement surgery in a patient is rarely done and that too in a young individual. In this patient, both of her elbows were replaced with gratifying results. It was a challenge to perform both hip replacements in a single stage due to complexities and huge surgical experience required. Nevertheless both hips were replaced in a single sitting, making it a unique surgery that was also patient friendly,” said Dr. Vaishya.

“Patients affected with juvenile chronic arthritis having disability of multiple major joints show better results by joint replacement surgery. It may give a new lease to their life,” added Dr. Vaishya.

Slipped discs

Researchers eye the ‘silk route’ to treat slipped discs (The Financial Express: 13.12.2011)

What has silk got to do with a slipped disc? Early-stage research at the Indian Institute of Technology-Delhi (IITD) potentially points to a key role for the shiny protein fibre in the attempt to find a solution to the painful vertebral injury that affects millions across the globe.

Silk fibres are being researched for various tissue engineering techniques like developing a ligament but the IITD study is the first to use them as a scaffold to replicate the anatomical alignment of cells in the outer part of a inter-vertebral disc (IVD) tissue.

A slipped disc condition refers to the degeneration of an IVD tissue, the tissues found between each vertebra of the spine that give it the flexibility to bend and turn in different directions. As people age, the water-rich cartilage that forms the core of an IVD dehydrates and becomes rigid, pushing out the surrounding fibrous tissue called the annulus fibrosis (AF). The AF, in turn, puts pressure on surrounding nerves, causing pain.

In a paper published by India’s National Academy of Sciences, scientists at the IITD’s textile technology department demonstrated that a tissue-engineered IVD constructed using silk fibre and nasal chondrocyte (cartilage from the nose) cultures was as strong as an IVD from a goat while still being flexible enough.

Replacing a degenerated IVD with a ceramic disc is the common medical treatment for the condition, but the rigid structure could transfer the load to neighbouring discs, says IITD assistant professor Sourabh Ghosh, who specialises in tissue engineering. Attempts

have been made by scientists to regenerate AF tissues using scaffolds made of other material but they do not simulate the fibre alignment accurately, he says.

“For IVD, this is probably the first report in which we are orienting the silk-fibre alignment in different layers in criss-cross pattern simulating anatomical orientation,” says Ghosh. “For this particular tissue we need very high elastic property and flexibility. Silk has wonderful mechanical strength compared to many other polymers, so we thought it would be an ideal candidate.”

In the paper, by lead author Maumita Bhattacharjee, the researchers demonstrated the construction of an IVD by culturing the hydrogel and then surrounding it with a few layers of silk fibre using a special winding machine that replicate the alignment of the AF. They then used human nasal cartilage, obtained from donors, to develop the disc scaffold.

Their silk-fibre alignment helped the cells attach and grow along the specific direction necessary to replicate the tissues. The strength of the IVD satisfactorily matched that of a disc from a goat that was freshly obtained from a local slaughterhouse, says Ghosh. But he points out that a goat's disc cannot be directly compared with a human spine, which is vertical and also because each IVD has a different dimension.

In a second paper that has been submitted for publication, the team has reported that they were able to modify the surface chemistry of the silk scaffolds, by attaching bioactive molecules to produce type-II collagen and aggrecan, the proteins that make up the robust cartilage tissues, like in the IVD.

Ghosh says the next step would be to apply for permission to conduct animal trials, before which they will have to prove that the IVD is compatible to immune cells. “We are planning to start some experiments from January in Switzerland. First we have to prove that our IVD is absolutely bio-comfortable and it should not activate any immune cells,” he says. The project is funded by the department of science and technology and the Indian Council of Medical Research.

Silk fibres have been widely tested for engineering tissues such as blood vessels, articular cartilage, meniscal tissue and bone because of its excellent bio-compatibility and mechanical properties, says Deepa Ghosh, group head of the tissue engineering department at Reliance Life Sciences. “Due to its high thermal stability, silk biomaterials have the unique property to allow its processing over a wide range of temperatures up to about 250°C without the loss of functional integrity.”

Regenerative medicine includes various technologies involving tissue-specific cells (somatic cells), stem cells and tissue-engineered products aimed at treating many diseases that result from the damage of terminally differentiated cells. “Perhaps the most potential application of this technology is to treat diseases such as Alzheimer, bone and spinal cord injury, stroke, heart diseases, diabetes, osteoarthritis and rheumatoid arthritis,” says Deepa Ghosh, adding that donated organs and tissues are often used to replace ailing or

destroyed tissues but the need far outweighs the supply. “Researchers are trying to create organs such as urinary bladder and liver in the lab with the hope that one day these would do away with the need for organ donors.”

Tissue engineering essentially means using a stem cell or a somatic cell together with a bio-degradable scaffold, which, being a three-dimensional structure, helps the cell better produce the extra-cellular matrix, says Anish Sen Majumdar, chief scientific officer at Stempeutics, a Bangalore-based stem cell research company.

“Extensive research is currently going on throughout the world to understand which particular cell... either stem cell or embryonic stem cell or mesenchymal stem cell or some cells that are not stem cells but differentiated cells... would be best for what treatment,” says Majumdar. “We are trying to figure out that what cells, along with what scaffold would be the best application for a particular disease.”

Knee pain

63pc women complain of knee pain (New Kerala: 20.12.2011)

More than half of middle-aged and mature women suffer from knee pain, a new study has revealed.

It found that 63per cent of women age 50 and older reported persistent, incident, or intermittent knee pain during a 12-year study period.

Predictors for persistent pain included higher body mass index (BMI), previous knee injury, and radiographic osteoarthritis (OA).

“Our study is the first community-based investigation of knee pain patterns using multiple assessment points over a 12-year period,” said lead author Nigel Arden, MSc, MD, a Professor of Rheumatology at the University of Oxford in the UK.

“Understanding the prevalence and predictors of knee pain is the first step in developing comprehensive pain assessment plans that could lead to more targeted treatment options for those burdened by OA,” he noted.

More than 1,000 women between the ages of 44 and 57 years (median age of 52 years) participated in the study.

At the end of the 12-year study, data relating to self-reported knee pain was analysed and used to classify the 489 remaining participants into four pain groups—asymptomatic, persistent, incident, and intermittent.

The team found a prevalence of 44 percent for “any days of pain” and 23 percent for “pain on most days of the previous month” in the cohort at the end of the study period.

Of those experiencing “any pain” versus “pain on most days,” 9 percent and 2 percent had persistent pain; 24 percent and 16 percent had incident pain; and 29 percent and 18 percent had intermittent pain, respectively.

Researchers determined that a higher BMI predicted persistent and incident pain patterns, while radiographic OA was a predictor of persistent pain. Those reporting knee injury were likely to have persistent or intermittent pain patterns.

The findings of the study appeared in *Arthritis and Rheumatism*, a journal published by Wiley-Blackwell on behalf of the American College of Rheumatology (ACR).

Arthritis

Elite athletes at greater risk of arthritis: Study (The Times of India: 20.12.2011)

Elite male athletes who participate in high-contact sports such as football, soccer and rugby have a higher risk of developing knee and hip osteoarthritis than men who exercise little or not at all, a Swedish study found.

There was a doubled risk in soccer and handball players, and a tripled risk in ice hockey players, added the researchers. Osteoarthritis, also called ‘wear and tear’ arthritis, occurs when the cartilage cushioning the joints wears down. It allows bones to rub together, which can cause pain and swelling. “Hip and knee osteoarthritis ... are more commonly found in former male elite athletes,” wrote Magnus Tveit at Lund University in Sweden.

“A previous knee injury is associated with knee osteoarthritis in former impact athletes but not in nonimpact athletes.”

Bio-Medical Science

Hormone

Hormone Fights Fat with Fat: Orexin Prevents Obesity in Mice by Activating Calorie-Burning Brown Fat (5.10.2011)

The fat we typically think of as body fat is called white fat. But there's another type -- known as brown fat -- that does more than just store fat. It burns fat. Scientists used to think that brown fat disappeared after infancy, but recent advances in imaging technology led to its rediscovery in adult humans. Because brown fat is so full of blood vessels and mitochondria -- that's what makes it brown -- it's very good at converting calories into energy, a process that malfunctions in obesity.

In a study published Oct. 5 in *Cell Metabolism*, researchers at Sanford-Burnham Medical Research Institute (Sanford-Burnham) discovered that orexin, a hormone produced in the brain, activates calorie-burning brown fat in mice. Orexin deficiency is associated with obesity, suggesting that orexin supplementation could provide a new therapeutic approach for the treatment of obesity and other metabolic disorders. Most current weight loss drugs are aimed at reducing a person's appetite. An orexin-based therapy would represent a new class of fat-fighting drugs -- one that focuses on peripheral fat-burning tissue rather than the brain's appetite control center.

"Our study provides a possible reason why some people are overweight or obese despite the fact that they don't overeat -- they might lack the orexin necessary to activate brown fat and increase energy expenditure," explained Devanjan Sikder, D.V.M, Ph.D., senior author of the study and assistant professor in Sanford-Burnham's Diabetes and Obesity Research Center, located in Orlando's Medical City at Lake Nona.

Since the best way to determine something's function is to see what happens when it's missing, Dr. Sikder's team, which included postdoctoral researchers Dyan Sellayah, Ph.D. and Preeti Bharaj, Ph.D., looked at mice genetically engineered to lack orexin. These mice weighed more than their normal counterparts, but they actually ate less, suggesting that overconsumption was not the cause of their obesity. Rather, the orexin-deficient mice lacked diet-induced thermogenesis (heat production); in other words, when fed a high-fat diet, the mice failed to dissipate the extra calories as heat the way that normal mice (and people) do. Instead, they stored that energy as fat.

This finding prompted the team to look at the mice's brown fat -- a source of thermogenesis. What they found is that brown fat in mice lacking orexin didn't develop

properly at the embryonic stage. This shortage had lasting effects on energy expenditure and weight even in adulthood.

Taking the opposite approach, the researchers then gave the defective mice more orexin. With the hormone present, brown fat developed properly before birth and continued to be active into adulthood. What's more, adding orexin to stem cells in a laboratory dish caused them to differentiate (specialize) into brown fat cells, creating more of this fat-burning engine.

"Without orexin, mice are permanently programmed to be obese. With it, brown fat is activated and they burn more calories," said Dr. Sikder. "We're now taking the next steps in determining how orexin -- or a chemical that has the same effect -- might be used in humans to therapeutically prevent or treat obesity."

According to the Centers for Disease Control and Prevention, about one-third of U.S. adults (33.8 percent) are obese. As a person becomes overweight or obese, he or she is at increased risk for type 2 diabetes, coronary heart disease, stroke, and certain cancers.

Brain

This Is Your Brain on Estrogen (Science daily: 5.10.2011)

It's no secret that women often gain weight as they get older. The sex hormone estrogen has an important, if underappreciated, role to play in those burgeoning waistlines

Now, researchers reporting in the October Cell Metabolism, a Cell Press publication, have traced those hormonal effects on metabolism to different parts of the brain. The findings may lead to the development of highly selective hormone replacement therapies that could be used to combat obesity or infertility in women without the risks for heart disease and breast cancer, the researchers say.

"When women approach menopause, they gain weight in fat and their energy expenditure goes down," says Deborah Clegg of the University of Texas Southwestern Medical Center. Estrogen levels decline and women grow increasingly susceptible to obesity and metabolic syndrome.

Estrogen acts on receptors found throughout the body, in fat, on ovaries and in muscle. But when it comes to the hormone's influence on metabolism, Clegg suspected receptors in the brain.

Others had traced the effects of estrogen on energy balance specifically to estrogen receptor- α (ER α). When her team deleted those receptors from the entire brains of mice,

"we got very, very fat mice," Clegg said. The animals consumed more calories and burned less.

The researchers showed female mice lacking ER α in one part of the brain (the hypothalamic steroidogenic factor-1 or SF1 neurons) gained weight without eating any more. Loss of ER α from another brain area (the hypothalamic pro-opiomelanocortin or POMC neurons) had the opposite effect: animals ate more without gaining weight. Loss of ER α receptors in those same neurons also led to various problems in ovulation and fertility.

The findings suggest that drugs developed to specifically target estrogen receptors in the brain might offer a useful alternative to hormone replacement therapies that hit receptors throughout the body. The researchers say they would like to continue to isolate other estrogen-related effects and symptoms, for instance, on hot flashes and cognition.

"The more we know about estrogen's sites of action, the more likely it is we could develop designer hormone replacement therapies targeting tissue X, Y or Z," Clegg said.

Genetics

Researchers reveal genetics behind autism (World Newspapers: 5.10.2011)

One of the most common genetic alterations in autism -- deletion of a 27-gene cluster on chromosome 16 -- causes autism-like features, according to scientists at Cold Spring Harbor Laboratory (CSHL).

By generating mouse models of autism using a technique known as chromosome engineering, CSHL Professor Alea Mills and colleagues provide the first functional evidence that inheriting fewer copies of these genes leads to features resembling those used to diagnose children with autism.

"Children normally inherit one copy of a gene from each parent. We had the tools to see whether copy number changes found in kids with autism were causing the syndrome," said Mills.

After engineering mice that had a chromosome defect corresponding to the human 16p11.2 deletion found in autism, Mills and her team analysed these models for a variety of behaviours, as the clinical features of autism often vary widely from patient to patient, even within the same family.

“Mice with the deletion acted completely different from normal mice,” explained Guy Horev, a Postdoctoral Fellow in the Mills laboratory and first author of the study.

These mice had a number of behaviours characteristic of autism: hyperactivity, difficulty adapting to a new environment, sleeping deficits, and restricted, repetitive behaviours.

Interestingly, mice that had been engineered to carry an extra copy, or duplication, of the 16p11.2 region did not have these characteristics, but instead, had the reciprocal behaviours.

The study appeared in the Proceedings of the National Academy of Sciences in the early online edition during the week of October 3.

Stress

Stress likely to reduce brain size of preterm babies (World Newspapers: 5.10.2011)

Infants born prematurely are placed in the neonatal intensive care unit (NICU) to help them develop fully. They are likely to be exposed to stress factors at the unit which could decrease their brain size and functional connectivity.

Some of these stress factors are low body temperature, infections, variations in blood sugar levels, insufficient oxygen reaching their underdeveloped tissue and brains.

Infants born before the 37th week of pregnancy are considered preterm, which occurs in 9.6 percent of all births worldwide, according to the Bulletin of the World Health Organisation (WHO), the journal Annals of Neurology reports.

A study, led by Terrie Inder and Gillian Smith, both Washington University researchers at St. Louis Children's Hospital, Missouri, is the first to report on the effects of stress among hospitalised preterm infants and its impact on brain development.

For their observational study, the research team recruited 44 preterm infants within 24 hours of birth from November 2008 to December 2009, according to a St. Louis statement.

Results show that the average daily exposure to stressors was greatest in the first 14 days following birth. "Our findings suggest that stress exposure reduces the brain size in early preterm infants and long-term consequences are unknown," said Inder.

Besides increased mortality risk, prior studies have shown that up to 10 percent of every preterm infants (22-32 weeks gestation) have cerebral palsy, nearly 40 percent display

mild motor deficiency, and up to 60 percent experience cognitive impairments.

Skin

Why you must know your skin type (The Tribune; 12.10.2011)

Skin, our body's largest active organ system, is the main barrier against the external environment. The uppermost portion of the skin restricts water loss while skin-cell derived endogenous antibiotics provide an innate immune defence against bacteria, viruses and fungi. The upper (epidermal) compartment of skin also contains a network of about 2000 million special skin cells whose main function is to survey the epidermal environment and to initiate an immune response against microbial threats, although they may also contribute to immune tolerance in the skin.

While skin care products have grown exponentially, few people know whether their skin is actually being benefited or harmed through the use of these products.

Each person should know his/her skin type before using such products. We in India have skin photo type 4 and 5. The next step is to understand if you have a dry skin, oily skin, combination skin, hairy skin (excessive hair growth), wrinkled skin, lustreless hair and nails.

Dry Skin occurs because of impairment in the uppermost skin compartment, resulting in the lack of retention of natural water and moisturiser. There is also less production of sebum by special skin glands which causes dry skin. People with dry skin need non-foaming cleansing agents that will not strip protective lipids from the skin surface. Moisturisers should be applied immediately after a wash or bath within five minutes, preferably while the skin is still damp to trap water on its surface. Lotion moisturisers should be preferred over gels or creams. Toners and facial scrubs should not be used.

Oily skin occurs because of increased sebum production by special skin glands and can be measured by the sebometer. Those with oily skin should avoid wearing sun-screen which can cause acne and increase greasiness. Foaming cleansers and cleansers with salicylic acid should be preferred. Toners can be used. Only very light moisturizers, if necessary, should be applied. Gel and serum formulations are preferred over creams and lotions.

The third and an important skin type is sensitive skin. Individuals experiencing this condition report exaggerated reactions to personal care products that may or may not be associated with visible symptoms. Sensitive skin can be very distressing to those who have it, because they can use only a few/limited skin products and have to keep these with them wherever they go. Persons with a sensitive skin have a delicate and disrupted skin barrier function. These people show a strong inflammatory response. They have also

been labelled as “stingers” as they develop symptoms such as mild redness and feeling of flushing or fullness over their cheeks or nose even during some stress or excitement. The persons with this skin type need specific medical face washes and moisturisers, and should use only “fragrance-free” products.

Melanin, the pigment, which gives normal skin colour, also provides protection against DNA damage from ultraviolet radiation. Those having a fairer skin have less melanin and so they are more prone to get freckles or skin cancer. They need to wear a broad spectrum sunscreen and barrier creams more often. Those with a darker skin have more melanin. They should apply less oil or gel over hair.

An important function of our skin is thermoregulation; dilatation and constriction of blood vessels help regulate heat loss. However, a few individuals tend to develop persistent dilatation of blood vessels over their face. These patients tend to develop a skin disorder known as rosacea. Such patients have to follow the instructions given for those having a sensitive skin.

Nails provide protection to the ends of the fingers and toes. Those with brittle nails are more prone to develop adverse reactions to various nail cosmetics. Those having red and swollen skin around nails should avoid wearing nail polish.

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Glasgow

Glasgow docs using ultrasound to heal severe fractures (New Kerala: 14.10.2011)

Doctors in Glasgow, which pioneered the use of ultrasound to scan the body, are now using the device to heal broken bones.

Orthopaedic surgeon Angus MacLean has been using the technology at Glasgow's Royal Infirmary's fracture clinic.

It has been shown to speed up recovery times for patients with severe fractures by more than a third.

Ultrasound was first developed as a diagnostic tool in Glasgow in the 1950s.

"We use it for difficult fractures, the ones with problems with healing, and it's a very simple, painless treatment that we can give," the BBC quoted MacLean as saying.

"It's a very interesting scientific development and there's good evidence that it just vibrates the cells a little which then stimulates healing and regeneration in the bone," he explained.

The technology is similar to that used on pregnant women.

Ultrasound waves are used at a slightly different frequency and a slightly different pulse.

Research suggests this encourages cells to remove bacteria, stimulates the production of new bone cells and encourages those cells to mature more rapidly.

Because of the costs involved - around 1,000 pounds per patient - ultrasound is only being used on complex fractures at Glasgow Royal Infirmary.

But it is expected to reduce over time, making it a cheap way to speed up the healing of common fractures as well as complex ones.

Human Gene

Preventing Dangerous Nonsense in Human Gene Expression (Science daily: 14.10.2011)

Human genes are preferentially encoded by codons that are less likely to be mistranscribed (or "misread") into a STOP codon. This finding by Brian Cusack and colleagues from the Max Planck Institute for Molecular Genetics in Berlin and the CNRS in Lyon and Paris is published in the open-access journal PLoS Genetics.

Since the completion of the human genome sequence over a decade ago, a multitude of studies have investigated the forces that have shaped the genome over time. However, because gene expression errors are not inherited, they have been disregarded as an evolutionary force until now.

In biological systems, mistakes are made because the cellular machinery is complex and error prone. The errors made in copying DNA for transmission to offspring (genetic mutations) have so far been the primary focus of molecular evolution. But errors are much more frequent in the day-to-day task of gene expression, for example in the transcription of DNA into RNA. This study shows how human genes use a dual strategy of "prevention and cure" to deal with a specific type of gene expression error: transcriptional errors that create premature STOP codons (so-called "nonsense errors"). Nonsense errors can be highly toxic for the cell, so natural selection has evolved a

strategy called nonsense-mediated decay (NMD) to "cure" such errors. However, this cure is inefficient. This work identifies a strategy of prevention that has evolved to compensate for the inefficiency of NMD by decreasing the frequency of nonsense errors. Natural selection achieves this through the avoidance of codons that are prone to nonsense errors and the preferential usage of codons robust to such errors.

Cusack et al's results provide a rationale for the evolution of robustness by implying that transcriptional errors are visible to natural selection because they are frequent and deleterious. According to the authors, "this raises the question of the past and present impact of such errors on human disease." An accompanying Perspectives article is published in PLoS Genetics on the same day.

This work was supported by the Max Planck Society and the Centre National de la Recherche Scientifique.

Nasal Congestion

Nasal Congestion: More Than Physical Obstruction (Med India: 17.10.2011)

Nose feel congested and stuffed up? Scientists from the Monell Center report that the annoying feeling of nasal obstruction is related to the temperature and humidity of inhaled air. The findings suggest that sensory feedback from nasal airflow contributes to the sensation of congestion. This knowledge may help researchers design and test more effective treatments for this familiar symptom of nasal sinus disease.

Nasal sinus disease, usually caused by infection or allergy, is one of the most common medical conditions in the United States, afflicting approximately 33 million people and accounting for over \$5.8 billion in healthcare costs annually. Nasal congestion and the associated feeling of obstruction is the symptom that typically causes individuals to seek medical assistance.

However, symptoms of nasal congestion have been difficult to treat effectively because, as many physicians have found, patient reports of congestion often have little relationship to the actual physical obstruction of nasal airflow.

"By establishing that feelings of nasal congestion can be sensory-related, we open doors for more targeted treatment," said study lead author Kai Zhao, Ph.D., a bioengineer at Monell. "For example, effective treatments may need to include a focus on restoring optimal humidity and temperature in the patient's nasal airflow."

In the study, published online in the open-access journal PLoS ONE, 44 healthy volunteers rated symptoms of nasal congestion after breathing air from three boxes: one containing room air at normal humidity, another containing dry air at room temperature, and the third containing cold air.

The volunteers reported reduced nasal congestion after breathing from both the cold air box and the dry air box as compared with the room air box, with the cold air box decreasing reports of congestion most effectively.

Calculations revealed that humidity also was an important factor, with lower humidity associated with decreased feelings of congestion.

The authors speculate that temperature and humidity interact as air moves through the nasal cavity to influence nasal cooling. It is this cooling that is then detected by 'cool sensors' inside the nose to influence the feeling of air flow as being either easy or obstructed.

"Someone in the desert, all other things being equal, should feel less congested than someone in the jungle. In the low humidity of the desert, there is more evaporative cooling inside of the nose, such that the temperature of the nasal passages is lower. This leads to a feeling of greater air flow -- and less sensation of obstruction." said co-author Bruce Bryant, Ph.D., a sensory scientist at Monell.

Future studies will examine patients reporting nasal obstruction to see if the sensory findings reported here can explain their symptoms, and also explore how sensory factors interact with other predictors of nasal obstruction.

Also contributing to the study were Kara Blacker, Yuehao Luo, and Jianbo Jiang, all of Monell. The research was funded by the National Institute on Deafness and Other Communication Disorders.

Blood vessels

Women's heart disease linked to dysfunctional small blood vessels (World Newspapers: 17.10.2011)

After a heart attack, women's hearts are more likely to maintain their systolic function—their ability to contract and pump blood from the chambers into the arteries, according to new research.

According to C Noel Bairey Merz, MD, Director of the Women's Heart Center at Cedars-Sinai Heart Institute in Los Angeles, this suggests that heart disease manifests differently

in women, affecting the microvasculature (small blood vessels) instead of the macrovasculature (major blood vessels) as it does in men.

In their study, Dr. Bairey Merz and her colleagues found that women's hearts were less likely than men's to lose their ability to pump blood after a heart attack, and that female heart patients were less likely to present with obstructive coronary artery disease.

Instead, the oxygen deprivation and subsequent damage to the heart is more likely to occur when small blood vessels, not major arteries, become dysfunctional.

"That is the reason women are often misdiagnosed and suffer adverse events," said Dr. Bairey Merz. "Physicians have been looking for male pattern disease, when we need to start looking at female patterns."

Likewise, more research is needed to develop appropriate treatments and reduce risk in women, she added.

According to Dr. Bairey Merz, the good news is that it is possible to measure damage to small blood vessels objectively. "The gold standard is reactivity testing, angiograms, and other physiologic measures, rather than anatomic study."

The study was recently presented at the Physiology of Cardiovascular Disease: Gender Disparities conference, at the University of Mississippi in Jackson.

32 new genes

32 new genes that regulate liver function identified (New Kerala: 18.10.2011)

A team of researchers including one of Indian-origin has identified a large number of areas in the human genetic code that are involved in regulating the way in which the liver functions.

The work should lead to a better understanding of precisely what goes wrong when the liver ceases to work normally. Ultimately, it could point the way to new treatments that can improve the function of the liver and help to prevent liver damage.

The work is an international collaboration led by Imperial College London and it identifies 42 genetic regions associated with liver function, 32 of which had not been linked to liver function before.

In the new genome-wide association study, the researchers compared the genetic makeup

of over 61,000 people, in order to identify areas of the genetic code that were associated with liver function.

The team assessed the function of the volunteers' livers by looking at the concentrations of liver enzymes in their blood. People who have liver damage have high concentrations of these enzymes, which are associated with an increased risk of conditions such as cirrhosis, type 2 diabetes and cardiovascular disease.

"Our new study is a big step towards understanding the role that different genes play in keeping the liver working normally, and towards identifying targets for drugs that can help prevent the liver from functioning abnormally or becoming susceptible to disease," said Dr John Chambers, the lead author of the study from the School of Public Health at Imperial College London.

The researchers identified 42 areas on the genetic code associated with liver function and they then went on to pinpoint 69 associated genes within these areas.

Some of the genes are known to play a part in other functions in the body, including inflammation and immunity, and metabolising glucose and carbohydrates.

"We are particularly excited about the genes whose precise role we don't yet know," said Professor Jaspal S Kooner, the senior author of the study from the National Heart and Lung Institute at Imperial College London.

"Investigating these further should help us to fill in the gaps in our understanding about what happens when the liver ceases to function normally and how we might be able to tackle this," he added.

Skin's Immune

Skin's Immune Peacekeepers Discovered (Science Daily: 19.10.2011)

There are more bacteria living on our skin and in our gut than cells in our body. We need them. But until now no one knew how the immune system could tell that these bacteria are harmless. Centenary Institute researchers in Sydney have discovered a set of peacekeepers -- immune cells in the outer layers of our skin that stop us from attacking friendly bacteria.

The work will open the way to new therapeutic options for immune-mediated diseases such as inflammatory bowel disease, of which Australia has some of the world's highest rates.

In a paper published October 17 in the Proceedings of the National Academy of Sciences (PNAS), Professor Barbara Fazekas de St Groth and her team have shown that the

immune cells in the outer layer of the skin constantly act as peacekeepers to stop the immune system from reacting the way it normally would. Known as Langerhans cells, they resisted every attempt by the researchers to get them to generate an immune response.

The researchers worked with a group of mice in which only the Langerhans cells could stimulate the immune system. They then activated the Langerhans cells and measured the response.

"No matter what we threw at them to get them to activate a long-term immune response, the Langerhans cells always induced immune tolerance," Prof Fazekas says.

This result seems to go against the prevailing wisdom in immunology about the workings of dendritic cells, the class of immune cell to which Langerhans cells belong.

Dendritic cells engulf bacteria, viruses or other invaders and put a marker from that invader, known as an antigen, on a protein that can bind to other immune cells.

The antigen reprograms passing T cells, the workhorses of the immune system, which then set off a cascade of responses that eventually lead to the destruction of anything displaying that antigen.

However, the Centenary team (which is affiliated with the University of Sydney and RPA Hospital) found Langerhans cells are very different from other dendritic cells: after turning on the helper T cells, they tell them to self-destruct instead.

"This is the opposite of what you'd usually expect. In previous studies of immune cells, if there was a flurry of activity, we assumed it was the start of a long-term immune response," Prof Fazekas says.

However, the immune system is a layered defence -- the next layer of skin has different kinds of dendritic cells, which program on-going responses against bacteria. So if bacteria penetrate deep enough to meet these cells, the immune response will kill them.

In inflammatory bowel disease, which afflicts thousands of Australians, the immune system is activated against the gut bacteria, which are usually left alone.

This discovery opens up possible ways to figure out why this disorder occurs and to find treatments to a range of diseases of the immune system.

"There is so much we don't know about the immune system, but sometimes just mimicking what the system does, like we do with vaccines, can work very well" Prof Fazekas says,

"If we do manage to mimic what Langerhans cells do, then we could develop treatments that would precisely tolerise against specific antigens -- just like the immune system of the skin does now."

Centenary Institute executive director Professor Mathew Vadas says this latest paper comes just weeks after Centenary researcher Patrick Bertolino made the front cover of PNAS for his paper on immune response in the liver.

"The Centenary Institute is interested in understanding how the immune system works -- these discoveries and others already in the pipeline here are a major step forward towards that goal," Prof Vadas says.

Chemo

Predicting How Cancers Will Respond to Chemo: New Test Determines Whether Tumor Cells Are Already 'Primed' for Death (Science Daily: 31.10.2011)

Challenging a half-century-old theory about why chemotherapy agents target cancer, scientists at Dana-Farber Cancer Institute have devised a test that can predict how effective the drugs will be by determining whether a patient's tumor cells are already "primed" for death.

In a study published online by the journal Science on Oct. 27, the researchers report that cancer cells that are on the verge of self-destruction are more likely to succumb to certain chemotherapy agents than cancer cells that have yet to reach that stage. The discovery suggests that it may be possible to predict which cancer patients are most likely to benefit from chemotherapy, as well as to make chemotherapy drugs more effective by pushing tumor cells closer to the point of suicide.

"Many chemotherapy agents work by damaging structures within cancer cells, particularly DNA and microtubules [tiny tubes used for a variety of cell functions]," says the study's senior author, Anthony Letai, MD, PhD, of Dana-Farber. "When the damage becomes so extensive it can't be repaired, the cells initiate a process known as apoptosis, in which they sacrifice themselves to avoid passing the damage on to their descendants."

The researchers found that cancer cells that are closer to this apoptotic threshold are more susceptible to chemotherapy than other cancer cells -- and that it's possible to measure how close cells are to that breaking point.

Letai and his colleagues developed a technique called BH3 profiling to make that measurement. The technique focuses on mitochondria -- cell structures where the decision is made whether or not to die -- and proteins known as the BCL-2 family.

Within the mitochondria, BCL-2 proteins act like bickering in-laws, some promoting apoptosis, others resisting it. The faction that predominates determines whether the cell lives or embarks on apoptosis.

The measuring technique uses bits of protein known as BH3 peptides from members of the BCL-2 family that spur apoptosis. Scientists prepare cells to allow entry of these BH3 molecules and examine whether holes begin forming in the mitochondria, a key step in apoptosis. A fluorescent dye enables scientists to measure whether the holes are forming. By adding BH3 peptides to the samples and measuring how much was needed to kill the cells, the investigators could gauge how close the cells were to apoptosis. Cells that needed the least BH3 peptide to be nudged into the suicide program were considered primed for death.

In the study, researchers first used the technique in myeloma cells from patients who were about to receive chemotherapy. "We found a high correlation between the cancer cells that were most highly primed and those that were most susceptible to chemotherapy," Letai states. The researchers went on to study tumors from 85 patients -- multiple myelomas, acute myelogenous leukemias, acute lymphoblastic leukemias, and ovarian cancers -- and in each case found the same connection: Chemotherapy proved to be most successful in the tumors that had the greatest mitochondrial priming.

The findings suggest that the conventional wisdom about why cancer chemotherapy works needs to be reconsidered, the study authors say. The traditional explanation -- that chemotherapy targets fast-growing cells such as cancer cells -- has some merit, Letai remarks, but it has never been entirely satisfactory from a scientific viewpoint. For one, there are several types of fast-growing cancers that are not responsive to chemotherapy agents, and several types of slow-growing cancers that are. Moreover, although chemotherapy is notorious for attacking fast-growing normal cells such as the bone marrow and those in the digestive tract, there are many types of cells that turn over rapidly -- such as those in the skin -- that it doesn't harm.

Though widely accepted, Letai says the traditional explanation "was never tested as thoroughly as one would like for something that serves as a linchpin of cancer treatment." The new thinking, while not absolutely refuting the old, indicates the reasons for chemotherapy's success are more complex than generally thought.

The next step for researchers will be to test additional types of cancers to see if the connection between mitochondrial priming and chemotherapy effectiveness is valid for them as well. In addition, Letai's group wants to test in clinical trials whether BH3 profiling can be used to help oncologists better choose therapies for patients.

"One of the goals of personalized medicine is to know, in advance, which agents are likely to be effective in a given patient and which are not," remarks Letai, who is also an associate professor of medicine at Harvard Medical School. "This research highlights that potential."

The lead authors of the study are Triona Ni Chonghaile, PhD, and Kristopher Sarosiek, PhD, Dana-Farber. Co-authors include: Thanh-Trang Vo, Jeremy Ryan, Anupama Tammareddi, MD, Jing Deng, PhD, Ken Anderson, MD, Paul Richardson, MD, Yu-Tzu Tai, PhD, Constantine Mitsiades, MD, Ursula Matulonis, MD, Ronny Drapkin, MD, PhD, Richard Stone, MD, Daniel DeAngelo, MD, PhD, and Daniel Ruben Carrasco, MD, PhD, Dana-Farber; Stephen Sallan, MD, and Lewis Silverman, MD, Dana-Farber and Children's Hospital Boston; Victoria Del Gaizo Moore, PhD, Elon University, Elon, NC; David McConkey, PhD, MD Anderson Cancer Center, Houston; and Michelle Hirsch, MD, Brigham and Women's Hospital.

Funding for the study was provided by the National Institutes of Health, the Multiple Myeloma Research Foundation, the American Cancer Society, the FLAMES Pan-Massachusetts Challenge Team, and Gabrielle's Angel Foundation for Cancer Research.

Brain DNA

Brain DNA changes through life': (The Times of India: 31.10.2011)

Researchers have discovered that brain cells change their genetic make-up during a person's lifetime, a key finding they claim could shed more light on neurological diseases. An international team identified genes — known as retrotransposons — which are responsible for thousands of tiny changes in the DNA of brain tissue. The researchers found that the genes were particularly active in areas of the brain linked to cell renewal.

Stem cells

Stem cells to help lung repair: (The Times of India: 31.10.2011)

Scientists have identified stem cells which rapidly rebuild alveoli, the tiny air sacs in lungs, a major breakthrough which they claim may soon pave the way for new treatments for people with damaged lungs. An international team says that the discovery of the stem cells would offer new hope for heavy smokers, people with asthma and those with chronic lung scarring.

Lung Stem Cells

Lung Stem Cells Offer Therapeutic Clues (Science Daily: 1.11.2011)

Guided by insights into how mice recover after H1N1 flu, researchers at Harvard Medical School and Brigham and Women's Hospital, together with researchers at A*STAR of Singapore, have cloned three distinct stem cells from the human airways and demonstrated that one of these cells can form into the lung's alveoli air sac tissue. What's more, the researchers showed that these same lung stem cells are rapidly deployed in a dynamic process of lung regeneration to combat damage from infection or chronic disease.

"These findings suggest new cell- and factor-based strategies for enhancing lung regeneration following acute damage from infection, and even in chronic conditions such as pulmonary fibrosis," said Frank McKeon, professor of cell biology at Harvard Medical School. Other senior authors on the paper include Wa Xian of the Institute of Medical Biology in Singapore and Brigham and Women's Hospital, and Christopher Crum, Director of Women's and Perinatal Pathology at Brigham and Women's Hospital. The researchers worked as part of an international consortium involving scientists from Singapore and France.

The findings will be reported in the Oct. 28 issue of *Cell*.

For many years, clinicians have observed that patients who survive acute respiratory distress syndrome (ARDS), a form of airway damage involving wholesale destruction of large regions of lung tissue, often recover considerable pulmonary function within six to 12 months. But researchers did not know whether that recovery was due to lung regeneration or to some other kind of adaptive remodeling.

"This study helps clear up the uncertainty," said McKeon. "We have found that the lungs do in fact have a robust potential for regeneration, and we've identified the specific stem cells responsible."

To probe the potential for lung regeneration, Xian, McKeon and colleagues infected mice with a sublethal dosage of a virulent strain of H1N1 influenza A virus. After two weeks of infection, these mice showed a loss of nearly 60 percent of tissue in the lung air sacs after two weeks of infection, but -- remarkably -- by three months, the lungs appeared completely normal by all histological criteria.

These findings demonstrated true lung regeneration, but raised the question of the nature of the stem cells underlying this regenerative process.

Adapting the methods for cloning epidermal skin stem cells pioneered by Howard Green, the George Higginson Professor of Cell Biology at HMS and the 2010 Warren Alpert Foundation Prize recipient, the researchers cloned stem cells from the lung airway in a

dish and watched as they differentiated to unusual structures with gene profiles similar to alveoli, the cells in the lung's air sacs.

"This was startling to us," Xian said, "and even more so as we observed the same stem cell populations involved in alveoli formation during the peak of H1N1 infections in mice." The researchers genetically traced the formation of new alveoli to a discrete population of stem cells in the fine endings of the conducting airways that rapidly divide in response to infection and migrate to sites of lung damage.

The scientists were intrigued when molecular dissection of these incipient alveoli revealed the presence of an array of signaling molecules known to control cell behavior, suggesting the possibility that these molecules coordinate the regeneration process itself.

Currently the team is testing the possibility that the secreted factors they observed might promote regeneration, suggesting a therapeutic approach for conditions such as chronic obstructive pulmonary disease and even asthma. They also foresee the possibility that these distal airway stem cells could contribute to repairing lungs scarred by irreversible fibrosis, conditions resistant to present therapies.

This work was supported by the National Heart, Lung, and Blood Institute, the Institute of General Medical Sciences, the National Cancer Institute, and the Defense Advanced Research Projects Agency.

Parasitic Roundworm

Researchers Find Cure to Parasitic Roundworm in Its Genes (Med India: 1.11.2011)

The draft genome of *Ascaris suum*, a parasitic roundworm of pig, has been sequenced by an international team of researchers. This effort has paved the way for the development of new and urgently needed interventions against ascariasis and other nematodiasis.

Ascaris worms are soil-transmitted helminths causing ascariasis in human and animals.

In this collaborative study led by the University of Melbourne and BGI, the researchers sequenced the *A. suum* genome at approximately 80-fold coverage and generated approximately 273 million base genome sequence for *A. suum*.

"Compare to the other metazoan genomes reported to date, we found this genome has few repetitive sequences, only about 4.4percent of the total assembly," said Shiping Liu, the co-leading author of the study and Senior Bioinformatician of Comparative Genomics Group at BGI.

"We later found out this phenomenon was probably caused by the chromatin diminution,"he added.

"We also identified a number of potential drug targets. Notably, in the A. suum gene set, we found a homologue (acr-23) of the C. elegans monepantel receptor, suggesting that this drug may kill A. suum.

"By sequencing A. suum genome, we identified abundant key information to better understand the molecular biology of A. suum and the exquisite complexities of the host-parasite interactions on an immunobiological level. We believe our work will pave the way for the future Parasitic Diseases Research," said Liu.

The study was published online in the international journal Nature.

Bariatric surgery

Bariatric surgery helps control diabetes (world Newspapers: 1.11.2011)

More and more diabetics are going under the knife to control diabetes.

This was observed by doctors at a recent meeting of the Association of Obesity Surgeon Society where they discussed the benefits of bariatric surgery in controlling diabetes.

Bariatric surgery, popularly known as weight-loss surgery, is usually recommended for severely obese people who have related problems such as diabetes, hypertension or sleep apnea.

City diabetologists and obesity surgeons have now joined hands to fight the spread of diabetes.

They have decided not to treat their patients separately but coordinate the treatment as it will help patients explore other options to control the lifestyle disease.

Dr Sanjay Borude, obesity surgeon of Breach Candy Hospital said: "We were earlier treating morbid obesity separately. Whenever a patient came to me, I always thought about surgical treatment for morbid obesity and not about medical treatment. Same was the case with diabetologists. They went on treating the patient until it was irreversible."

Dr Muffazal Lakdawala of Saifee Hospital had carried out a bariatric surgery on Bharatiya Janata Party national president Nitin Gadkari in September. Gadkari was finding it difficult to bring his sugar under control for some time and so he had to undergo the surgery, said Dr Lakdawala.

Morbid obesity, defined as Body Mass Index more than 35, is on the rise across the world.

Obesity has very definite health implications and predisposes to diabetes, high blood pressure, heart problems and breathing difficulty.

According to a recent study by Metropolis, Mumbai enjoys that dubious distinction of the highest number of diabetics in India.

Abnormal blood sugar levels were found to be as high as 73.3% in the financial capital — way above levels in other cities during a survey among 2,28,009 people between April and September 2010 in cities such as Mumbai, Pune, Delhi, Chennai, Ahmedabad and Surat.

Potential Biomarker

Potential Biomarker for Degenerative Brain Conditions Identified (Med India: 2.11.2011)

Researchers have identified that the changes in the tissue located at the junction between the outer and the inner layers of the brain called "blurring" may be the key biomarker for earlier diagnosis and development of new therapies for degenerative brain conditions, such as multiple sclerosis. The study was published in the Oct. 26th issue of the Journal of Neuroscience.

The findings are significant because this is the first time we have mapped the distinct relationship between blurring of the boundary in the left hemisphere, where verbal language skills are managed, and the impact that changes in this area have on cognitive ability," said Karen Blackmon, PhD, research assistant professor, Department of Neurology and lead author of the study. "The fact that this occurs in healthy brains and appears to be connected with a person's cognitive function has significant implications for our ability to diagnose brain disease earlier and for the potential development of new therapies."

In the study, 32 healthy adults had an MRI scan of their brain. The images were enhanced to highlight the junction between the area of the brain where neurons control cognitive and motor function, or "grey matter", and the area where longer, myelin-insulated axon cells responsible for efficient transmission of electrical signals, or "white matter", exist. When neurons develop incorrectly among the axons (which can happen in-utero or after a brain injury) they are visible as "blurring" along the edge of this junction on an MRI. Blurring is associated with impaired cognitive conditions, such as epilepsy and Alzheimer's disease, but has never been identified in individuals without these conditions.

Rejuvenated Stem cells

Rejuvenated Stem cells coaxed from centenarian (The Asian Age: 2.11.2011)

SCIENTISTS SAID on Tuesday they had transformed age-worn cells in people over 90 — including a centenarian — into rejuvenated stemcells that were “indistinguishable” from those found in embryos. The technical feat, reported in the peerreviewed journal Genes & Development, opens a new path toward regenerative medicine, especially for the elderly, the researchers said.

“This is a new paradigm for cell rejuvenation,” said Jean-Marc Lemaitre, a researcher at the Institute of Functional Genomics at the

University of Montpellier and the main architect of the study. “The age of cells is definitely not a barrier to reprogramming,” said.

That human embryonic stem cells (ESC) can potentially become any type of cell in the body has long held out the tantalising promise of diseased organs or tissue being repaired or replaced with healthy, lab-grown cells.

But the leap from theory to practice has proven difficult, and fraught with ethical and moral concerns because any such procedure requires the destruction of a human embryo.

The discovery in 2007 that it is possible to coax

certain adult cells back into their immature, prespecialised state has fuelled renewed efforts to generate brand new muscle, heart or even brain cells, this time from raw material provided by the patient. Experiments to date, however, have shown that the usual chemical recipe for generating these so-called induced pluripotent stem cells (iPSC) works less well or not at all with the elderly and very elderly.

The barrier was cellular senescence, a natural process linked to ageing that can trigger cell death when certain mechanisms within the cell become too degraded to function properly.

Viral Vector

Viral Vector Designed to Treat a Genetic Form of Blindness (Science Daily: 3.11.2011)

Researchers at Ohio State University Medical Center and Nationwide Children's Hospital have developed a viral vector designed to deliver a gene into the eyes of people born with an inherited, progressive form of blindness that affects mainly males.

The vector is part of a clinical trial investigating the use of gene therapy to cure choroideremia, a disease that affects an estimated 100,000 people worldwide. The trial is being conducted by researchers at the University of Oxford in England.

The vector was designed by Dr. Matthew During, professor of molecular virology, immunology and medical genetics and of neuroscience and neurological surgery at Ohio State, in collaboration with Robert MacLaren, professor of ophthalmology at the University of Oxford, who also leads the trial.

Researcher Dr. K. Reed Clark, director of the Clinical Manufacturing Facility at the Center for Gene Therapy, Nationwide Children's Hospital, and his team produced the clinical-grade vector that is administered to patients in the trial.

During, who is also a visiting professor of translational neuroscience at Oxford, was in the operating room during the pioneering surgery. "I and my colleagues are excited about contributing to this significant medical breakthrough," During says. "We have worked for many years to engineer and optimize viruses to safely deliver genes to humans, and the eye is an ideal target in many ways. The clinical vector manufacturing facility at Nationwide Children's Hospital is outstanding, and Dr. Clark and his team deserve congratulations for providing a clinical vector that for the first time offers these patients the possibility of an effective therapy."

During and his colleagues designed the viral vector to infect the light-sensitive photoreceptor cells that line the back of the eye and make up the retina. Choroideremia causes a degeneration of these photosensitive retinal cells and progressive blindness. The diagnosis is usually made in childhood and leads to blindness by around age 45.

"This trial represents the first attempt to treat this disease and the first time that gene therapy has been directed towards the photoreceptor cells of the human retina," During says. "We believe it holds great promise for the treatment of other genetic causes of blindness such as retinitis pigmentosa."

The trial's 12 patients will be treated in one eye. It will take 24 months to know whether the gene-therapy treatment has stopped the degeneration. The trial builds on gene-therapy research performed in collaboration with Professor Miguel Seabra at Imperial College London, along with During and Clark at Ohio State.

"This disease has been recognized as an incurable form of blindness for over a hundred years," MacLaren says. "I cannot describe the excitement in thinking that we have designed a genetic treatment that could potentially stop it in its tracks with one single injection."

Gene factor

Gene factor: Why breast cancer risk not high in all (The Times of India: 3.11.2011)

Women are not automatically more likely to develop breast cancer if a relative has the high-risk genes, says a new study. An international team has found that mothers, sisters and daughters from breast cancer families with known genetic mutations do not all share the same high risk of developing the disease, the 'Journal of Clinical Oncology' reported.

Previous studies suggested that women with the breast cancer genetic mutations BRCA1 or BRCA2 are at least 10 times more likely to develop breast cancer than the average woman. Now, the new research has found that women who do not have a genetic mutation, but are closely related to women who do have genetic mutations are at an average risk of developing the disease.

Professor John Hopper from the School of Population Health, University of Melbourne, who led the Australian component of the study, said some women in this scenario were worrying unnecessarily. "Our study revealed that these women have an average risk of developing the disease as opposed to the high risk of their mutation-carrying close relatives and hence do not need to worry unnecessarily and over screen to detect the disease.

"Our results revealed there was no evidence of increased breast cancer risk for non-carriers of the genetic mutations, certainly not the five-fold increased risk suggested by the authors of the 2007 study," he said. The study, led by professor Alice Whittemore from Stanford University School of Medicine, is the largest analysis to date of breast cancer risk for noncarriers of family specific breast cancer mutations.

More than 3000 breast cancer families from the population at large were analysed for their genetic risk of the disease. The researchers compared the risk of breast cancer among first-degree relatives of breast cancer patients who did and did not carry a BRCA1 or BRCA2 mutation. PTI

Even light drinkers more likely to suffer from cancer than teetotalers

Whether sipping beer, wine or whiskey, women who drink just three alcoholic beverages a week face slightly higher chances for developing breast cancer compared with teetotalers, a study of more than 100,000 US nurses found. The link between alcohol and breast cancer isn't new, but most previous studies found no increased risk for breast cancer among light drinkers. The new research provides compelling evidence because it followed so many women for up to almost 30 years, experts said. Still, the study only shows an association between alcohol and breast cancer; it doesn't prove that drinking causes the disease. There could be other reason light drinkers appeared to be at higher

risk — maybe they were less active than nondrinkers or had unhealthy diets, said Dr Susan Love, a breast cancer expert.

DNA Test

New DNA Test to Identify Down syndrome in Pregnancy Is Ready for Clinical Use (Science Daily: 4.11.2011)

A new DNA-based prenatal blood test that can strikingly reduce the number of risky diagnostic procedures needed to identify a pregnancy with Down syndrome is ready to be introduced into clinical practice. The test can be offered as early as 10 weeks of pregnancy to women who have been identified as being at high risk for Down syndrome. These are the results of an international, multicenter study published online on October 17 in the journal *Genetics in Medicine*. The study, the largest and most comprehensive done to date, examined almost 1,700 pregnancies at high risk of chromosomal abnormalities, 212 of which were affected by Down syndrome.

The research was led by Jacob Canick, PhD, and Glenn Palomaki, PhD, of the Division of Medical Screening and Special Testing in the Department of Pathology and Laboratory Medicine at Women & Infants Hospital and The Warren Alpert Medical School of Brown University, and included scientists at Sequenom, Inc. and Sequenom Center for Molecular Medicine, San Diego, CA, and an independent academic laboratory at the University of California at Los Angeles.

The test identified 98.6% of the Down syndrome pregnancies, while only 0.2% of the normal pregnancies were mistakenly called positive. The test rarely failed to provide a clinical interpretation (0.8%). These findings, along with the detailed information learned from testing such a large number of samples, demonstrate that the new test will be highly effective when offered to women considering invasive testing.

"With current screening methods, about one in every 30 women offered a follow-up invasive diagnostic procedure -- amniocentesis or chorionic villus sampling (CVS) -- will be found to have a pregnancy with Down syndrome. We expect the DNA-based test to more accurately determine which women should be offered invasive diagnostic testing. As a result, most of the pregnancies referred for amniocentesis or CVS will be found to have Down syndrome," said Dr. Canick.

Dr. Palomaki added, "If this new test is used as we've described, nearly all women with a normal pregnancy could avoid an invasive diagnostic procedure and its associated anxiety, cost, and potential for fetal loss."

Down syndrome, also called trisomy 21, is a chromosomal disorder that includes mental retardation, characteristic facial features, and, often, heart defects, and affects one in 550 babies born each year in the US. Down syndrome occurs when each cell in an individual has three rather than the usual two copies of chromosome number 21. Current prenatal

screening tests for Down syndrome combine maternal age with information from the measurement of maternal serum markers and ultrasound markers in the first and second trimesters of pregnancy. While these tests can detect up to 90% of Down syndrome cases, they also incorrectly identify 2% to 5% of normal pregnancies as positive. The new DNA-based test will reduce this "false positive" rate while maintaining the detection rate.

"Prenatal screening and diagnosis of Down syndrome has been part of routine prenatal care for decades, and it is estimated that nearly two-thirds of all pregnant women in the US are currently screened," said Dr. Canick. "It is possible that with the availability of this new DNA-based test, more women will opt for screening because of the increased safety resulting from far fewer amniocentesis and CVS procedures being performed." The US Centers for Disease Control and Prevention estimated in 1995 that about one in every 200 invasive diagnostic procedures will cause a pregnancy miscarriage.

This industry-sponsored project, awarded to Drs. Canick and Palomaki and Women & Infants Hospital in 2008, enrolled 4,500 women at 27 prenatal diagnostic centers throughout the world. Women & Infants also served as one of the enrollment centers under the direction of maternal-fetal medicine specialist and director of Perinatal Genetics, Barbara O'Brien, MD.

"Screening tests, by their nature, do not diagnose, but rather offer information about the chances that a pregnancy may be affected by a genetic abnormality. For years we have relied on screening tests that have had a fairly significant false positive rate because that was the best screening available," said Dr. O'Brien. "But having access to a DNA-based test that can be done early in pregnancy will give us more information so that we can better guide which patients should consider diagnostic testing."

Mice Test

Now, stay young forever by getting rid of old cells (The Times of India: 4.11.2011)

Mice Test Shows Removing Worn-Out Cells Stops Aging

Removing worn-out cells from the body could help one prevent age-related diseases, a new study has suggested.

In experiments on mice, a team at the Mayo Clinic College of Medicine in the US found that by removing the worn-out and old cells, called senescent cells, several times during the lifetime of aging-accelerated mice, spared them of cataracts, aging skin and muscle loss.

"We started treating animals when they were really young, before they started to establish these senescent cells," study researcher Darren Baker said. "As a cell became senescent we would remove it; we saw a really profound effect."

The researchers said their findings showed that gene therapies can be used to target senescent cells in humans to attack these cells. But such therapies are far in the future, and still require lots of basic science to back them up.

According to the scientists, though cells were important contributors to their cellular community, they eventually get old and start showing signs of wear and tear that could lead to cancer, so the body essentially “turns them off”.

When cells get turned off in mammals, they can take one of two paths, either dying off or sticking around in a senescent state. For some reason, the ones that stick around start pumping out odd proteins. These chemical signals have a strange impact on the cells around them, and researchers have speculated that these chemicals can lead to age-related diseases.

The number of senescent cells increases as tissues age. However, “that small per cent is enough to cause major consequences,” Baker said. “They start to turn on a variety of genes that are not good and are thought to be detrimental to the overall function of the tissue.”

In the new study, the team bred mice to age quickly, getting cataracts, weakened muscles and loss of fat deposits by the time they are 10 months old, when they die of heart disease. At the mice’s three-week birthdays, the researchers treated them with a drug that would cause their senescent cells to commit suicide, and they repeated this treatment every three days. Compared with the untreated mice that kept all their senescent cells, these drug-treated mice had stronger muscles, fewer cataracts & less wrinkled.

Brain

Brain 'key player in regulating blood sugar in humans'(New Kerala: 9.11.2011)

Scientists including one of Indian origin have for the first time found that brain plays a key role in regulating glucose (sugar) metabolism in humans

The results of the study conducted at Albert Einstein College of Medicine of Yeshiva University suggest that drugs targeting the brain and central nervous system could be a novel approach to treating diabetes.

“The brain is the body’s only organ that needs a constant supply of glucose to survive, so it makes sense that it would have some say over how much glucose is produced,” said study leader Meredith Hawkins, M.D., professor of medicine and director of the Global Diabetes Initiative at Einstein.

“This role for the brain was demonstrated in earlier Einstein studies in rodents, but there was considerable controversy over whether the results could be applied to humans. We hope this study helps to settle the matter,” he stated.

In the study, ten non-diabetic subjects were given oral diazoxide, a drug that activates potassium channels in the hypothalamus.

Hormone secretion by the pancreas was controlled to ensure that any change in sugar production would only have occurred through the drug’s effect on the brain.

After the researchers administered the drug, blood tests revealed that patients’ livers were producing significantly less glucose than before.

Dr. Hawkins and her team then repeated this in rats, again giving diazoxide orally, achieving similar results.

They confirmed that sufficient amounts of diazoxide crossed the blood-brain barrier to affect potassium channels in the hypothalamus.

Additional experiments confirmed that diazoxide was working through the brain. Specifically, the researchers were able to completely block the effects of diazoxide by infusing a specific potassium channel blocker directly into the brain.

“This study confirms that the brain plays a significant role in regulating glucose production by the liver,” said lead author Preeti Kishore, M.B.B.S., assistant professor of medicine.

“We are now investigating whether this ‘brain-to-liver’ pathway is impaired in people with diabetes. If so, we may be able to restore normal glucose regulation by targeting potassium channels in the brain,” she added.

Stem Cells

Reprogramming Stem Cells to a More Basic Form Results in More Effective Transplant, Study Shows (Science Daily: 9.11.2011)

Chinese stem cell scientists have published new research that improves the survival and effectiveness of transplanted stem cells.

The research led by Dr Hsiao Chang Chan, from the Chinese University of Hong Kong, is published in Stem Cells.

Research into differentiation has led to a variety of breakthroughs as stem cell researchers harvest cells from one part of the body and genetically adapt them to fulfill a specialized

role. However, if the implanted cells are too much like the cells of the targeted area they may not have the plasticity to engraft and repair the injured tissue.

"Stem cell differentiation and transplantation has been shown to improve function in conditions including degenerative diseases and blood supply disorders," said Dr Chan. "However, the survival rate of transplanted cells in patients limits their overall effectiveness, which is a barrier to clinical use."

To overcome this issue Dr Chan's team explored de-differentiation, a process that reverts specialized, differentiated cells back to a more primitive cell.

The team focused their research on multipotent stem cells, (MSCs) which can be altered into a variety of cell types through differentiation. Bone marrow MSCs have the potential to differentiate into each of the three basic types of lineage cells which form bone (osteocytes), cartilage (chondrocytes) and fat tissue (adipocytes).

The team first differentiated bone marrow MSCs towards a neuronal lineage, but then removed the differentiation conditions, allowing the cell to revert back to a form with more basic cellular characteristics.

Following this process the team recorded increased cell survival rates following transplants. In an animal model de-differentiated cells were found to be more effective in improving cognitive functions and in aiding recovery from strokes, compared to un-manipulated stem cells both in living specimens and in laboratory experiments.

The results confirm that de-differentiation is a workable technique for reengineering cells to an earlier, more primitive state, but with increased cell survival rates which increase their potential for clinical use.

"The finding that MSCs can be reprogrammed to have enhanced survival and therapeutic efficacy in an animal model with potential application to patients is extremely exciting as it may provide a novel and clinically practical method to overcome low cell survival in cell-based therapy," concluded Dr Chan. "We are currently exploring other beneficial properties of the reprogrammed MSCs for other therapeutic applications."

"Many investigators have speculated that differentiation should improve the utility of stem cells for transplantation, but how far to differentiate the cells for the best outcome is a difficult question. Dr Chan's team have helped provide an answer by educating mesenchymal stem cells by pre-differentiating to the desired lineage before de-differentiation, making MSCs easier to manipulate and implant," said Dr Mark Pittenger, Stem Cells Associate Editor.

"Interesting questions still remain for future work such as which factors are expressed in the pre-differentiated stem cells that persist upon de-differentiation and can the de-differentiated cells be frozen for future use?"

Gene Test

Gene Test Successfully Speeds Up Cancer Treatment (Med India: 9.11.2011)

A wide-ranging genetic test for mutations in cancer cells to help finetune treatment for patients with lung tumours has been used successfully, doctors said on Wednesday.

Used on patients with so-called non-small-cell lung cancer (NSCLC), the technique has been such a success that the team is now using it for colorectal, breast and brain cancer and are assessing it for leukaemia, they said.

The goal is to identify specific genetic mutations that enable cells to divide and multiply unchecked.

The next step is to target these mutations with "smart drugs" that block the enzyme which enables the cells to proliferate.

Tailored drugs are considered like a sniper's rifle, seeking out the type of rogue cell, as opposed to chemotherapy, which acts more like a scattergun.

"Choosing the right therapy can raise response rates [to drugs] in NSCLC patients from around 20-30 percent to 60-75 percent and may improve survival," said Lecia Sequist of Harvard Medical School and Massachusetts General Hospital, who co-led the research.

The test, called SNaPshot, looks for 50 mutation sites in 14 genes known to play a role in NSCLC.

By fast-tracking traditional methods for amplifying and analysing gene samples, called polymerase chain reaction (PCR), the technique takes less than three weeks on average to get the results.

The investigators analysed tissue taken from 589 patients in a 14-month trial and found one or more mutations in just over half of the samples.

Human brains

Human brains are wired for cooperative activity (The Tribune: 9.11.2011)

Washington: The brain was built for cooperative activity, be it dancing on a television show, constructing skyscrapers or working in an office, a new study has found. Researchers at the John Hopkins University took to the cloud forests of Ecuador, on the slopes of the active Antisana Volcano, to study the plain-tailed wrens. These chubby-breasted rust-and-gray birds are famous for their unusual duets sung by one male and one female that take an ABCD form, with the male singing the A and C phrases and the female singing B and D. They captured some of the wrens and monitored activity in the area of their brains that control singing and found that instead of responding most to its own singing voice, the wrens reacted more strongly to the duet songs.

Human brain forms

After Eyes Go Blind, Brain Forms 'Complementary' Afterimage (Med India: 14.11.2011)

Human brain forms 'complementary' afterimage after eyes cease to see objects, Japanese researchers observe.

When we gaze at a shape and then the shape disappears, a strange thing happens: We see an afterimage in the complementary colour.

Now, the Japanese study has observed for the first time an equally strange illusion: The afterimage appears in a "complementary" shape-circles as hexagons, and vice-versa.

"The finding suggests that the afterimage is formed in the brain, not in the eye," the author, Hiroyuki Ito of Kyushu University, wrote in an email.

More specifically, the illusion is produced in the brain's shape-processing visual cortex, not the eye's light-receiving, message-sending retina.

Ito eliminated the theory that the afterimage was a manifestation of "retinal bleaching"-when the photoreceptors on the retina become ineffective or fatigued through prolonged exposure to light.

Viewing static circles or hexagons produce circular or hexagonal bleached areas on the retina.

Retinal bleaching could not produce "an afterimage shape different from the [typical] retinal bleaching shape," Ito explained.

Neither could the retina transfer information taken in by the left eye to produce an afterimage in the right eye. "The only site that can happen is the brain," the author said.

The research adds to science's understanding of the role of the brain in vision.

"People tend to think that afterimages are meaningless by-products arising from the physiological characteristics of the eye," wrote Ito.

"But I think that the afterimages reflect brain activities and provide us the means to know those activities in a directly visible form," he added.

The findings will appear in an upcoming issue of Psychological Science, a journal published by the Association for Psychological Science.

DNA Nan devices

Giving DNA nanodevices a new role inside living systems (Financial Express: 14.11.2011)

Over the past couple of decades, scientists have been toying with the versatility of Deoxyribonucleic acid (DNA) — the material that carries the genetic code of organisms — in constructing minuscule objects of various shapes in a field of research known as Structural DNA Nanotechnology.

Now, researchers at Bangalore's National Centre for Biological Sciences (NCBS) have shown that these nano-structures can play a role inside a living organism as devices that perform specific tasks. Their findings potentially open the door to a variety of applications, such as bio-imaging, by using the nano-objects to carry sensors, or using them as compartments to study enzymes' activity. "DNA has proven to be a remarkably powerful scaffold to build a variety of programmable synthetic nanomachines," says Yamuna Krishnan, a senior assistant professor in the Chemical Biology Group at NCBS. "However, such DNA nanodevices have only recently been considered to have potential applications in living systems."...

Two recent experiments by Krishnan and fellow researchers Dhiraj Bhatia and Sunaina Surana, which involved introducing nano-devices into a roundworm, are among the first examples of a DNA device shown to be functional in an organism. The two papers, of which Bhatia and Surana were each the lead authors, were published in June.

While DNA is a carrier of genetic information, DNA nanotechnology uses the molecules more as a building material because it is chemically robust and can form a rich repertoire of unusual structures by self-assembly. A related area called DNA Origami, that involves folding long strands of DNA into different shapes like the Japanese art of folding paper, has also emerged in recent years after a technique demonstrated in 2006 by computer scientist Paul W.K. Rothemund of California Institute of Technology.

DNA-based molecular devices can be vastly different in form and function. Some recent examples include a nano-box built by...

professor Jorgen Kjems' lab at Aarhus University in Denmark and a nano-vase from researcher Hao Yan's lab at the Arizona State University, or shapes such as a railed bridge, a genie bottle and a square nut from the Shih Lab at the Dana-Farber Cancer Institute, a teaching affiliate of Harvard Medical School. The first device built by the NCBS researchers, called the I-switch, is simpler in design consisting of two rigid rods of DNA held together by a hinge. "These rods carry on them certain portions of DNA that are sensitive to the acidity of the medium," says Krishnan. "At basic or neutral pH, the I-switch opens to form a linear rod, whereas at acidic pH, the nanodevice undergoes a conformational change, closing into a triangle."

The team attached fluorescent dyes on the I-switch to translate its actions into a pH sensing property. So, the device emitted a green light when.

New Heart Cells

New Heart Cells Increase by 30 Percent After Stem Cell Infusion (Science daily: 16.11.2011)

Healthy, new heart cells have been generated by animals with chronic ischemic heart disease after receiving stem cells derived from cardiac biopsies or "cardiospheres," according to research conducted at the University at Buffalo School of Medicine and Biomedical Sciences.

The research is being presented Nov. 15 at the Scientific Sessions of the American Heart Association in Orlando.

The UB research demonstrated a 30 percent increase in healthy heart muscle cells within a month after receiving cardiosphere-derived cells (or CDCs). This finding is contrary to conventional wisdom which has held that heart cells are terminally differentiated and thus, are unable to divide.

Ischemic heart disease from coronary artery narrowing and prior heart attacks is the most common cause of heart failure, the UB researchers explain. While other investigators have largely focused on regenerating muscle in scarred tissue, the UB group has shown

that cardiac repair could be brought about by infusing the CDCs slowly into coronary arteries of the diseased as well as normal areas of the heart.

"Whereas most research has focused upon irreversible damage and scarring following a heart attack, we have shown that a single CDC infusion is capable of improving heart function in areas of the heart that are viable but not functioning normally," explains study co-author John M. Canty Jr., MD, the Albert and Elizabeth Rekate Professor of Medicine in the UB medical school and UB's chief of cardiovascular medicine

He explains that areas of myocardial dysfunction without fibrotic scarring are common in patients with heart failure from coronary artery disease and that they arise from remodeling in response to a heart attack, as well as adaptations that develop from periods of inadequate blood flow, sometimes called hibernating myocardium.

"The rationale for our approach is somewhat analogous to planting seeds in fertile soil versus trying to grow plants in sand," Canty comments.

"We have shown that cells derived from heart biopsies can be expanded outside of the body and slowly infused back into the coronary arteries of animals with chronic dysfunction from restricted blood flow or hibernating myocardium," says Gen Suzuki, MD, research assistant professor of medicine in the UB medical school and lead author on the research. "The new cardiac muscle cells are small and function more normally than diseased large, hypertrophied myocytes."

Canty adds that infusing stem cell formulations directly into coronary arteries also delivers the cells throughout the heart and is much simpler than injecting cells directly into heart muscle which requires equipment that is not widely available.

The research currently is in a preclinical phase but the UB researchers expect that translation to determine effectiveness in patients could take place within two to three years or possibly even sooner.

Co-authors on the paper are Thomas Cimato, M.D., Ph.D., assistant professor of medicine and Merced Leiker, research associate in the UB Division of Cardiovascular Medicine.

The research was funded by the Department of Veterans Affairs; the Empire State Stem Cell Board; the National Heart, Lung and Blood Institute of the National Institutes of Health; and the Albert and Elizabeth Rekate Fund.

Steam cell therapy

Heart repair with steam cell therapy? (The Asian Age 16.11.2011)

In what could turn out to be a big revolution in cardiovascular medicine, scientists claim that a research of heart failure patients, treated with their own stem cells, has achieved “striking” results.

In the trial, published in latest edition of the Lancet journal, cardiac stem cells were used to repair the severely damaged hearts of some 16 patients — the first time this had ever been done in humans. After one

year, the ejection fraction or “pumping efficiency” of the hearts of eight patients had improved by more than 12 per cent.

All patients whose progress was followed underwent some level of recovery.

The results tripled the four per cent improvement researchers had expected to see.

Although this was an early stage trial and larger studies are needed, the scientists believe that the promise it shows has huge

implications.

“The results are striking.

While we do not yet know why the improvement occurs, we have no doubt now that ejection fraction increased and scarring

decreased. If these results hold up in future studies, I believe this could be the biggest revolution in cardiovascular medicine,” the Daily Telegraph quoted lead scientist Roberto Bolli at Louisville University.

In fact, a total of 23 patients took part in the “Scipio” trial, all of whom had suffered heart failure due to previous heart attack.

Sixteen were assigned to the stem cell therapy while the other seven received standard

care. Heart failure occurs when a damaged heart is weakened and unable to pump enough blood around the body. It is commonly caused by a heart attack and can lead to serious disability and a shortened life.

The ground-breaking new treatment involved extracting cardiac stem cells (CSCs) — self-renewing cells that rebuild hearts and arteries — from patients during bypass surgery, say the scientists.

Heart -transplant

Heart wasted after 7 turn down transplant on Diwali (The Times of India: 16.11.2011)

Lulled Into Complacency, They Believed They Were Better

Sunita Chauhan (name changed), who has been on the waiting list for a heart transplant at Sir Gangaram Hospital for the past five months, was lucky. A heart failure patient, the 53-year-old on October 24 got a call from her doctor, Dr Sujay Shad, director of the hospital's heart transplantation programme, informing her that a matching donor had been finally found.

The family of a 35-yearold brain dead patient was willing to donate her heart that matched the specifications that are needed for Sunita Chauhan. But to the hospital's dismay, Sunita refused to undergo the surgery. The reason: She didn't want to undergo the surgery on the day of Diwali. "What if I die? My family for the rest of their lives will not be able to celebrate the festival of light," she told Dr Shad. Heart donation is rare in India. About 10,000 heart failure patients require heart transplant, but only four undergo the surgery due to lack of donors.

Hence, Dr Shad did not want to let go the opportunity. He asked Dr Balram Airan, head of the heart transplantation programme at All India Institute of Medical Sciences (AIIMS), if any of his patients on the waiting list matched the donor.

Dr Airan contacted six patients whose blood group, height and weight matched the donor's, making them eligible recipients. Again, neither of them wanted to undergo the surgery on Diwali.

Most of them said that they were feeling better due to their changed lifestyle, and hence would not want to undergo the transplant.

Dr Shad, then, contacted the Army R&R hospital, but the authorities there couldn't find a matching recipient.

"Shockingly, the donation went waste. In most cases, patients requiring a heart transplant, die waiting for a matching donor. Here, we had a donor but none of the patients who would die without a transplant agreed to get operated on that day. By October 26 – the day of Diwali — we gave up the donated heart," Dr Shad said.

Sunita came to see Dr Shad on Tuesday. "She is in distress and is unlikely to survive even a few weeks. No heart donor is available at present. And even if it is, Sunita is no more in a position to undergo the surgery. If she had undergone the heart transplant that day, her chances of survival would have been at least one more year. Some patients have lived for over 10 years after a transplant," he added.

Dr Ramakant Panda, cardiac surgeon at Asian Heart Institute (Mumbai), said since donor hearts are in short supply, patients who need a heart transplant go through a meticulous selection process. They need to be sick enough to need a new heart, yet healthy enough to receive it.

“Survival rates for people receiving heart transplants have improved over the past five to 10 years, especially in the first year after the transplant. About 88% of the patients survive the first year after transplant, and 72% survive for five years. The 10-year survival rate is close to 50%, and 16% of heart transplant patients live for 20 years. After the surgery, 90% of them come close to resuming their normal life,” Dr Panda added.

Dr Shad lamented that heart failure patients who get some relief through medication start believing that they can continue feeling fine for long.

“Perhaps, the patients started to believe the improvement would be long lasting. But their heart was just about coping, and would fail any day. That’s what happened to Sunita,” Dr Shad added.

Experts say a donated heart needs to be transplanted and working within four hours of being taken out of the donor’s body.

HEART OF THE CRISIS

When the heart can't pump enough blood to meet body's needs, it leads to heart failure. Narrowed coronary arteries or high BP makes heart too weak to pump efficiently. A transplant is then required

CAUSES

Coronary artery disease
Weak heart muscles
Congenital heart defect

WHY HEART TRANSPLANT

▶ Failing, diseased heart replaced with healthy donor heart
▶ Necessary when medication, surgery doesn't work

LIVING ON THE EDGE

▶ Not enough donors. Most people die waiting for a transplant
▶ India's first heart transplant done in August 3, 1994, at AIIMS
▶ Five heart transplant centres: 3 in Delhi, 2 in Chennai
▶ 10,000 patients require transplant every year
▶ Only 4 undergo surgery due to lack of matching donors
▶ Less than 100 heart transplants done in India in 17 years
▶ 90% heart transplant patients survive for at least 1 year; some live beyond 10 years



REJECTION OF THE DONOR HEART

▶ Body's immune system often refuses to accept donor heart
▶ 40% heart transplant recipients in India show signs of rejection in first year despite receiving medication to reduce activity of immune system
▶ Usually rejection is without symptoms and requires adjustment of medication

Healing crystals

Healing crystals therapy for anxiety (The Times of India: 16.11.2011)

Chronic anxiety needs special attention. Mita Bhan, crystal medicine therapist, says crystals have been used for years by healers and can act as supportive therapy to relieve symptoms of anxiety

Everyday anxiety is normal. We all know what it feels like. Those butterflies in the stomach before an exam or that nagging worry that refuses to go away. But when anxiety turns chronic and worrying becomes a disease, special attention is needed. Psychotherapy and prescription drugs are one line of treatment. Another is a more natural, supportive therapy like energy healing, yoga, meditation or even healing crystals. These colourful

gifts from Mother Nature can alleviate many of the symptoms of anxiety by as much as 30 to 40% over time. Healing crystals work best as a supportive therapy to other forms of healing. They can be worn as healing jewellery or placed on the chakras or energy centres of the body. As part of treatment, they can also be kept in the patient's bedroom or office or be carried in the purse or wallet. Healing crystals for treating anxiety:

Blue calcite:

Sky blue in colour and easily available, it works gradually, absorbing worry and other negative emotions. It is best worn as a pendant in silver. You can also hold it during an anxiety attack for relief.

Iron pyrite:

It works as a shield blocking out negative thoughts and helps you differentiate between a real fear and an imagined one. It enables you to overcome the fatigue of nervous tension by boosting your energy. For best results, place it next to your pillow or chakra during a crystal therapy session.

Rose quartz:

This pink stone of love and compassion eases anxiety involving a loved one. Wear it as a bracelet or necklace. This crystal imparts peace and calm on extended use.

Amethyst:

Purple in colour, this 'worry stone' absorbs feelings of sadness, worry, insomnia and restlessness. The commonly available amethyst is best worn as a bracelet or pendant set in silver, or placed by the bedside for good sleep. You can get most of these healing crystals at an alternative healing store, your local jeweller or with a healer. Remember to be patient as crystal healing is a gradual and subtle process. Cleansing and energizing healing crystals before use is important if you want maximum benefits.

Stem cells

Now, take heart from stem cells (The Times of India: 16.11.2011)

Trials Show They Can Battle Cardiac Failure

Results from the first small-scale human trials to use the heart's own stem cells to battle heart failure have been found to be promising.

Published in the Lancet on Monday, the study showed that Left Ventricular Ejection Fraction (LVEF) — the measurement of how much blood is being pumped out of the left

ventricle of the heart (the main pumping chamber) with each contraction after the patient received an infusion of one million cardiac stem cells (CSCs) via a balloon catheter increased from 30.3% before the procedure to 38.5% four months later. The positive effects of CSCs were even more pronounced at the end of a year in eight of the CSC patients, whose LVEF increased by 12.3% (from 30.2% before the procedure to 42.5%).

In the seven treated patients, whose cardiac MRI could be done, the size of the dead tissue decreased from 32.6g by 7.8g (24%) after four months and 9.8g (30%) at the end of the first year.

The study was conducted by professor Roberto Bolli of University of Louisville and professor Piero Anversa of Harvard Medical School. The authors concluded the results are significant because they introduce a new potential treatment for heart failure. Dr Sujay Shad, head of the cardiac transplant programme at Gangaram Hospital, said, “If the study can be replicated, it’s a great advance. Around eight in every million people suffer significant heart failure, who require hospital admission. The twoyear mortality among these patients in India is 75%, and in five years’ time, none of them are expected to be alive.”

Heart failure is a common, disabling and an expensive disorder. Despite advances over the past 30 years, the prognosis for patients remains poor, with a five-year mortality that is nearly 50% worse than those suffering from breast or colon cancer.

Ischaemic heart disease — the blockage of heart blood vessels causing death of heart muscle tissue — is the most common cause of heart failure. This leads to the heart pumping less blood, leading to a decrease in LVEF. Available treatments do not address the fundamental problem of the loss of cardiac tissue.

Consequently, interest in attempts to repair the failing heart with the use of stem cells has been increasing, since this approach has the potential to regenerate dead tissues and could alleviate the underlying cause of heart failure.

The paper says, “The adult heart contains CSCs that are self-renewing, clonogenic and multipotent. This means they differentiate into all three major cardiac lineages — myocytes, vascular smooth muscle cells and endothelial cells). We, therefore, undertook a Phase 1 clinical trial of CSCs in patients with heart failure after a heart attack to assess the safety and feasibility of intracoronary CSC infusion. Our results suggest that CSCs can be isolated and expanded.”

The authors reported the results in 23 patients with severe heart failure (LVEF less than 40%), each of whom has had coronary artery bypass grafting (CABG). Around 16 of these received CSCs, while the other seven (control group) received standard care.

MATTER OF HEART

- The positive effects of cardiac stem cells were even more pronounced at the end of a year in eight of the CSC patients, whose LVEF increased by 12.3%
- In the seven treated patients, whose cardiac MRI could be done, the size of the dead tissue decreased from 32.6g by 7.8g (24%) after four months

Rare gene

Rare gene may be behind impulsivity, alcohol problems in men (New Kerala: 18.11.2011)

A new study has revealed that a rare gene may be responsible for impulsivity, alcohol problems in men.

Being impulsive can lead us to say things we regret, buy things we really don't need, engage in behaviours that are risky and even develop troublesome addictions.

The research, led by University of Nebraska-Lincoln assistant professor of psychology Scott Stoltenberg, found links between impulsivity and a rarely researched gene called NRXN3.

The gene plays an important role in brain development and in how neurons function.

The newly discovered connection, which was more prevalent among men than women in the study, may help explain certain inclinations toward alcohol or drug dependence, Stoltenberg said.

"Impulsivity is an important underlying mechanism in addiction. Our finding that NRXN3 is part of the causal pathway toward addiction is an important step in identifying the underlying genetic architecture of this key personality trait," Stoltenberg stated.

For the study, researchers measured impulsivity levels in nearly 450 participants - 65 percent women, 35 percent men - via a wide range of tests. Then, they compared those results with DNA samples from each participant.

They found that impulsivity was significantly higher in those who regularly used tobacco or who had alcohol or drug problems.

The results, interestingly, also came down along gender lines. In men, two connections clearly emerged, first, between a particular form of the NRXN3 gene and attentional impulsivity, and second, between another NRXN3 variant and alcohol problems.

The connections for women, meanwhile, were much weaker.

Stoltenberg said the gender-specific results are a rich area for further study.

"We can't really say what causes these patterns of association to be different in men and women. But our findings will be critical as we continue to improve our understanding of the pathways from specific genes to health-risk behaviours," he added.

Genetic

Genetic Rearrangements Drive 5 to 7 Percent of Breast Cancers (Science Science daily:21.11.2011)

Researchers at the University of Michigan Comprehensive Cancer Center have discovered two cancer-spurring gene rearrangements that may trigger 5 to 7 percent of all breast cancers. These types of genetic recombinations have previously been linked to blood cancers and rare soft-tissue tumors, but are beginning to be discovered in common solid tumors, including a large subset of prostate cancers and some lung cancers.

Looking at the genetic sequencing of 89 breast cancer cell lines and tumors, researchers found two distinct types of genetic rearrangements that appear to be driving this subset of breast cancers. The recurrent patterns were seen in the MAST kinase and Notch family genes. The findings were published online in Nature Medicine ahead of print publication.

"What's exciting is that these gene fusions and rearrangements can give us targets for potential therapies," says senior authors Arul Chinnaiyan, M.D., Ph.D., director of the Michigan Center for Translational Pathology, Howard Hughes Medical Institute Investigator, and S.P. Hicks Professor of Pathology at the U-M Medical School. "This is a great example of why treating cancer is so challenging. There are so many different ways genes get recombined and so many molecular subtypes, that there's not one solution that will work for all of them."

"The research provides additional evidence that these types of genetic rearrangements seem to be a significant cause of solid tumors," he adds.

The discoveries illuminate a promising path for future research, Chinnaiyan says. Gene sequencing offers opportunities to develop treatments for individuals whose tumors carry specific genetic combinations -- a process commonly known as "personalized medicine."

The study demonstrated that the genetic rearrangements had profound effects on breast cancer cells in the lab, both in tissue culture and in mouse models.

"We cloned each of these rearrangements and introduced them into normal breast cell lines, where they appeared to have cancer-causing effects," Chinnaiyan says.

Previous U-M research showed that half of prostate cancers have a genomic rearrangement that causes the fusion of two genes called TMPRSS2 and ERG. This gene fusion, believed to be the triggering event for these prostate cancers, was initially discovered in 2005 by U-M researchers led by Chinnaiyan.

Additional authors: Dan R. Robinson, Shanker Kalyana-Sundaram, Yi-Mi Wu, Sunita Shankar, Xuhong Cao, Bushra Ateeq, Irfan A. Asangani, Matthew Iyer, Christopher A. Maher, Catherine S. Grasso, Robert J. Lonigro, Michael Quist, Javed Siddiqui, Rohit Mehra, Xiaojun Jing, Thomas J. Giordano, Michael S. Sabel, Celina G. Kleer, Nallasivam Palanisamy, Chandan Kumar-Sinha, all of U-M. Kalyana-Sundaram also of Bharathidasan University, Tiruchirappalli, India. Rachael Natrajan, Maryou B. Lambros, Jorge S. Reis-Filho, of the Breakthrough Breast Cancer Research Centre, Institute of Cancer Research, London, UK.

Personality Gene

Personality Gene Visible in 20 Seconds! (Science Science daily: 21.11.2011)

In a matter of 20 seconds detection of whether a stranger is genetically inclined to being trustworthy, kind or compassionate is possible, claim researchers.

In the study, 23 romantic couples were videotaped while one of the partners described a time of suffering in their lives. The other half of the couple and their physical, non-verbal reactions were the focal point of the study.

Groups of complete strangers viewed the videos. The observers were asked to rate the person on traits such as how kind, trustworthy, and caring they thought the person was, based on just 20 seconds of silent video.

"Our findings suggest even slight genetic variation may have tangible impact on people's behaviour, and that these behavioural differences are quickly noticed by others," said Aleksandr Kogan, a postdoctoral fellow at the University of Toronto and the study's lead author.

The study builds on previous research conducted by Sarina Rodrigues Saturn, an assistant professor of psychology at Oregon State University.

In that study, Saturn and her colleagues linked a genetic variation that affects hormone/neurotransmitter oxytocin's receptor to empathy and stress reactivity.

Before the videos were recorded, the scientists tested the couples and identified their genotype as GG, AG, or AA.

Individuals homozygous for the G allele (carrying two copies of the G version of the gene) of the oxytocin receptor tend to be more "prosocial," defined by researchers as the ability to behave in a way that benefits another person.

In contrast, the carriers of the A version of the gene (AG or AA genotypes) tend to have a higher risk of autism, as well as self-reported lower levels of positive emotions, empathy and parental sensitivity.

The people carrying an A version of the gene were viewed as less kind, trustworthy and caring toward their partners in the video.

What is not known, however, is what occurs from the genetic level to the behaviour - that is, the exact way the gene affects the biology underlying behaviour is still poorly understood and remains a major topic of inquiry.

The study appeared in the latest issue of Proceedings of the National Academy of Sciences (PNAS).

Hormone Therapy

Combined Hormone Therapy Worsens Breast Cancer Risk Over Estrogen Alone (Med India: 21.2011)

Wondering whether combination therapy of estrogen and progestin better or worse than just giving women estrogen alone adds to the already ongoing debate on using menopausal hormone therapies to relieve symptoms in post-menopausal women. In women who still have a uterus (those who have not had a hysterectomy), progestin counteracts the increased risk of uterus cancer when estrogen is given alone, but at the expense of an increase in breast cancer risk compared to estrogen alone.

Now a study by researchers at UCLA's Jonsson Comprehensive Cancer Center has found that women taking the combination estrogen and progestin menopausal hormone therapy who experienced new onset breast tenderness had a 33 percent greater subsequent risk of developing breast cancer than women who did not experience breast tenderness. In contrast, among women taking estrogen alone, those who experienced new-onset breast tenderness did not have a higher subsequent risk of breast cancer.

"This study showed that developing new breast tenderness after the start of hormone therapy was associated with increased breast cancer risk only in women on the combination estrogen plus progestin therapy, not estrogen therapy alone." said study first author Dr. Carolyn Crandall, a professor of general internal medicine and a scientist with UCLA's Jonsson Comprehensive Cancer Center

The study appears in the Nov. 17, 2011 in the early online edition of the peer-reviewed journal Breast Cancer Research and Treatment.

A previous study by Crandall, published last month, found that the new onset of breast tenderness was much more pronounced after initiation of estrogen and progestin therapy than in women getting estrogen therapy alone. The association between new onset breast tenderness and changes in breast density also was more pronounced in the women getting the combination hormone therapy.

"The consistent theme we've run across throughout these studies is that estrogen and progestin compared to estrogen alone have a more marked effect on breast tissue," Crandall said. "One theory is that there may be more growth of breast tissue, making the breasts more dense, when women take the combination therapy."

Multiple population studies have shown that higher breast density is associated with a higher risk of breast cancer. In women with extremely dense breasts, the cancer risk can be four to six times higher than for women whose breasts are not dense, Crandall said.

Women taking estrogen did have breast tenderness, though not as much as those on the combination therapy, and it clearly didn't signal an increased risk of breast cancer. Crandall cautioned that women taking hormone therapy in general are only at a slight risk for developing breast cancer overall. A previous study estimated that, out of 10,000 women who take combination estrogen plus progestin hormone therapy for one year, eight additional women developed breast cancer than would have normally have been expected to get the disease.

"We don't want to incite panic because breast cancer is rare in women taking hormone therapy, but the point is that women are terrified of getting breast cancer as a result of menopausal hormone therapy," Crandall said. "Where I think this study would be important is for women already on either combination hormone therapy or estrogen alone. If they do develop breast tenderness, it would be good for them to know the results of this study and to consider discussing them with their physician."

Crandall said it's too early to call for an increase in the frequency of clinical breast exams and mammograms in women on hormone therapy based on these studies. However, a woman on hormone therapy who experiences new onset breast tenderness should be vigilant about getting her regular clinical breast exams and mammograms.

One finding in this study was expected, that estrogen and progestin has a greater impact on the breast and that women on the combination therapy had more breast tenderness than women on estrogen alone. What was surprising, Crandall said, was that women taking estrogen alone did have breast tenderness, but that didn't correlate to increased risk of breast cancer.

"It's intriguing to think the same symptom in two sets of women taking different hormone therapies could mean something different," Crandall said.

For this prospective study, Crandall and her team analyzed data from more than 27,337 women enrolled in the Women's Health Initiative (WHI). Of the 27,337 women, 16,608 were on the combination therapy, while 10,739 were taking estrogen alone. Launched in 1991, the WHI consisted of a set of clinical trials and an observational study involving 161,808 healthy, postmenopausal women.

"These findings highlight the complexity inherent in the use of surrogate risk markers to assess menopausal hormone therapy-associated breast cancer risk," the study states.

Immune system

Immune system can abort stem cell regeneration (New Kerala: 22.11.2011)

The immune system's T-cells, which protect our body from invading pathogens and illnesses, can also abort stem cells from regrowing bone and tissue, a key factor in bone regeneration.

The study, conducted by the Centre for Craniofacial Molecular Biology of the University of Southern California, examined how mice with genetic bone defects responded to infusions of bone marrow stem cells, or BMMSC.

Under normal conditions, the mice's T-cells produced an inflammatory response, triggering the creation of cellular proteins, interferon (INF) and tumour necrosis factor (TNF)-alpha, which killed the stem cells, preventing the production of new bone, reports the journal Nature Medicine.

Stem cells are found in all multi-cellular organisms that can divide and differentiate into diverse specialized cell types of muscles, tissues and bones and can self-renew to produce more stem cells.

"Normally, T-cells protect us from infection but they can block healthy regeneration from happening," said Songtao Shi, professor at the Centre and study author, according to a California statement.

However, when the mice were given infusions of regulatory T-cells, or Treg -- specialized subpopulation of T-cells -- the levels of the interfering proteins decreased, increasing bone growth and defect repair.

Furthermore, administering the anti-inflammatory drug aspirin at the site of the bone defect also increased the rate at which the stem cells were able to regrow bone.

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Surgery

Surgery helps epilepsy patients lead normal lives (World Newspapers: 25.11.2011)

Two years ago, Shalini Raman (name changed on request) sat down with her doctor to learn about the side effects of a complicated brain surgery to be performed on her.

Ostracised for getting frequent fits, the 18-year-old had been suffering from epilepsy since her teenage and was fed up of being ridiculed by her peers.

Shalini was so traumatised by her condition that she didn't think twice before agreeing to the surgery even though she was told about a rare side effect of the surgery- paralysis.

Today, the management student has no regrets about her decision to go ahead with the surgery; it has been two years and she has not suffered a single epileptic fit since the surgery.

Shalini is not alone, there are many patients like her and the number of success stories is going up every day, say doctors.

“The goal of epilepsy surgery is to identify and remove an abnormal area of the brain from which the seizures originate. The goal is to eliminate seizures or reduce the burden of epileptic fits. About 70% of epileptic patients respond to anti-epileptic drugs, but 30% of the patients do not. About a third of these patients can be helped with surgical procedure,” said Dr Nandan Yardi, epileptologist and president of the Indian Epilepsy Association (Pune chapter).

“With the help of specialised techniques and detailed examinations, the area in the brain responsible for epilepsy is localised and mapped out. An epilepsy surgery is then performed to remove the part of the brain responsible for epilepsy,” said neurologist Avanti Biniwale.

“In Pune, epilepsy surgery was introduced a few years ago with the first operation taking place at Jehangir Hospital, where scores of patients have been operated since with a success rate of nearly 70%,” said neurologist Dr Nasli Ichaporia. While the surgery is recommended for patients who do not respond to medicines, doctors say the vital aspect is selecting the right patient.

“Yes, epilepsy surgery is definitely the way forward and a rising trend in epileptic treatment. But the key is to identify the right candidate for surgery, as a small mistake can prove costly,” said Ichaporia. He said that the procedure to select the patient for surgery is lengthy and detailed.

“Doctors first conduct clinical examinations and record a patient's history followed by electroencephalogram (EEG) examinations of the brain where attacks are recorded. This is followed by other investigations,” he added.

Overnight therapy

Overnight therapy: Dreaming helps ease bad memories (The Times of India: 25.11.2011)

Want to get rid of those traumatic experiences? Well, go to sleep and start dreaming — it can help you deal with bad memories, scientists say.

Researchers from the University of California, Berkeley, found that our brains process emotional experiences during dreams, which is the Rapid Eye Movement (REM) phase of sleep, and this takes the painful edge off difficult memories. “During REM sleep, memories are being reactivated, put in perspective and connected and integrated, but in a state where stress neurochemicals are beneficially suppressed,” study author Els van der Helm was quoted as saying by Daily Mail.

For their study, the researchers recruited 35 healthy young adults and divided them into two groups. Each of them was showed about 150 emotional images twice in 24 hours while an MRI scanner measured their brain activity.

Half of the participants viewed the images in the morning and again in the evening, staying awake between the two viewings, while the other half saw the images in the evening and again the next morning after a full night of sleep.

Those who slept in between image viewings reported a significant decrease in their emotional reaction to the images, the researchers said.

MRI scans, they said, showed sleep caused a dramatic reduction in reactivity in the amygdala — a part of the brain that processes emotions. This allowed the brain’s “rational” prefrontal cortex to regain control of the participants’ emotional reactions, the researchers said.

Genes

Shorter height linked to shortage of genes? (The Times of India: 25.11.2011)

It’s known that genes account for much of a person’s height. Now, scientists have found that people with short stature may actually be missing copies of certain genes.

Researchers found that missing copies of genes or other sections of DNA is associated with half of the genetic impact on our height, the Daily Telegraph reported.

The genetic abnormalities, known as copy number variants (CNV), are alterations within the chromosome that means a cell has either too many or too few copies of a slice of DNA, the acid which contains our genetic code, the researchers said.

In some places this might relate to a connection within the chromosome, but in others part or a whole copy of one or more genes might be either missing or duplicated.

Some CNVs are common but others only occur in a small number of people.

The researchers found that people with more unusual CNV deletions — where part of the genome is missing — have a tendency to be shorter in stature.

While everyone has at least some of these deletions in their genome, covering thousands of individual components of DNA, others have several million.

Gene responsible for alcoholism found

Are you an alcoholic? Blame it on your gene. According to a new study, some people are genetically predisposed to becoming alcoholics as scientist have found a gene which they suspect plays a major role in making a person problem drinker, passing it on to their children as well.

Stem cells

Gold standard' stem cells hailed as 'Holy Grail for regenerative medicine'(New Kerala: 7.12.2011)

British scientists have created the first known batch of “gold standard” stem cells, taken from human embryos and grown in the lab, which could one day lead to a new wave of treatments for degenerative diseases.

The stem cells are of unprecedented quality and could be offered to researchers before the end of next year for eventual use in clinical trials.

Previous embryonic stem cell (ESC) trials in humans have used lower-quality “research grade” cells, which are manipulated and reclassified into “clinical grade”.

However, the new ESCs, described as the “Holy Grail for regenerative medicine”, are of clinical quality from the moment they are donated by patients and do not require a costly and risky conversion.

They are also untainted by animal-derived products, which have been used by other researchers to stimulate growth.

Two lines of stem cells, which can be converted into virtually any type of tissue in the body, have been donated to the UK Stem Cell Bank (UKSCB) by researchers from King's College London.

“The key here is that these are clinical grade lines, they have been set up from the beginning as lines that do not contain animal products and have not got animal products coming into contact with them,” the Telegraph quoted Peter Braude, a leading member of the team as saying.

While ESCs of similar quality could potentially have been cultured in secret by private researchers such as drug companies, these are the first of their kind to be developed for public health benefit.

“Cells that are ready for clinical use have really been the Holy Grail of everybody in terms of regenerative medicine.

“There is still a long way to go ... these are not ready for use now. They get handed over to the stem cell bank and they do exhaustive testing and a lot of lines are going to fail,” he added.

The cells could be handed over to university scientists or private companies by the end of next year, though there would likely be a significant period of preparation by researchers before clinical trials actually began.

Gene

Gene explains why some people sleep more (New Kerala: 7.12.2011)

Some people may be genetically inclined to need longer hours of sleep, a new study has found.

Experts found those with the gene ABCC9 need around 30 minutes more sleep per night than those without it.

Over 10,000 people from different parts of Europe took part in the study, each reporting how long they slept and providing a blood sample for DNA analysis.

When the researchers from the University of Edinburgh and Ludwig Maximilians University in Munich compared these figures with the results of the genetic analysis, they found those with a variation of a gene ABCC9 needed more sleep than the eight-hour average.

The gene ABCC9 is involved in sensing energy levels of cells in the body.

“A tendency to sleep for longer or shorter periods often runs in families despite the fact that the amount of sleep people need can be influenced by age, latitude, season and circadian rhythms,” the BBC quoted Dr Jim Wilson, from the University of Edinburgh’s Centre for Population Health Sciences as saying.

“These insights into the biology of sleep will be important in unraveling the health effects of sleep behaviour,” he said.

Cream gene

Gene that clears fat from body identified (New Kerala: 8.12.2011)

Scientists have identified a "cream gene" that allows people to clear fat from their systems.

For the study, researcher Jan Albert Kuivenhoven focused on two families with unusually high HDL cholesterol and low triglycerides.

In one family, seven members had a mutation in a gene called GALNT2 that allowed them to rapidly break down bad fats. In the other family, just one person had the "cream gene", Daily Mail reported Wednesday.

When family members were given pure cream to drink, those with the gene were much better at breaking down the bad fats, it said quoting the journal Cell Metabolism.

It is thought that normally GALNT2 hinders the breakdown of triglycerides. The mutation stops this from happening, and they are broken down and flushed out of the body more rapidly.

Kuivenhoven, of Groningen University medical centre in the Netherlands, said the finding shows that the study of genes can shed important light on bodily processes.

However, he said it is too early to say whether having the "cream gene" benefits health, perhaps by lowering the risk of heart disease.

Cream is not the only "forbidden fruit" to lose some of its dangers depending on a person's genetics.

A previous study found that smoking, drinking and fast food will not do you any harm - if you have the right genes.

Some of those who lived to a ripe old age had smoked for 85 years, others got through more than two packets of cigarettes a day. They also exercised less than their shorter-lived counterparts but were less likely to become obese, the newspaper said.

The bad news is that it is almost impossible to be sure if you are one of the lucky few blessed with the longevity genes. American researchers said that this means there is no excuse for not taking care of your health.

Gene Therapy

Gene Therapy Achieves Early Success against Hereditary Bleeding Disorder, Study Suggests (Science Daily: 13.12.2011)

Symptoms improved significantly in adults with the bleeding disorder hemophilia B following a single treatment with gene therapy developed by researchers at St. Jude Children's Research Hospital in Memphis and demonstrated to be safe in a clinical trial conducted at the University College London (UCL) in the U.K.

The findings of the six-person study mark the first proof that gene therapy can reduce disabling, painful bleeding episodes in patients with the inherited blood disorder. Results of the Phase I study appeared recently in the online edition of the New England Journal of Medicine. The research is also scheduled to be presented December 11 at the 53rd annual meeting of the American Society of Hematology in San Diego.

Four study participants stopped receiving protein injections to prevent bleeding episodes after undergoing the therapy and have not suffered spontaneous bleeding. Several have also participated in marathons and other activities that would have been difficult prior to gene therapy. The study volunteers were all treated at the Royal Free Hospital in London under the care of Edward G.D. Tuddenham, M.D., Ph.D., a pioneer in the field of blood coagulation and a study co-author.

"This is a potentially life-changing treatment for patients with this disease and an important milestone for the field of gene therapy. It could have ramifications for the treatment of hemophilia A, other protein and liver disorders and chronic diseases such as cystic fibrosis," said first author Amit Nathwani, M.D., Ph.D., a faculty member at the UCL Cancer Institute, Royal Free Hospital and NHS Blood and Transplant (NHSBT).

Hemophilia B is caused by an inherited mistake in the gene for making a protein called Factor IX, which is essential for normal blood clotting. The gene is carried on the X chromosome. As a result, hemophilia B is almost exclusively a disease of men. About 1 in 30,000 individuals inherit the mutation.

Previous efforts to ease hemophilia B symptoms by introducing a correct copy of the gene have been unsuccessful.

The current study used adeno-associated virus (AAV) 8 as the vector to deliver the Factor IX gene along with additional genetic material into the patient's liver. AAV8 was picked because the incidence of natural infection with AAV8 is low. It belongs to a family of viruses that target liver cells but do not cause disease in humans or integrate into human DNA. Participants in the study received no immune suppressing drugs prior to gene therapy.

This approach was jointly pioneered by St. Jude and UCL, initially in the laboratory of study co-author Arthur Nienhuis, M.D, a member of the St. Jude Department of Hematology.

For this study, each patient received a one-time infusion of the vector into a vein in the arm. Two patients each were treated with escalating doses of the vector. Following treatment, Factor IX levels rose in all six patients from less than 1 percent of normal levels prior to the gene therapy to between 2 and 12 percent.

Factor IX levels increased the most in the two study volunteers who received the highest dose of the experimental vector, researchers said. After treatment, levels of the protein ranged from 3 to 12 percent in those men. Even modest increases that raise Factor IX production to more than 1 percent of normal levels have the potential to dramatically affect a patient's quality of life and reduce bleeding episodes, said the study's senior author Andrew Davidoff, M.D., chair of the St. Jude Department of Surgery.

"The first patient has been followed for the longest time, and his levels have remained at 2 percent for more than 18 months. These results are highly encouraging and support continued research. More patients are scheduled to be enrolled in future trials scheduled to begin later this year," Davidoff said.

One of the participants who received the highest dose of the vector underwent successful, short-term steroid treatment after his liver enzymes rose slightly after the vector infusion. The rise signalled mild liver damage. The volunteer remained otherwise healthy, his Factor IX levels remain above pre-infusion levels and his liver enzymes have returned to normal. Liver enzymes also rose slightly, but remained in the normal range, for the other participant who received the highest dose of the vector. That participant also received a short course of steroids.

Researchers believe an immune response targeting the vector triggered the elevated enzyme levels. A similar response was reported in earlier gene therapy trials conducted by other investigators using a different vector.

The vector used in this study was produced at the Good Manufacturing Practices (GMP) facility on the St. Jude campus. The GMP operates under U.S. government-approved manufacturing guidelines and produces highly specialized medicines, vaccines and other products that pharmaceutical companies are reluctant to pursue. The vector can also now be produced in a similar facility at UCL.

Other authors are Savita Rangarajan, Basingstoke and North Hampshire Foundation Trust; Cecilia Rosales, Jenny McIntosh and David Linch, all of UCL Cancer Institute; Pratima Chowdary, Anja Griffioen, Anne Riddel, Jun Pie, Chris Harrington and James O'Beirne, all of Royal Free NHS Trust; Keith Smith, NHSBT; John Pasi, Bertie Glader, Pradip Rustagi and Mark May, all of Stanford University; Catherine Y.C. Ng, Junfang Zhou, Yunyu Zpense, Christopher Morton, all of Queen Mary's School of Medicine,

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Stem cell

Stem cell study: Govt wants to draw ethical line (The Times of India: 16.12.2011)

Should gamete donation be allowed in India? What about couples undergoing In-vitro Fertilization (IVF) donating spare embryos for research? These are some of the contentious issues on which the Indian Council of Medical Research (ICMR), in collaboration with Department of Biotechnology (DBT), is looking to the public for answers and suggestions. Towards this end, the health research wing of the government has organised a public consultation programme in the Capital on Saturday.

According to Dr V M Katoch, director general of ICMR, the aim is to develop a consensus among scientists, pharmacists and the public. "The ICMR-DBT guidelines on stem cell research and therapy were prepared in 2007. We are revising it and the public consultation programme is an attempt to seek suggestions on the same," said Katoch. He added that the 'Biomedical Research Human Subjects Promotion and Regulation Bill,' to regulate and monitor research on the human subjects including use of stem cells for experimental and therapeutic purposes, is also being finalized.

A senior research official, working on the guidelines, said embryonic stem cell research is one of the contentious issues which will be discussed.

"Across the world, there are research projects going on to prove the efficacy of stem cells derived from the embryo to treat genetic disorders. The IVF technique, in which multiple embryos are produced, can be a good source of these embryos but ethical issues need to be looked at. It is a restricted area of research and only those institutions and investigators, both public and private, approved by the National Apex Committee for Stem Cell Research and Therapy (NAC-SCRT) are allowed such research," she said.

Embryonic stem cells have caught the interest of researchers for its ability to divide more rapidly than adult stem cells, potentially making it easier to generate large numbers of cells for therapeutic means. Once stem cells are retrieved, an embryo dies out. The official added that research on the efficacy of stem cell therapy on spinal injury patients, those suffering from heart disease and Parkinson's among others is still on but there is no final word on its success.

"As of today there is no approved indication for stem cell therapy as part of routine medical practice, other than Bone Marrow Transplantation (BMT). Accordingly, all stem

cell therapy other than BMT shall be treated as experimental. Patients should not be charged for it at all. Also, centers having necessary medical facilities and clearance from statutory bodies can practice it,” said the ICMR researcher.

Hospitals in the city, however, have been making claims of using this therapy to treat several diseases like cancer, leukaemia, spinal cord injuries, cerebral palsy and immune deficiency diseases. Short of alternatives, patients do not mind loosening their purse strings to opt for this expensive therapy if there is hope of recovery. Even foreign patients come here for treatment.

STEMMING VIOLATIONS

With stem cell therapy gaining ground, government has prepared guidelines underscoring key issues. TOI takes a look

MANDATORY CONDITION

Institutions and investigators engaged in stem-cell research should register with National Apex Committee for Stem Cell Research and Therapy and Institutional Committee for Stem Cell Research & Therapy for permissible and restricted research

RESTRICTED AREAS

Use of spare embryos from IVF clinics
Creation of human zygote by IVF and other methods
Research that makes identity of gamete or somatic cell donor available

BLANKET BAN

In-vitro culture or manipulation of human embryo beyond 14 days
Research related to reproductive cloning

PERMISSIBLE AREAS

Research and therapy using adult & foetal stem cells
Setting up umbilical cord stem-cell bank

CONTENTIOUS ISSUES

Use of spare embryos | IVF technique produces multiple embryos, which scientists claim, are feasible sources of embryonic stem cells
Creation of embryos for research
Therapeutic cloning | Lab technique for creating clonal embryo using an ovum with a donor nucleus
Gamete donation and banking | Banking sperm or ovum for research

PUBLIC OPINION:
Govt will hold public interaction

Brain abnormalities

Brain abnormalities behind teens' cannabis use (Med India: 16.12.2011)

Australian scientists have for the first time found the brain abnormalities that make teenagers more likely to smoke cannabis.

The study of more than 100 Melbourne teens also confirmed that cannabis harms the brain, adding weight to a raft of previous research on damage caused by long-term use of the drug.

Researchers from Monash and Melbourne universities took high-tech images of the brains of 155 primary school students when they were 12.

Four years later when they reached their milestone 16th birthday, the students were asked whether they had used cannabis.

Of 121 who responded, 28 admitted to using the drug.

When the researchers checked the scans taken when those students were 12, they found a part of the frontal lobe area in their brains was smaller than those in teens who steered clear of cannabis.

Lead researcher Prof Dan Lubman said the students with abnormalities in the orbitofrontal cortex - the brain region involved in memory, reward and decision making - were more prone to using cannabis.

"What we found is that only the orbitofrontal cortex predicted later cannabis use, suggesting that this particular part of the frontal lobe increases an adolescent's vulnerability to cannabis use," the Herald Sun quoted him as saying.

The study is the first to examine whether existing brain abnormalities have a role in whether teens start using cannabis.

Onco Therapies

Onco Therapies gets USFDA nod for anti-cancer chemotherapy drug (New Kerala: 16.12.2011)

Onco Therapies Ltd, a wholly-owned subsidiary of Strides Arcolab Ltd (Strides), today announced that it has received approvals from US health regulator for Cytarabine injection, an anti-cancer chemotherapy drug.

Cytarabine is used to treat different forms of leukemia, including acute and chronic myelogenous and acute lymphocytic leukemia.

The product is also used to treat lymphoma, meningeal leukemia and lymphoma (cancers found in the lining of the brain and spinal cord).

Cytarabine is part of oncology portfolio licensed to Pfizer in January, 2010 for the US market and expected to be launched shortly, the company said.

As per IMS data, the US market for Cytarabine is around 12.3 million dollar. (UNI)

Gene

Gene Discovered for Weaver Syndrome (Science Daily: 19.12.2011)

Scientists have found a gene that causes Weaver syndrome, a rare genetic disorder that typically causes large size at birth, tall stature, developmental delay during childhood, and intellectual disability. Published recently in the American Journal of Human Genetics, the discovery means that testing the EZH2 gene for mutations could help families who are seeking a diagnosis for their child.

For the families among whom we identified the gene, this discovery definitively brings the diagnostic odyssey to a close -- it's DNA confirmation that their children have Weaver syndrome," says Dr. William Gibson, the study's lead investigator. Dr. Gibson is a clinician scientist at the Child & Family Research Institute at BC Children's Hospital and an assistant professor in the Department of Medical Genetics at the University of British Columbia (UBC).

"Our discovery enables DNA-based diagnostic testing for this particular disease," says Dr. Gibson. "For physicians who suspect Weaver syndrome in one of their patients, we

can now confirm it if we find mutations in EZH2. There may still be other Weaver syndrome genes, and we need to study more families to be sure."

Presently, doctors diagnose Weaver syndrome by assessing a child's face, growth, skeleton and other clinical features. People with Weaver syndrome have an oversized head, typical facial features, problems with muscle tone and joints, and differences in the way their skeleton matures. Mutations in the NSD1 gene, which normally causes a rare disease called Sotos syndrome, are also known to cause Weaver syndrome in some cases. There may be other genes involved in Weaver syndrome that are yet to be discovered.

"Now we have an answer for these families and we are also in a position to provide answers to other families affected by this rare and difficult disease," says Dr. Gibson. He is available to see new patients clinically for diagnosis of Weaver syndrome. As a result of this discovery, Dr. Gibson's team now offers sequencing of the EZH2 gene on a research basis in partnership with the Ottawa Hospital Research Institute.

Traditionally, hunting for a disease-causing gene has relied on tracking a gene throughout a family's history. However, Weaver syndrome usually occurs only once in a family, as it is thought to be caused by a new genetic mutation in the sperm or egg that conceived the child. For this study, the investigators sought patients with Weaver syndrome from Canada and the United States. They approached Dr. David Weaver, who discovered the syndrome in 1974 and is professor emeritus of Medical and Molecular Genetics at Indiana University School of Medicine in Indianapolis. In two families that Dr. Weaver had examined, the Canadian team looked for brand new genetic mutations by comparing the DNA of affected children to DNA from their unaffected parents. Once the investigators identified EZH2 as a candidate gene, they sequenced it in DNA samples from a third Canadian family. They confirmed that an EZH2 mutation was in this third family's child but not in either of her healthy parents.

EZH2 is a cancer gene that is known to be mutated in leukemia, B-cell lymphomas and some other blood cancers. The gene helps control how DNA is packaged around specific proteins, which in turn helps to regulate which groups of genes are turned off and on.

"Our finding illuminates an emerging area of biology that links developmental syndromes and cancer," says Dr. Gibson. "It appears that some mutations in EZH2, if these occur early in life, produce developmental syndromes such as Weaver syndrome, whereas mutations in the same gene that occur later in life can produce cancer."

Dr. Steven Jones is the study's senior author who led the DNA sequencing and bioinformatics. He is head of bioinformatics and associate director of the Michael Smith Genome Sciences Centre at BC Cancer Agency, professor in the UBC Department of Medical Genetics, and professor, Molecular Biology & Biochemistry at Simon Fraser University (SFU).

This research evolved out of a new consortium called FORGE Canada (Finding of Rare Disease Genes in Canada). It is funded by Genome Canada, Canadian Institutes of Health Research, Ontario Genomics Institute, Genome Québec and Genome British Columbia. Dr. Gibson is also supported by the Child & Family Research Institute (CFRI), and Dr. Steven Jones is supported by the Michael Smith Foundation for Health Research.

Hormone replacement therapy

Hormone replacement therapy ups breast cancer risk (New Kerala: 22.12.2011)

Researchers have found convincing evidence that use of hormone replacement therapy (HRT) increases risk of breast cancer.

This study comes at a time when more women are again asking for this medication to control hot flashes and other symptoms of menopause.

The rising trend is at odds with a U.S. Women's Health Initiative (WHI) study of 2002, which found a higher incidence of breast cancer, heart attack and stroke among women using HRT.

Those findings led to a rapid decline in HRT use – and a subsequent reduction in the incidence of breast cancer in many countries. However, HRT is now being offered to women in smaller doses and for a shorter period of time.

In their study, the McMaster University researchers found “convincing evidence” for a direct association between decreased HRT use after the WHI study and the declining incidence of breast cancer.

“The evidence is compelling that HRT use increases the risk of breast cancer, and its cessation reduces this risk,” the researchers said.

“In our study we examined all studies that have reported breast cancer and rates of HRT use after the WHI study. There is very clear evidence that the countries with the highest HRT rates had the largest decrease in breast cancer incidence when HRT use started to decline,” said Dr. Kevin Zbuk, assistant professor of oncology at the Michael G. DeGroote School of Medicine at McMaster and lead author on the study.

“Given the potential harms associated with HRT use, physicians and patients alike should be reminded of the lessons learned from the WHI trial. If HRT is needed, it should be used for the shortest time and at the lowest dose necessary to relieve symptoms,” he noted.

Their finding appears in the January 2012 issue of the Journal of Epidemiology and Community Health.

Surgery

Surgery complications down with teamwork: Study (World Newspapers: 22.12.2011)

Hospitals that introduced a programme to boost communication and teamwork among doctors and nurses saw a decrease in surgery-related complications, according to a study. The findings, based on nearly 1,20,000 operations and published in the Archives of Surgery, come a year after researchers reported a drop in patient death rates with the same programme.

Under the system, which is designed to catch medical errors before they lead to harm, the surgery team uses a checklist to discuss the patient and the procedure before starting surgery, then debriefs afterwards.

Patients may be involved in the briefings as well. "Patients like it, staff like it, it is better for morale," said Douglas Paull, a surgeon at the Veterans Health Administration's National Center for Patient Safety in Ann Arbor, Michigan, who worked on the study.

"(Doctors and nurses) work in teams, we care about one another and we care about the patient, and it shows and outcomes are better," he told Reuters Health.

Paull and his colleagues compared infections, blood clots and other complications in patients being treated at 42 Veterans Health Administration (VHA) facilities that had implemented the so-called Medical Team Training programme, and another 32 that hadn't.

In the year before surgical staff were trained in the communication and teamwork program, hospitals in that group had 90 non-fatal complications out of every 1,000 surgeries, on average.

That dropped to 75 in the year after the programme was established. In comparison, there was a smaller drop from 81 complications to 76 for every 1,000 surgeries in facilities that hadn't taken up the programme — which researchers said could have been due to chance. Specifically, facilities implementing the training saw a drop in surgery-related blood clots and both skin surface and deep wound infections.

In all, 37 of the 42 facilities with the new system improved their complication rates, versus 22 of 32 hospitals that didn't have the extra focus on teamwork and communication.

"If you look at our training programmes, we've so much focused on tying knots and putting tubes in the right place -individual skills," said Peter Pronovost, a critical care doctor who has studied surgical complications at the Johns Hopkins University School of Medicine in Baltimore.

"But we've underfocused on teamwork and that systems view, and a lot of patients are suffering needlessly because of it," he told Reuters Health. Paull said that the system would work in hospitals outside the VHA system as well, noting that lack of communication can drive up costs and injure patients needlessly — and is highly preventable.

Pronovost urged patients and their families to be aware of the communications aspect of their care.

"If your clinician isn't welcoming of your questions, isn't welcoming of you being a partner on your team, that should be a red flag," he said.

"If they're welcoming not only your input but the nurses' input and other members of the care team's input, that's a really positive sign that they're likely to make wise decisions."

Blue Brain Project

Blue Brain Project: modelling the human brain in the lab (The Hindu: 22.12.2011)

Science has advanced in the Second Millennium in ways that we now challenge ourselves into doing what we could not have earlier. We have embarked on an experiment to determine the ultimate particle of which all nuclei, atoms, molecules and materials are made anywhere on earth or in the vast sky. We look for the “God particle”. We have sent man-made crafts to other planets, and have made machines and tools that enquire whether life exists elsewhere in the sky, and whether there are other planets similar to ours that may supports life- “second earths”. We have read the “book of human life”, the 3.2 billion- letter-long code of DNA that makes us what we are.

But the book of life tells us how our body works. DNA determines the physiology and biochemistry. What about the brain? Can we ‘model’ the human brain in the laboratory? How do the trillions of cells in our brain connect with one another so that it can do all that it does – pick up information from the outside world, make sense out of it and act, learn things and control our thoughts?

There are two ways to approach this grand challenge. One is to try and understand the neurons (nerve cells) of “lower” organisms – worms, flies, fish, rats and such, and build on this knowledge. This involves experiments on the “normal” organism and on its “mutants” – its cousins who are born (or tampered with in the lab) with one or more neural problem. Many biologists are involved in such experiments, and several more directly study humans with neurological problems and try to make sense out of the basis behind such errors in the brain.

This field is busy; every year as many as 60,000 papers are published in this area of neuroscience. But we need to learn from them, bring the pieces together and make sense

out of them. This approach is incremental, building from what we have learnt and plan new experiments there from. With advent of computers, another approach called in silico (since computers use silica chips) has emerged. This exploits the fact that information is collected and collated in the brain via connections between neurons; based on the results of such neural interactions, the brain processes the information and acts on it. So then, why not model this using the computer?

By the mid-1970s, information technology had advanced to such a level that companies, notably IBM, had thought of modelling the “thought” behind chess games that we humans play. The advanced computers programming that they did at that time was christened “Deep Thought” (a term coined by researchers at Carnegie Mellon University, including Dr. Thomas Anantharaman). By the 1990s, IBM had put together a then gigantic computer system that was named ‘Blue Gene’ (blue being the nickname for IBM, and gene referring to the kind of biologically realistic model of DNA-based and protein-based information processing). One of the noteworthy programming done using the capabilities of Blue Gene was to play chess. Real chess involves calculating the consequences of moving pieces from place to place, each step determined by the possible consequences of what the “opponent” does in response, with the ultimate aim of winning. Having done this, Blue Gene challenged a human champion, Gary Kasparov, to a series of chess games. (Comfortingly for us, the human won over the machine then, but who knows what tomorrow has to offer).

It is these advances in computers that led Dr. Henry Markram of Ecole Polytechnique Federal de Lausanne, Switzerland, to think of creating supercomputer models of the brain that would be accurate to the last biological details. To this end, he has put together what he calls the Blue Brain Project (the blue here symbolizing supercomputers).

The approach of Blue Brain is binary. It uses the information available from the hundreds of thousands of publications of neuroscientists on one hand, and ability of computer programmers to create connectivities between the millions of “neurons” in silico on the other. Combining the two, he expects to build a facility that would aim at data integration and help build brain models.

What has been achieved so far? His group was able to incorporate data collected from genetics, cell signalling pathways and electrophysiology, and program them on a supercomputer. And by 2006, they were able to simulate one of the neocortical columns of the brain of a rat. The neocortex is that part of the brain responsible for higher functions such as thought and consciousness. The neocortex of the rat consists of many columns, each 2 mm tall and 0.5 mm thick and has 10,000 neurons, which are interconnected through synapses (connecting junctions or ‘solders’). The number of such synapses in one such rat column is 100 million. The task is thus not trivial and Markram believes that by the next a few months, a cellular circuit of 100 neocortical columns and a million cells will have been built.

And given enough money, it should be possible in about 10 years hence, to get the first to the first draft of a unified model of the human brain. It will not be a complete model, but

one that will account for what we know. Believable Boast by the Builder of the Blue Brain! Hope the Bursaries Buy it! (An interview of Dr Markram by Greg miller appears in the 11 November 2011 issue of Science).

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Cornea Gene

Cornea Gene Discovery Reveals Why Humans See Clearly (Science Daily: 20.12.2011)

A transparent cornea is essential for vision, which is why the eye has evolved to nourish the cornea without blood vessels. But for millions of people around the world, diseases of the eye or trauma spur the growth of blood vessels and can cause blindness.

A new Northwestern Medicine study has identified a gene that plays a major role in maintaining clarity of the cornea in humans and mice -- and could possibly be used as gene therapy to treat diseases that cause blindness. The paper is published in the Proceedings of the National Academy of Sciences.

"We believe we've discovered the master regulator gene that prevents the formation of blood vessels in the eye and protects the clarity of the cornea," said lead author Tsutomu Kume, associate professor of medicine at Northwestern University Feinberg School of Medicine and a researcher at Feinberg Cardiovascular Research Institute.

The existence of the gene, FoxC1, was previously known, but its role in maintaining a clear cornea is a new finding. Working with a special breed of mice that are missing this gene, Kume and colleagues found abnormal vascular formations, or blood vessels, streaking their corneas and blocking light.

When Kume discovered the corneal blood vessels in the mutant mice, he called a collaborator at the University of Alberta in Canada, Ordan Lehmann, MD, professor of ophthalmology and medical genetics.

Lehmann found that his patients who have a single copy of this mutated FoxC1 gene -- and who have congenital glaucoma -- also have abnormal blood vessel growth in their eyes.

"The exciting thing is by showing the loss of FoxC1 causes vascularization of the cornea, it means increasing levels of the gene might help prevent the abnormal growth of blood vessels, potentially in multiple eye disorders that cause blindness," said Lehmann, a coauthor on the paper. "That's the hope." One possible use might be in corneal transplants, he said, where the growth of new blood vessels onto the transplanted cornea is a major problem.

Kume next plans to test the gene therapy in mice to see if injecting FoxC1 inhibits the formation of blood vessels in the cornea.

The research is funded by National Institutes of Health and Canadian Institutes of Health Research.

Cosmetic Surgeries

Cosmetic Surgeries Performed Overseas Need Revision Surgeries Back Home (Med India: 20.12.2011)

It has come to light that cosmetic surgeries performed overseas are not perfect as patients need cosmetic revisions after they return to Australia.

In most cases doctors felt that corrective surgeries were mandatory failing which the patient's life would have been at risk. The incidence of corrective revisions rose by 38% in the previous year.

Surgeons also reported seeing cases of permanent disfigurement which they could not rectify. This has also left many patients psychologically scarred.

Immune System

Severe Sepsis Can Lead to Impairment of Immune System, Study Suggests (Science Daily: 23.12.2011)

An analysis of lung and spleen tissue from patients who died of sepsis revealed certain biochemical, cellular and histological findings that were consistent with immunosuppression, according to a study in the December 21 issue of JAMA.

Sepsis is responsible for more than 225,000 deaths annually in the United States. Developing new therapies for sepsis has been particularly challenging, with more than 25 unsuccessful drug trials. Characterized by an initial intense inflammatory response or 'cytokine storm,' patients with sepsis may present with fever, shock, altered mental status, and organ dysfunction," according to background information in the article. "Whether this hyperinflammatory phase is followed by immunosuppression is controversial. Animal studies suggest that multiple immune defects occur in sepsis, but data from humans remain conflicting."

Jonathan S. Boomer, Ph.D., of the Washington University School of Medicine, St. Louis, and colleagues conducted a study to assess evidence of immunosuppression in sepsis and to determine mechanisms that might be responsible for the presumed impaired immunity.

For the study, to characterize their immune status at the time of death (2009-2011), postmortem spleen and lung tissue harvest was performed on 40 patients who died in intensive care units (ICUs) with active severe sepsis. Control spleens (n = 29) were obtained from patients who were declared brain-dead or had emergency splenectomy due to trauma; control lungs (n = 20) were obtained from transplant donors or from lung cancer resections. Various tests were performed on the tissue samples to identify potential mechanisms of immune dysfunction.

The average ages of patients with sepsis and controls were 72 and 53 years, respectively. The median (midpoint) number of ICU days for patients with sepsis was 8, while control patients were in ICUs for 4 or fewer days. The median duration of sepsis was 4 days. Among the results of the researchers were that

patients who died of sepsis had biochemical, flow cytometric (cell analysis), and immunohistochemical (process of detecting antigens in cells of a tissue section) findings that were consistent with immunosuppression, compared with the patients who died of nonsepsis causes.

"The present study has a number of important therapeutic implications. Most investigative agents in sepsis have been directed at blocking inflammation and immune activation. Although such therapies may be successful if applied early, they may be harmful if applied later in the immunosuppressive phase. As supportive therapies of sepsis have improved, early deaths have decreased and most patients enter a more protracted phase, with evidence of impaired immunity made manifest by infections with relatively avirulent organisms. An important part of implementing more targeted therapies will be to accurately determine the immune status of individual patients during their disease," the authors write.

Cancer Cells

Researchers Use Light to Measure Cancer Cells' Response to Treatment (Science daily: 26.12.2011)

Many cancer therapies target specific proteins that proliferate on the outside of some cancer cells, but the therapies are imperfect and the cancer does not always respond. Since it is beneficial for doctors to know as soon as possible how a cancer is affected by treatment, researchers from Vanderbilt University are striving to design tests that assess treatment response rapidly, accurately, and cost-effectively. The team has demonstrated a new way to optically test cultured cancer cells' response to a particular cancer drug. The results appear in the December issue of the Optical Society's (OSA) open-access journal Biomedical Optics Express.

Certain cancer cells display a higher-than-normal number of proteins called human epidermal growth factor receptor 2 (HER2). In healthy cells, HER2 helps mediate cell growth, but overexpression of HER2 can mark one of the most aggressive forms of breast

cancer. Drugs that bind to and block growth factor receptors have been shown to prolong life in some cancer patients, but about 30 percent of HER2 overexpressing tumors do not respond to the drug. Tests to identify these non-responding tumors early on would help doctors make important treatment decisions that could improve patient outcomes.

To design such a test, the Vanderbilt team took advantage of the fact that some cancer cells preferentially use a different metabolic pathway when compared to normal cells. The researchers visualized the relative use of the different pathways by shining the cells with frequencies of light that caused two different metabolic molecules to naturally fluoresce. They then calculated a ratio between the two levels of fluorescence, called an optical redox ratio. The team found that, of the different cell lines they tested, HER2 overexpressing cells had the highest optical redox ratio. They also found that when HER2 cancer cells were treated with an HER2-blocking drug, the ratio decreased. This decrease, however, was not observed in cancer cells that were resistant to the drug. The findings lay the groundwork for future in vivo studies and hold the promise that real-time tumor response to treatment might be measured optically.

Gene

Found: Gene that controls memory (The Times of India: 26.12.2011)

A team led by an Indian-origin neuroscientist has found a gene that “turns on” when memories are stored in the brain, a discovery they believe could help pinpoint the exact locations of memories in the brain.

It's known that when one witnesses a new event, the brain encodes a memory of it by altering the connections between neurons. This needs turning on many genes in those neurons. Now, neuroscientists at the MIT have identified a gene, called Npas4, which is very active in the hippocampus — a brain structure known to be critical in forming long-term memories.

The findings, described in the journal *Science*, would be a breakthrough in pinpointing the exact locations of memories in the brain and might open up new avenues for altering or even creating memory, the researchers said.

“We think of Npas4 as the initial trigger that comes on, and then in turn, in the right spot in the brain, it activates all these other downstream targets,” a researcher said. PTI

Fatal brain disorder

Gene behind fatal brain disorder isolated (New Kerala: 27.12.2011)

A blood test could help diagnose a devastating brain disorder that is often misdiagnosed and ends in fatality.

People who inherit the abnormal gene CSF1R always develop HDLS (hereditary diffuse leukoencephalopathy with spheroids), a disorder of the brain's white matter that leads to death between 40 and 60 years.

Mayo Clinic researchers in Florida have identified 14 different mutations in the gene CSF1R that bring on HDLS. Until now, a definite diagnosis required examination of brain tissue by biopsy or autopsy.

"Given this finding, we may soon have a blood test that can help doctors diagnose HDLS, and I predict we will find it is much more common than anyone could have imagined," says Mayo study investigator, neurologist Zbigniew K. Wszolek.

A number of people who tested positive for the abnormal gene had been diagnosed with a wide range of other conditions. They were related to a patient known to have HDLS, and so their genes were also examined, adds Wszolek.

"Because the symptoms of HDLS vary so widely, everything from behaviour and personality changes to seizures and movement problems, these patients were misdiagnosed as having either schizophrenia, epilepsy, Parkinson's, multiple sclerosis, stroke," says Wszolek.

"Many of these patients were therefore treated with drugs that offered only toxic side-effects," adds Wszolek. Wszolek's interest in HDLS began when a severely disabled young woman came to see him in 2003 and mentioned that other members of her family were affected.

The diagnosis of HDLS was made by his Mayo Clinic colleague, Dennis W. Dickson, who reviewed the autopsy findings of the patient's uncle, who had previously been misdiagnosed with multiple sclerosis, and subsequently, Wszolek's patient and her father. All members of the family had HDLS.

The study, which included 38 researchers from 12 institutions in five countries, led by Rosa Rademakers found the gene responsible for HDLS. (IANS)

Surgery

Surgery complications down with teamwork: Study (World Newspapers: 27.12.2011)

Hospitals that introduced a programme to boost communication and teamwork among doctors and nurses saw a decrease in surgery-related complications, according to a study.

The findings, based on nearly 1,20,000 operations and published in the Archives of Surgery, come a year after researchers reported a drop in patient death rates with the same programme.

Under the system, which is designed to catch medical errors before they lead to harm, the surgery team uses a checklist to discuss the patient and the procedure before starting surgery, then debriefs afterwards.

Patients may be involved in the briefings as well. "Patients like it, staff like it, it is better for morale," said Douglas Paull, a surgeon at the Veterans Health Administration's National Center for Patient Safety in Ann Arbor, Michigan, who worked on the study.

"(Doctors and nurses) work in teams, we care about one another and we care about the patient, and it shows and outcomes are better," he told Reuters Health.

Paull and his colleagues compared infections, blood clots and other complications in patients being treated at 42 Veterans Health Administration (VHA) facilities that had implemented the so-called Medical Team Training programme, and another 32 that hadn't.

In the year before surgical staff were trained in the communication and teamwork program, hospitals in that group had 90 non-fatal complications out of every 1,000 surgeries, on average.

That dropped to 75 in the year after the programme was established. In comparison, there was a smaller drop from 81 complications to 76 for every 1,000 surgeries in facilities that hadn't taken up the programme — which researchers said could have been due to chance.

Specifically, facilities implementing the training saw a drop in surgery-related blood clots and both skin surface and deep wound infections.

In all, 37 of the 42 facilities with the new system improved their complication rates, versus 22 of 32 hospitals that didn't have the extra focus on teamwork and communication.

"If you look at our training programmes, we've so much focused on tying knots and putting tubes in the right place -individual skills," said Peter Pronovost, a critical care doctor who has studied surgical complications at the Johns Hopkins University School of Medicine in Baltimore.

"But we've underfocused on teamwork and that systems view, and a lot of patients are suffering needlessly because of it," he told Reuters Health. Paull said that the system would work in hospitals outside the VHA system as well, noting that lack of communication can drive up costs and injure patients needlessly — and is highly preventable.

Pronovost urged patients and their families to be aware of the communications aspect of their care.

"If your clinician isn't welcoming of your questions, isn't welcoming of you being a partner on your team, that should be a red flag," he said.

"If they're welcoming not only your input but the nurses' input and other members of the care team's input, that's a really positive sign that they're likely to make wise decisions."

Brain Cell

Brain Cell Malfunction in Schizophrenia Identified (Science daily: 30.12.2011)

Scientists at The Scripps Research Institute have discovered that DNA stays too tightly wound in certain brain cells of schizophrenic subjects. The findings suggest that drugs already in development for other diseases might eventually offer hope as a treatment for schizophrenia and related conditions in the elderly

The research, now available online in the new Nature journal, Translational Psychiatry, shows the deficit is especially pronounced in younger people, meaning treatment might be most effective early on at minimizing or even reversing symptoms of schizophrenia, a potentially devastating mental disorder associated with hallucinations, delusions, and emotional difficulties, among other problems.

"We're excited by the findings," said Scripps Research Associate Professor Elizabeth Thomas, a neuroscientist who led the study, "and there's a tie to other drug development work, which could mean a faster track to clinical trials to exploit what we've found."

A Promising New Field

Over the past few years, researchers have increasingly recognized that cellular-level changes not tied to genetic defects play important roles in causing disease. There is a

range of such so-called epigenetic effects that change the way DNA functions without changing a person's DNA code.

One critical area of epigenetic research is tied to histones. These are the structural proteins that DNA has to wrap around. "There's so much DNA in each cell of your body that it could never fit in your cells unless it was tightly and efficiently packed," said Thomas. Histone "tails" regularly undergo chemical modifications to either relax the DNA or repack it. When histones are acetylated, portions of DNA are exposed so that the genes can be used. The histone-DNA complexes, known as chromatin, are constantly relaxing and condensing to expose different genes, so there is no single right or wrong configuration. But the balance can shift in ways that can cause or exacerbate disease.

DNA is the guide that cellular machinery uses to construct the countless proteins essential to life. If portions of that guide remain closed when they shouldn't because histones are not acetylated properly, then genes can be effectively turned off when they shouldn't be with any number of detrimental effects. Numerous research groups have found that altered acetylation may be a key factor in other conditions, from neurodegenerative disorders such as Huntington's disease and Parkinson's disease to drug addiction.

A Good Idea

Thomas had been studying the roles of histone acetylation in Huntington's disease and began to wonder whether similar mechanisms of gene regulation might also be important in schizophrenia. In both diseases, past research in the Thomas lab had shown that certain genes in sufferers were much less active than in healthy people. "It occurred to me that we see the same gene alterations, so I thought, 'Hey, let's just try it,'" she said.

Working with lead author Bin Tang, a postdoctoral fellow in her lab, and Brian Dean, an Australian colleague at the University of Melbourne, Thomas obtained post-mortem brain samples from schizophrenic and healthy brains held at medical "Brain Banks" in the United States and Australia. The brains come from either patients who themselves agreed to donate some or all of their bodies for scientific research after death, or from patients whose families agreed to such donations.

A great deal of epigenetic research has focused on chemical alterations to DNA itself. Histone alterations have been much more difficult to study because such research requires that the histones and DNA remain chemically intact. Many researchers feared that these bonds were disrupted in the brain after death. However, Thomas's group was able to develop a technique for maintaining the histone-DNA interactions. "While many people thought this was lost, we were able to show that indeed these interactions are preserved in post-mortem brain, allowing us to carry out these studies," said Thomas.

Compared to healthy brains, the brain samples from subjects with schizophrenia showed lower levels of acetylation in certain histone portions that would block gene expression.

Another critical finding was that in younger subjects with schizophrenia, the problem was much more pronounced.

Need for New Treatment Options

Just what causes the acetylation defects among schizophrenic subjects -- what keeps certain pages of the DNA guide closed -- isn't clear, but from a medical perspective it doesn't matter. If researchers can reliably show that acetylation is a cause of the problem, they can look for ways to open the closed guide pages and hopefully cure or improve the condition in patients.

Thomas sees great potential. Based on the more pronounced results in younger brains, she believes that treatment with histone deacetylase inhibitors might well prove helpful in reversing or preventing the progression of the condition, especially in younger patients. Current drugs for schizophrenia tend to treat only certain symptoms, such as hallucinations and delusions, and the drugs have major side effects including movement problems, weight gain, and diabetes. If deacetylase inhibitors effectively treat a root cause of the disease and prove sufficiently non-toxic, they might improve additional symptoms and provide a major expansion of treatment options.

Interestingly, some of the cognitive deficits that plague elderly people look quite similar biologically to schizophrenia, and the two conditions share at least some brain abnormalities. So deacetylase inhibitors might also work as a treatment for age-related problems, and might even prove an effective preventive measure for people at high risk of cognitive decline based on family history or other indicators.

Memory

Why Some Older People May Be Losing Their Memory (Med India: 30.12.2011)'

Silent strokes or small spots of dead brain cells, found in about one out of four older adults has been linked to memory loss in the elderly.

The study is published in the January 3, 2012, print issue of *Neurology*®, the medical journal of the American Academy of Neurology

"The new aspect of this study of memory loss in the elderly is that it examines silent strokes and hippocampal shrinkage simultaneously," said study author Adam M. Brickman, PhD, of the Taub Institute for Research on Alzheimer's Disease and the Aging Brain at Columbia University Medical Center in New York.

For the study, a group of 658 people ages 65 and older and free of dementia were given MRI brain scans. Participants also underwent tests that measured their memory,

language, speed at processing information and visual perception. A total of 174 of the participants had silent strokes.

The study found people with silent strokes scored somewhat worse on memory tests than those without silent strokes. This was true whether or not people had a small hippocampus, which is the memory center of the brain.

"Given that conditions like Alzheimer's disease are defined mainly by memory problems, our results may lead to further insight into what causes symptoms and the development of new interventions for prevention. Since silent strokes and the volume of the hippocampus appeared to be associated with memory loss separately in our study, our results also support stroke prevention as a means for staving off memory problems," said Brickman.

The study was supported by the National Institutes of Health.

The American Academy of Neurology, an association of 24,000 neurologists and neuroscience professionals, is dedicated to promoting the highest quality patient-centered neurologic care. A neurologist is a doctor with specialized training in diagnosing, treating and managing disorders of the brain and nervous system such as Alzheimer's disease, stroke, migraine, multiple sclerosis, brain injury, Parkinson's disease and epilepsy.

Stem cell

Stem cell cure for hearing loss in aged (The Times of India: 30.12.2011)

In a first of its kind study, a team of scientists in the UK have tried to “grow” new stem cells in the ear that get damaged with age, a finding they say could help combat hearing loss associated with old-age.

Researchers at Keele University found that in some cases hearing begins to decline when fibrocytes — cells in the inner ear — start to degenerate with age.

Once these cells die and don't function correctly, other parts of the inner ear can become permanently damaged, leading to increased loss of hearing and possible deafness, said the researchers. Dr Dave Furness and his team have begun research which will explore whether replacement fibrocytes and fibrocyte stem cells can be successfully grown and implanted into the ear.

If successful, the research could pave the way towards the prevention of age related hearing loss, Furness said. “We set out to explore why deafness occurs as a result of aging and what we discovered was that fibrocytes, the part of the ear involved in managing fluid composition in the cochlea, do degrade due to old age,” Furness said. Once this happens, he said, it causes hearing sensitivity to decrease.

Cancer

Magic Bullet

'Magic Bullet' May Help Detect Very Early Cancers (Med India: 10.10.2011)

Researchers at the University of Nottingham have devised a "magic bullet" to detect very early cancers.

They have pioneered a microscopic "fat bubble" that can home in on disease sites and relay the location.

"This is very exciting. These bubbles can detect disease at a molecular level while existing scanning techniques, including X-rays and MRIs, can only pick things up at later stages, after there have been physical changes," the Daily Express quoted Ultrasound expert Dr Melissa Mather as saying.

The bubbles, called nano-transducers, are made from fat found in the membrane of naturally occurring cells.

They are injected into the blood and give off sound waves when exposed to an electric charge, allowing doctors to locate tumours.

Scientists say the technique, being co-developed with a team at the University of Queensland, could be available in GP surgeries within a decade.

Brain Cancer

New Way to Screen for Brain Cancer Stem Cell Killers (Science daily: 13.10.2011)

Researchers with UCLA's Jonsson Comprehensive Cancer Center have developed and used a high-throughput molecular screening approach that identifies and characterizes chemical compounds that can target the stem cells that are responsible for creating deadly brain tumors.

Glioblastoma is one of the deadliest malignancies, typically killing patients within 12 to 18 months. These brain cancers consist of two kinds of cells, a larger, heterogeneous population of tumor cells and a smaller sub-population of stem cells, which are treatment-resistant.

The screening system was specifically designed to find drugs that can target that sub-population and prevent it from re-seeding the brain cancer, said study senior author Dr. Harley Kornblum, a Jonsson Cancer Center scientist and a professor of psychiatry and biobehavioral sciences.

"We're pleased that we can present a different way to approach the discovery of potential new cancer drugs," said Kornblum, who also is a researcher with the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA. "And by finding these drugs, we may be able to reveal things about the biology of these cancer stem cells."

The study appears in the Oct. 10 issue of *Molecular Cancer Therapeutics*, a peer-reviewed journal of the American Association of Cancer Research.

After testing more than 31,000 compounds from seven chemical libraries in an initial screen, the team came up with 694 that showed some activity against the brain cancer stem cells. After further narrowing the field down to 168 compounds, they decided to focus on four in future studies because they most successfully inhibited the brain cancer stem cells, Kornblum said.

What Kornblum and his team did in their approach was sort of a reverse of the usual screening processes. Typically, researchers doing high-throughput screening are seeking a drug to hit a specific target they know is on a cancer cell, perhaps a protein that is causing it to grow or a gene that keeps it from dying. In this case, Kornblum said, the team was basically shooting in the dark because the biology of these brain cancer stem cells is largely unknown.

"When brain cancer stem cells were first discovered, we all realized rapidly that we would need to find drugs that attack these cells specifically, because they're resistant to our conventional therapies," Kornblum said. "We needed a way to kill these stem cells."

UCLA's high-throughput screening technology is capable of screening as many as 100,000 compounds in a single day. Researchers generally develop cancer cells lines and then create an assay, a procedure in molecular biology to test or measure the activity of a drug or biochemical compound in an organic sample, in this case the cancer cells.

The cells are loaded into plates with 384 wells each and the drugs are added. The plates are about the size of the palm of an adult hand. The computerized, robotic screening system executes the process from start to finish, adding the compounds sitting in the tiny wells in the plates to the cancer cells, located in corresponding assay plates.

In this study, Kornblum and his team had a few clues to help them in narrowing down potential candidates that kill brain cancer stem cells. One method they used was based on a prior discovery by Jonsson Cancer Center researchers. The researchers had identified genes that correlate with how aggressive a brain tumor is, so Kornblum decided to try to find potential drug candidates that might reduce the expression of these genes. Another approach was to figure out which of the molecules killed brain cancer stem cells with a greater potency than they attacked other cells within glioblastoma.

To grow his cell lines, Kornblum used human tissue taken from UCLA patients diagnosed with glioblastoma. He knew that a certain method of culturing brain cancer cells resulted in a large number of brain cancer stem cells in the population. These cells were then screened with a molecular library of 31,624 compounds available through the cancer center's Molecular Screening Shared Resource. These compounds encompass a wide range of structures and therefore have the possibility of influencing virtually all cellular functions.

"We decided on this type of approach because, although we have learned a great deal about brain cancer stem cells in the past several years, we still have not discovered enough of their biology to be sure that any single target will be the right one to hit," Kornblum said.

Going forward, Kornblum and his team will further study the four identified "lead" compounds to see if they help reveal the biology of the brain cancer stem cells and potentially result in a new and more effective therapy for these deadly brain cancers.

"One of our goals was to determine whether some compounds selectively act on glioblastoma stem cells compared to the less tumorigenic cells from the same tumor," the study states. "This selectivity may allow for the delineation of pathways and processes that are highly important to these cells. By making sure that a drug candidate has the potential to attack these stem cells, one might ensure the highest chance of therapeutic success."

Funding for the study was provided by the Jonsson Comprehensive Cancer Center, the National Cancer Institute and the National Institute of Neurological Disorders and Stroke.

Cancer

Genetic Predisposition to Bone Cancer (MedIndia: 30.11.2011)

Genes may increase the risk of developing bone marrow cancer by 30%, according to researchers at UK's Institute of Cancer Research (ICR). Previously it was known that relatives of people with multiple myeloma have a twofold to fourfold increased risk of suffering the disease themselves, but until now, no responsible gene had been identified.

Scientists scanned the DNA of 1,675 patients with multiple myeloma and compared them to the genes of around 5,900 healthy people. They found two genetic variants that were more common in people with multiple myeloma and therefore were linked to a higher chance of developing the disease.

Study author Richard Houston said, "This study is the first to confirm that some people are genetically predisposed to multiple myeloma. By identifying these genetic variants, we are closer to understanding how this cancer develops. Ultimately, this could lead to improvements in diagnosis and treatment.

Cancer

Zinc Oxide can Cause Cancer: Study (Med India: 1.12. 2011)

Zinc oxide, chemical present in consumer products may cause cancer, suggests study. According to a study led by a group of researchers from the Nanyang Technological University (NTU), Zinc Oxide is used to absorb harmful ultra violet light, but when it is turned into nano-sized particles, they are able to enter human cells and may damage the user's DNA.

This in turn activates a protein called p53, whose duty is to prevent damaged cells from multiplying and becoming cancerous. However, cells that lack p53 or do not produce enough functional p53 may instead develop into cancerous cells when they come into contact with Zinc Oxide nanoparticles.

Joachim Loo and Ng Kee Woei from NTU's School of Materials Science and Engineering worked with Assistant Professor David Leong from the Department of Chemical and Biomolecular Engineering, National University of Singapore, a joint senior author of this research paper.

The findings of the study suggest that companies may need to reassess the health impact of nano-sized Zinc Oxide particles used in everyday products. More studies are also needed on the use and concentration levels of nanomaterials in consumer products, how often a consumer uses them and in what quantities.

"Currently there is a lack of information about the risks of the nanomaterials used in consumer products and what they can pose to the human body. This study points to the need for further research in this area and we hope to work with the relevant authorities on this," Loo said.

According to Kee Woei, the team will carry out further research as the DNA damage brought about by nano-sized Zinc Oxide particles is currently a result of an unknown mechanism. But what is clear is that besides causing DNA damage, nanoparticles can also cause other harmful effects when used in high doses.

"From our studies, we found that nanoparticles can also increase stress levels in cells, cause inflammation or simply kill cells," Kee Woei said.
The study has been published in Biomaterials.

Beat Cancer

Change lifestyle, beat cancer (The Times of India: 8.12.2011)

40% of Cancers Caused By Factors We Can Change: Study

Want to stave off cancer? Just a few simple lifestyle changes would do, a research has claimed. In fact, the research, published in the 'British Journal of Cancer', found smoking is the biggest lifestyle contributor to one's risk of developing cancer. Apart from lung cancer, it has also been linked to causing bladder, kidney, pancreatic and cervical cancer.

One in 25 cancers is linked to a person's job, such as being exposed to chemicals or asbestos, while one in 33 is linked to infections, such as the human papillomavirus (HPV), which causes most cases of cervical cancer. However, the study showed that overall, 34% of cancers in 2010 (106,845) in Britain were linked to smoking, diet, drinking alcohol and excess weight.

In men, 6.1% (9,600) of cancer cases were linked to a lack of fruit and vegetables, 4.9% (7,800) to occupation, 4.6% (7,300) to alcohol, 4.1% (6,500) to overweight and obesity and 3.5% (5,500) to excessive sun exposure and sunbeds.

In women, 6.9% (10,800) were linked to overweight and obesity, 3.7% (5,800) to infections such as HPV, 3.6% (5,600) to excessive sun exposure and sunbeds, 3.4% (5,300) to lack of fruit and vegetables and 3.3% (5,100) to alcohol, the 'Daily Express' reported.

The full list of 14 risk factors are — tobacco, lack of fruit and vegetables, being overweight or obese, alcohol, excessive sun exposure and sunbeds, occupation, infections, radiation, lack of physical exercise, lack of breast feeding, hormones, red meat, lack of fibre and too much salt. Drinking alcohol is linked to a range of cancers, including breast cancer, liver cancer and cancer of the oesophagus. Nine per cent of lung cancers were also linked to a lack of fruit consumption, the study showed.

Professor Max Parkin, a Cancer Research UK epidemiologist based at University of London, and study author, said: "Many people believe cancer is down to fate or 'in the genes' and that it is the luck of the draw whether they get it. Looking at all the evidence, it's clear that around 40% of all cancers are caused by things we mostly have the power to change."

Chemotherapy

Greater Impact of Chemotherapy on Fertility (13.12.2011)

Current estimates of the impact of chemotherapy on women's reproductive health are too low, according to a University of California, San Francisco (UCSF) study. The researchers say their analysis of the age-specific, long-term effects of chemotherapy provides new insights that will help patients and clinicians make more informed decisions about future reproductive options, such as egg harvesting.

Previous studies largely have focused on amenorrhea, or the lack of menstruation shortly after treatment, as the primary reproductive side effect of chemotherapy. In this analysis, the researchers also focused on longer-term, age-specific outcomes associated with chemotherapy, including infertility and early menopause. They also noted that the younger a woman is when diagnosed with cancer, the more likely she will experience early menopause.

"We found chemotherapy essentially narrows a woman's reproductive window by causing a range of damage to the ovaries, even if her menses resume after chemotherapy," said Mitchell Rosen, MD, senior author and assistant professor in the UCSF Department of Obstetrics, Gynecology and Reproductive Sciences.

Many of the women who responded to the survey had been told that as long as their periods came back, they would have no negative impact from treatment, he said.

"We currently make recommendations on preserving fertility based on limited data. These new findings, which also take into account cancer type and age, hopefully will enable us to offer more strategic and personalized counseling," said Rosen, who also is director of the UCSF Fertility Preservation Center.

The study is available online in the journal *Cancer*.

The researchers used the California Cancer Registry, a statewide population-based cancer surveillance system, to ask women about their reproductive history before and after cancer treatment. Survey questions addressed acute ovarian failure (cessation of menses after treatment), early menopause (menopause before 45 years old), and infertility (failed conception).

A total of 1,041 women diagnosed with one of five targeted cancers between the ages of 18 and 40 years old responded, and 620 reported having been treated with only chemotherapy. The five cancer types -- leukemia, Hodgkin's disease, non-Hodgkin lymphoma, breast cancer and gastrointestinal cancers -- were chosen because they are common non-gynecologic cancer groups that can be treated with systemic chemotherapy.

Key findings include:

- The percentage of women reporting acute ovarian failure was 8 percent, 10 percent, 9 percent and 5 percent for Hodgkin's disease, non-Hodgkin lymphoma, breast cancer, and gastrointestinal cancers respectively. Acute ovarian failure increased significantly with age at diagnosis.
- In women without acute ovarian failure, the incidence of infertility increased significantly with age at diagnosis. For instance, the proportion of infertile women with Hodgkin's disease was 18 percent at 20 years old and 57 percent at 35 years old.
- The estimated probability of early menopause increased significantly with younger age at diagnosis. For example, using age as a predictor of early menopause in non-Hodgkin lymphoma, 56 percent of women 20 years old at diagnosis may experience menopause early, compared to 16 percent of those who were 35 years old at diagnosis.

Approximately 120,000 women younger than age 50 develop cancer each year in the United States, according to statistics from the 2006 Surveillance, Epidemiology, and End Results (SEER), and several studies show that loss of reproductive potential after cancer treatment can negatively impact quality of life in young survivors.

While 7 percent of women across the United States report 12-month infertility according to the researchers, the rates of infertility in young cancer patients are unknown.

"We noted proportions of infertility among cancer survivors that appear considerably higher than those in the general United States population," said Joseph Letourneau, MD, the study's lead author. Letourneau was a medical student under Rosen when the research was conducted and now works as a resident physician in obstetrics and gynecology at the University of North Carolina. "When counseling patients, focusing solely on short-term outcomes like loss of menses may give women unrealistically low assessments of their risks, since they could experience infertility or early menopause years to decades after treatment."

Rosen said that more research is needed since the retrospective study did not include specific patient characteristics such as genetics or variations in individual cancer treatments.

"Our analysis adds one more piece to the puzzle," he said. "Doctors will continue to need to use their gestalt and understanding of a patient's life to provide the best guidance."

Cancer, Diabetes

Cancer, Diabetes screening for all in five years: Azad (H T 14.12.2011)

Every Indian will be screened for cancer, diabetes and heart disease over the next five years, health minister Ghulam Nabi Azad said on Tuesday. The Centre, Azad said, has already launched a pilot project in 100 districts. Every Indian will be screened for cancer, heart disease, diabetes and stroke over the next five years, union health minister Ghulam Nabi Azad told Rajya Sabha on Tuesday.

“India will be the first country in the world to screen the entire population in the next five years,” he said.

Pilot projects have already been launched in 100 districts and in the slums of 30 cities with populations of more than 10 lakh, 20,000 sub-centres will screen 17-18 crore people.

The scheme will be implemented in the remaining period of the 11th five-year plan and in 12th plan, the remaining parts of the country will be taken up.

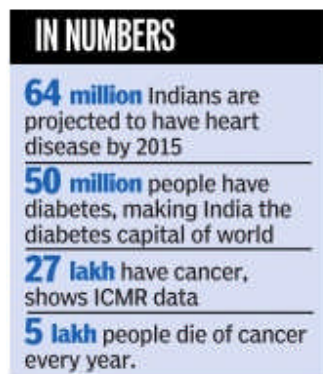
The scheme was started with diabetes and blood pressure screening in Delhi in November 2010. It later travelled to Kolkata, Mumbai, Chennai, Hyderabad and Bangalore.

The Centre provides the test kits and equipment while the states provide the logistics.

In India, 64 million people are projected to have heart disease in 2015 -60% of cases in the world. With over 50 million cases, India is already the world's diabetes capital.

Under the Rashtriya Arogya Nidhi, the Centre gives funds to states to provide up to R1.5 lakh financial assistance to all BPL patients suffering from cancer.

In 2011-12, 2,202 cancer patients have received financial help, of which 241 were recommended by MPs.



Chemotherapy

Chemotherapy: Some useful facts (The Tribune: 14.12.2011)

With cancer spreading fast, people often hear the word “chemotherapy”. What does it exactly stand for? Chemotherapy is the use of medicines or drugs to treat cancer. Many times this treatment is just called “chemo.” Surgery and radiation therapy remove, kill or damage cancer cells in a certain area, but chemo works throughout the body. Chemo can kill cancer cells that have metastasised or spread to different parts of the body far away from the primary (original) tumour.

More than 100 chemo drugs are used in many combinations. A single chemo drug can be used to treat cancer. But in most cases the drugs work better when used in certain combinations. This is called combination chemotherapy. A combination of drugs with different actions can work together to kill more cancer cells. It can also reduce the chance that the cancer may become resistant to any one chemo drug.

What is chemotherapy?

Chemotherapy (also called chemo) is a type of cancer treatment that uses drugs to destroy cancer cells.

How does chemotherapy work?

Chemotherapy works by stopping or slowing the growth of cancer cells, which grow and divide quickly. But it can also harm healthy cells that divide quickly, such as those that line your mouth and intestines or cause your hair to grow. Damage to healthy cells may cause side-effects. Often, side-effects get better or go away after chemotherapy is over.

What does chemotherapy do?

Depending on your type of cancer and how advanced it is, chemotherapy can do the following:

Cure cancer — when chemotherapy destroys cancer cells to the point that your doctor can no longer detect them in your body and they will not grow back.

Control cancer — when chemotherapy prevents cancer from spreading, slows its growth, or destroys cancer cells that have spread to other parts of your body.

Ease cancer symptoms (also called Palliative care) — when chemotherapy shrinks tumours that are causing pain or pressure.

How is chemotherapy used?

Sometimes, chemotherapy is used as the only cancer treatment. But more often, you will get chemotherapy along with surgery, radiation therapy, or biological therapy. Chemotherapy can:

Make a tumour smaller before surgery or radiation therapy. This is called neo-adjuvant chemotherapy.

Destroy cancer cells that may remain after surgery or radiation therapy. This is called adjuvant chemotherapy.

Help radiation therapy and biological therapy work better.

Destroy cancer cells that have come back (recurrent cancer) or spread to other parts of your body (metastatic cancer).

How does my doctor decide which chemotherapy drugs to use?

This choice depends on the following:

1 The type of cancer you have. Some types of chemotherapy drugs are used for many types of cancer. Other drugs are used for just one or two types of cancer.

1 Whether you have had chemotherapy before.

1 Whether you have other health problems, such as diabetes or heart disease.

Where do I go for chemotherapy?

You may receive chemotherapy during a hospital stay, at home, or in a doctor's office, clinic, or the outpatient unit in a hospital (which means you do not have to stay overnight). No matter where you go for chemotherapy, your doctor and nurse will watch for side-effects and make any needed drug changes.

How often will I receive chemotherapy?

Treatment schedules for chemotherapy vary widely. How often and how long you get chemotherapy depends on the following:

Your type of cancer and how advanced it is.

The goals of treatment (whether chemotherapy is used to cure your cancer, control its growth, or ease the symptoms).

The type of chemotherapy.

How your body reacts to chemotherapy.

You may receive chemotherapy in cycles. A cycle is a period of chemotherapy treatment followed by a period of rest. For instance, you might receive 1 week of chemotherapy followed by three weeks of rest. These four weeks make up one cycle. The rest period gives your body a chance to build new healthy cells.

Can I miss a dose of chemotherapy?

It is not good to skip a chemotherapy treatment. But sometimes your doctor or nurse may change your chemotherapy schedule. This can be due to side-effects you are having. If this happens, your doctor or nurse will explain what to do and when to start treatment again.

How is chemotherapy given?

Chemotherapy may be given in many ways.

Injection: Chemotherapy is given by a shot in a muscle in your arm, thigh, or hip or right under the skin in the fatty part of your arm, leg, or belly.

Intra-arterial (IA): Chemotherapy goes directly into the artery that is feeding the cancer.

Intraperitoneal (IP): Chemotherapy goes directly into the peritoneal cavity (the area that contains organs such as your intestines, stomach, liver and ovaries).

Intravenous (IV): Chemotherapy goes directly into a vein.

Topically: Chemotherapy comes in a cream that you rub onto your skin.

Orally: Chemotherapy comes in pills, capsules, or liquids that you swallow.

Can I take vitamins, minerals, dietary supplements or herbs while I get chemotherapy?

Some of these products can change how chemotherapy works. For this reasons, it is important to tell your doctor or nurse about all the vitamins, minerals, dietary supplements and herbs that you take before you start chemotherapy. During chemotherapy, talk to your doctor before you take any of these products.

How will I know if my chemotherapy is working?

Your doctor will give you physical examinations and medical tests (such as blood tests and x-rays). He or she will also ask you how you feel.

You cannot tell if chemotherapy is working based on its side-effects. Some people think that severe side-effects mean chemotherapy is working well. Or that no side-effects mean that chemotherapy is not working. The truth is that side-effects have nothing to do with how well chemotherapy is fighting your cancer.

How can I cope with my feelings during chemotherapy?

Relax: Find some quiet time and think of yourself in a favourite place. Breathe slowly or listen to soothing music. This may help you feel calmer and less stressed.

Exercise: Many people find that light exercise helps them feel better. There are many ways for you to exercise, such as walking, riding a bike, and doing yoga. Talk to your doctor or nurse about ways you can exercise.

Talk with others: Talk about your feelings with someone you trust. Choose someone who can focus on you, such as a close friend, family member, chaplain, nurse, or social worker. You may also find it helpful to talk to someone else who is getting chemotherapy.

Join a support group: Cancer support groups help people with cancer. These groups allow you to meet others with the same problems. You will have a chance to talk about your feelings and listen to other people talk about theirs. You can find out how others cope with cancer, chemotherapy and side-effects. Your doctor, nurse, or social worker may know about support groups near the place where you live. Some support groups also meet online (over the internet), which can be helpful if you cannot travel. (With inputs from the National Cancer Institute, California, US).

The writer is Medical Superintendent, Mohan Dai Oswal Multispeciality & Cancer Hospital, Ludhiana.

Childhood Cancer

Risk of Birth Defects in Offspring Not Increased by Childhood Cancer (Med India: 16.12.2011)

A new study has said that kids of childhood cancer survivors are not at an increased risk for birth defects stemming from their parents' exposure to chemotherapy or radiation.

Childhood cancer survivors' exposure to chemotherapy, radiation does not increase risk of birth defects in their children

The findings provide reassurance that increased risks of birth defects are unlikely for cancer survivors who are concerned about the potential effects of their treatment on their children, and can help guide family planning choices.

"We hope this study will become part of the arsenal of information used by the physicians of childhood cancer survivors if reproductive worries arise," said lead author Lisa Signorello, Sc.D., associate professor of medicine at Vanderbilt University in Nashville, TN, and senior epidemiologist at the International Epidemiology Institute in Rockville, MD.

"Childhood cancer survivors face real reproductive concerns, including unknowns related to the effects of therapy. But, hopefully this study will provide some reassurance that their children are unlikely to be at increased risk for genetic defects stemming from their earlier treatment."

According to Signorello, childhood cancer patients frequently receive aggressive, though life-saving, radiation and chemotherapy treatments that can affect their ability to have children.

For girls, radiation to the pelvis - and the resulting damage to the uterus - has been associated with a risk for pregnancy outcomes such as miscarriage and preterm birth, and effects on the ovaries can lead to infertility. Radiotherapy and chemotherapy with alkylating agents (e.g., busulphan, cyclophosphamide and dacarbazine) are DNA-damaging treatments, affecting both cancer and healthy cells.

In the current study, investigators used information from the Childhood Cancer Survivor Study, a large retrospective study of treatment and outcomes in more than 20,000 childhood cancer survivors diagnosed between 1970 and 1986. Signorello and her colleagues examined data from 4,699 children of 1,128 men and 1,627 women who were 5-year childhood cancer survivors.

The survivors reported their children's health problems through questionnaires, and investigators also examined medical records from survivors and their children, focusing on survivors' history of radiation to the testes or ovaries and chemotherapy with alkylating agents.

Of the survivors, 63 percent (1,736) had received radiation for their cancer as children, and 44 percent of men (496) and 50 percent of women (810) had received chemotherapy with alkylating agents.

Overall, 2.7 percent (129) of the survivors' children had at least one birth defect, such as Down syndrome, achondroplasia or cleft lip. Researchers found that 3 percent of children of mothers exposed to radiation or treated with alkylating chemotherapy agents had a genetic birth defect, compared to 3.5 percent of children of mothers who were cancer survivors but did not have such exposures.

Only 1.9 percent of children of male cancer survivors who received these DNA-damaging treatments had such birth defects, compared to 1.7 percent of children of male survivors who did not have this type of chemotherapy or radiation.

Cancer Care

Cancer Care Upgrading Executed by Patient Empowerment and System Transformation

Medical records can be used by physicians to track the quality of cancer care and determine if their patients are receiving appropriate treatments at proper time. Yet the patient is the only one who ultimately can evaluate the quality of his or her experience while receiving treatment.

In "Quality Measurement and System Change of Cancer Care Delivery," published in the Regenstrief Conference supplement to the December 2011 issue of the journal Medical Care, investigators from the Regenstrief Institute and the Indiana University School of Medicine explore current cancer care quality measurement and discuss new ways to empower patients and promote system transformation to improve quality of care.

Cancer is the second leading cause of death after cardiovascular disease in the United States. However, the federal government and health care quality organizations have fewer reporting requirements for quality of cancer care than for treatment of many other diseases.

"As physicians consider treatment options for prostate, lung, breast and other cancers, they and the health care systems where they practice need to develop better tools to assess and measure the individual patient's values and preferences," said Regenstrief

Institute Investigator David A. Haggstrom, M.D., a research scientist with the Center of Excellence on Implementing Evidence-Based Practice, Department of Veterans Affairs, Veterans Health Administration, Health Services Research and Development Service in Indianapolis. He is an assistant professor of medicine at the IU School of Medicine and a member of the Indiana University Melvin and Bren Simon Cancer Center.

Dr. Haggstrom says that quality medical care cannot subscribe to the one-size-fits-all theory. Questions must be asked, he says, to determine what cancer care is most appropriate for each individual. Does the patient want to be heavily involved in his medical decisions or would he prefer not to be overloaded by information? Does the patient want aggressive treatment from her medical team or does she prefer more conservative approaches?

"We have developed a roadmap which we believe provides a pathway to improve quality measurement and enhance consumer empowerment, thus improving delivery of cancer care," Dr. Haggstrom said. "We propose important approaches that may change how we measure care for cancer patients, tackling such issues as racial disparities, wasteful overuse and patient-centeredness. We also propose applying new models of care to the problems of cancer, including accountable care to better coordinate the care delivered across multiple health care settings, as well as personal health records to deliver and collect medical information to and from patients. These new approaches may well positively disrupt how physicians and patients approach cancer care delivery."

Source-Eurekalert

Cancer cells

Soon, light to measure cancer cells' response to treatment (New Kerala: 22.12.2011)

Scientists have developed new ways to rapidly measure cancer cells' response to drugs and treatment using light, which could help in improving patient outcomes.

Many cancer therapies target specific proteins that proliferate on the outside of some cancer cells, but the therapies are imperfect and the cancer does not always respond.

Since it is beneficial for doctors to know as soon as possible how a cancer is affected by treatment, researchers from Vanderbilt University are striving to design tests that assess treatment response rapidly, accurately, and cost-effectively.

The team has demonstrated a new way to optically test cultured cancer cells' response to a particular cancer drug.

Certain cancer cells display a higher-than-normal number of proteins called human epidermal growth factor receptor 2 (HER2). In healthy cells, HER2 helps mediate cell

growth, but overexpression of HER2 can mark one of the most aggressive forms of breast cancer.

Drugs that bind to and block growth factor receptors have been shown to prolong life in some cancer patients, but about 30 percent of HER2 overexpressing tumors do not respond to the drug. Tests to identify these non-responding tumors early on would help doctors make important treatment decisions that could improve patient outcomes.

To design such a test, the Vanderbilt team took advantage of the fact that some cancer cells preferentially use a different metabolic pathway when compared to normal cells. The researchers visualized the relative use of the different pathways by shining the cells with frequencies of light that caused two different metabolic molecules to naturally fluoresce.

They then calculated a ratio between the two levels of fluorescence, called an optical redox ratio. The team found that, of the different cell lines they tested, HER2 overexpressing cells had the highest optical redox ratio.

They also found that when HER2 cancer cells were treated with an HER2-blocking drug, the ratio decreased. This decrease, however, was not observed in cancer cells that were resistant to the drug. The findings lay the groundwork for future in vivo studies and hold the promise that real-time tumor response to treatment might be measured optically.

The study has been recently published in the Optical Society's (OSA) open-access journal Biomedical Optics Express. (ANI)

Cancer cells

Cancer cells can be kept alive in lab (The Times of India: 20.12.2011)

Breakthrough Sparks New Hope for Treatment of Disease

US researchers said on Monday they have discovered how to keep tumor cells alive in the lab, generating buzz in the scientific community about a potential breakthrough that could transform cancer treatment.

Until now, scientists have been unable to make cancer cells thrive for very long in the laboratory in a condition that resembles the way they look and act in the body. Doctors have largely relied on biopsied tissue that is frozen or set in wax to diagnose and recommend treatment.

The advance has sparked new hope that someday doctors may be able to test a host of cancerkilling drugs on a person's own tumor cells in the lab, before returning to the patient with a therapy that is likely to be a good match. "This would really be the ultimate

in personalized medicine,” said lead author Richard Schlegel, chairman of the department of pathology at Georgetown University’s Lombardi Comprehensive Cancer Center.

“The therapies would be exactly from their tissues. We would get normal tissue and tumor tissue from a particular patient and specifically match up their therapies,” Schlegel said.

“We are really excited about the possibilities of testing what we can do with this.”

The method, described in the online edition of the American Journal of Pathology, borrows on a simple method used in stem cell research, experts said.

Lung, breast, prostate and colon cancers were kept alive for up to two years using the technique, which combines fibroblast feeder cells to keep cells alive and a Rho kinase (ROCK) inhibitor that allows them to reproduce.

When treated with the duo, both cancer and normal cells reverted to a “stem-like state”, Schlegel said, allowing researchers to compare the living cells directly for the first time. The two elements have previously been used separately in stem cell research, according to Yale University pathology professor David Rimm.

Breast Cancer

Breast Cancer

New Clues to Check Aggressive Breast Cancer Identified (Med India: 5.10.2011)

A specific molecule that alters how breast cancer cells move has been identified by researchers from the University of Michigan Comprehensive Cancer Center. This affects the cells' ability to spread or metastasize to distant parts of the body, the hallmark of deadly, aggressive cancer.

By looking at cells in the lab, in mice and in human tissue, as well as developing a mathematical model to predict cell movement, researchers found that the p38-gamma molecule controlled how quickly and easily a cancer cell moved. When p38-gamma was inactivated, cells flattened out and changed from fast motion to an ineffective movement.

"Normal motion is commonly seen in aggressive cancers, which is why it's very important to understand what the key switches are for this motion," says lead study author Sofia Merajver, M.D., Ph.D., scientific director of the breast oncology program at the U-M Comprehensive Cancer Center.

Results of the study appear online in Cancer Research.

Merajver's previous work found that the cancer gene RhoC promotes aggressive metastasis. In this research, her team followed the pathway back to see what controls the cells to make them so aggressive. They identified the p38 molecule, which has several different types, and found in particular p38-gamma is highly expressed in aggressive breast cancer.

The researchers modified the cells so that they inhibited p38-gamma in cell cultures and discovered the changes in shape and motion. Collaborators in the U-M College of Engineering, Ellen M. Arruda, Krishna Garikipati and their team, then developed a mathematical model to show how these changes would impact cell motion. The model predicted exactly what the researchers observed in the cell cultures.

Breast Cancer

New Potential Therapeutic Target for Breast Cancer (Science daily: 10.10.2011)

A possible new target for breast cancer therapy comes from the discovery that the Tyk2 protein helps suppress the growth and metastasis of breast tumors, as reported in Journal of Interferon & Cytokine Research, a peer-reviewed journal published by Mary Ann Liebert, Inc.

Qifang Zhang and Andrew Larner, Virginia Commonwealth University (Richmond, VA), and colleagues from VCU, Temple University School of Medicine (Philadelphia, PA), Jagiellonian University (Krakow, Poland), and Miyazaki University (Japan), present data demonstrating that mice lacking Tyk2 tyrosine kinase that are injected with breast cancer cells exhibit enhanced breast tumor growth and metastasis compared to mice with normal Tyk2 protein expression.

The authors conclude that altered Tyk2 expression affects the ability of the animals' immune systems to respond to the tumor challenge. They present the evidence in the article entitled, "The Role of Tyk2 in Regulation of Breast Cancer Growth," and they describe the role of Tyk2 in immunity-related biochemical signaling pathways.

"This study suggests that boosting Tyk2 activity may be beneficial for arresting breast tumor growth," says Ganes C. Sen, PhD, Chairman, Department of Molecular Genetics, Cleveland Clinic Foundation and Co-Editor-in-Chief of Journal of Interferon & Cytokine Research.

Breast cancer

Awareness is the key to combat breast cancer (World Newspaper: 14.10.2011)

Breast cancer is the most common cancer in the world. Among women in India it is the second most common, after cervical cancer. Awareness and resultant early detection is the key to arresting it and increasing survival rate.

“In the case of breast cancer, while a stage 1 cancer has a 98% 10-year survival rate, a stage 4 cancer has only a 16% survival rate. Unfortunately, 70% of the women who are detected are in stage 3 and 4,” says Dr Anagha Zope, exclusive breast surgeon.

It is very important for women to be 'breast aware', she says. The breast is a dynamic organ and looks and feels different each day of the menstrual cycle and in each phase of life. Women should know what is normal before they can tell what is abnormal, she adds.

“A painless lump is often ignored by women but it is more likely to be cancer than a painful lump. Women don't go to a doctor sometimes because they feel awkward to discuss their breasts or get examined. There is also a stigma attached to cancer,” says Dr Zope.

Says Dr Shailesh Talati, oncologist, “To catch breast cancer in stage 1 is unlikely unless the patient has been very regular in getting screened. The prognosis for the patient depends on the stage, size, spread and type of tumour. Some small tumours in stage 1 are very aggressive and difficult to treat.”

While men also get the disease, women are at 100 times more risk than men. “Family history is by far the major risk factor. A family history of colon or ovarian cancer also predisposes a person to breast cancer. Diet and lifestyle also have a part to play. Another cause is hormone replacement therapy (HRT) which some women go through after menopause,” says obstetrician and gynaecologist Dr Usha Bohra.

After 40, women should take a mammogram every year. If there is a family history they could start five years before the age at which the person in their family got the tumour, says Dr Talati.

Adds Dr Bohra, “Every month after they are done with their periods, women should undertake a breast self-examination. If they find a lump they should immediately see a doctor for a clinical examination and further tests.”

Breast cancer

Breast cancer in urban India nearly doubles in 24 years (The Times of India: 18.10.2011)

Breast cancer cases are spiralling world over, and urban India is no exception. A recent landmark analysis of cancer cases among women in Delhi, Mumbai, Chennai and Bangalore from 1982 to 2005, conducted by the Indian Council of Medical Research (ICMR) shows that the incidence of breast cancer has nearly doubled in metropolitan cities (See box for rise in incidence). On the other hand, cases of cervical cancer, which is the most common form of cancer among Indian women, is dipping—in some cities by almost 50%.

India's National Health Profile 2010 predicts that by 2020, breast cancer will overtake cervical cancer as the most common type of cancer among women in India.

According to Dr Rajni Mutneja, head of preventive oncology at Rajiv Gandhi Cancer Institute, Delhi, almost one in 20 women in metropolitan cities are suffering from breast cancer. "Cases have almost doubled in the last decade, and nearly half of the patients come to us at the final stage when curing it is difficult," he said.

A health ministry official said: "Till a decade ago, breast cancer was diagnosed in around 10 per one lakh women every year. Now, it has more than doubled to 23 per one lakh women. In cities like Chennai, the figures are troubling with the breast cancer ratio as high as 1:33."

TOI also looked at the 10 leading types of cancer that women in urban cities suffered from between 2006 and 2008, and found that breast cancer accounted for a high percentage in each city. In Mumbai, 30% of cancer cases among women were that of the breast; in Delhi and Bangalore it was almost 26.9% while the incidence in Chennai was marginally lower at 26.5%. In Kolkata, it accounted for 27.2% of cancer cases among women and in Pune it was 28.9%.

ICMR has also come out with the "possibility of one in number of people developing cancer of any site" score. The calculation is age specific—0-64 and 0-74 years. In Mumbai and Kolkata, one in 14 women runs the risk of developing cancer before they reach 64 years (See Risk factor). Director general of ICMR Dr V M Katoch said that certain anatomical sites of cancer have shown a significantly steady increase across all registries, breast cancer being one of them. "This data will tell us how we can improve diagnostic capabilities," he said.

Let's Pink is a joint initiative by

The Times of India and Ponds. This is the first in a series of 7 articles on breast cancer. October is Breast Cancer Awareness Month. Let's Pink is a movement to raise awareness on the disease and its prevention.

Breast cancer

LIFESTYLE CHANGES alter breast cancer patient profile (THE Times of India: 19.10.2011)

Breast cancer, the urban malaise is spreading not just in terms of numbers, but is percolating to the poorer sections even as it breaks the age barrier to affect more young Indian women.

If 3,800 women walk into hospitals with breast cancer now as against 1,500 women annually five years back, doctors say the main reason is lifestyle. "In the last 20

years, women have their first child later, don't breast-feed children for long and are overweight compared to their mothers. The results are showing," said Tata Memorial Centre's director Dr Rajan Badwe. Breast cancer, which has genetic component as well, is now mainly lifestyle disease, said experts.

Besides, a study published in Lancet last month showed younger women were dying in larger numbers in developing countries India was no exception, said the study of 187 nations by the Washington University' Institute of Health Metrics And Evaluation

Dr Sanjay Sharma from the Breast Cancer Foundation of India said while the age profile of a breast cancer patient from the West would be 55 to 70 years, the Indian patient could be in the 40-55 age group. However, Dr Badwe says this is because India has more young than old people. Another study, published in August in the British Journal of Cancer by the Indian Cancer Society, showed college-educated Mumbai women had a 90% increased risk for being overweight, compared to illiterate women. It showed in 30 years, rates of breast cancer among women aged 30-64 rose significantly

A recent Breast Cancer Foundation sample survey of 1,000 Mumbai women found a worrisome socio-economic trend "Nannies appointed by urban working women are mimicking employers. They leave their children in slums on packaged milk, forgetting breast-feeding," Dr Sharma said, adding patients from the lower socio-economic strata were hence increasing. The transition of the disease from urban rich to the urban poor is not just in Mumbai but other metros of Delhi, Kolkata, Bangalore and Chennai too, said doctors.

Dr Vinod Raina, head of the department, medical oncology at AIIMS, said, "Late marriages, delayed child-bearing and fewer children, leading to reduced breastfeeding, are behind the increased risk of breast cancer." Dr Shyam Aggarwal, chief of medical oncology at Delhi's Sir Gangaram Hospital, said, "Sedentary lifestyle, increased consumption of fat and less of fruits and vegetables is one of the main reasons for the increased rates of breast cancer among women in urban India."

India's worst statistic, Dr Badwe said, was that though the country's cancer incidence was one-third of the US, death rate due to the disease was almost same. "This is because women, whether old or young, come to us at a very late stage," he said.

(With inputs from Kounteya Sinha)

Let's Pink is a joint initiative by The Times of India and Ponds.

THE ORIGINS

Breast cancer arises from cells lining the milk ducts and slowly grows into a lump. A tumour is believed to take about 10 years to become 1 cm in size, starting from a single cell. A malignant tumour has the ability to spread beyond the breast to other parts of the body via the lymphatics or the blood stream

THE FACTORS

Lifestyle choices or biological characteristics contribute to developing breast cancer
Biological characteristics encoded in DNA are factors that cannot be controlled
Other factors, however, can be controlled to prevent an increased risk for breast cancer

Preventable Factors

BODY WEIGHT Obese or overweight women are at increased risk of developing breast cancer. A woman who exercises four hours per week reduces her risk of breast cancer. Exercise pumps up the immune system and cuts estrogen levels

SMOKING

Smoking not only increases risk of lung cancer, but breast cancer as well. A recent study indicated there may be a link between breast cancer and cigarette smoking and second-hand cigarette smoke, though the relationship is still under investigation. However, smoking decreases survival rate once you have been diagnosed with breast cancer

DRINKING ALCOHOL

The more alcohol you drink, beyond a drink a day, the higher your risk. Studies show that breast cells are exposed to higher levels of estrogen when consuming alcohol, which may trigger them to become cancerous

DIET

Eat a low-fat, nutritious diet. Fat triggers the hormone estrogen, that fuels tumour growth. Fill your diet with plenty of fruits and vegetables

Non-Preventable Factors

FAMILY PRE-DISPOSITION |

If a person has developed breast cancer in the past, or currently has breast cancer, women in the immediate family are at greater risk for breast cancer than those without family history. If you have a grandmother, mother, sister, or daughter who has been diagnosed with breast cancer, this puts you in a higher risk group. See your doctor at any sign of unusual symptoms

AGE |

The risk increases with age. Most cases are found in women over 40, though the number of younger women developing breast cancer is currently on the rise

RACE |

Breast cancer is diagnosed more often in white women than Asian or African women. Reason for this is yet to be defined, but women of all races should still be concerned

REPRODUCTIVE AND MENSTRUAL HISTORY |

Women who experienced their first menstrual cycle before age 12, had menopause after age 55, and/or never had children are at increased risk

Breast cancer

Breast cancer in the elderly: Surgical complications (The Tribune: 2.11.2011)

Worldwide nearly a third of breast cancer (BC) cases occur in women over the age of 65 years. Age is an important factor for BC. This proportion is likely to grow because life expectancy continues to increase. Planning therapy is not always straightforward because older patients may present with the kind of illnesses that limit therapeutic choices.

One characteristic of BC in the elderly is that it is diagnosed at an advanced stage as a result of negligence. Family members have an important role to play in helping elderly women. It is important to assist elderly women to go to the doctor when they find something abnormal in their breast. What need to be observed are changes in the size or shape and skin texture such as puckering or dimpling, inverted nipple, a lump or thickening of breast tissue, redness or a rash on the skin and the nipple, discharge from one or both nipples, constant pain in the breast or armpit, or swelling in the armpit.

The question frequently asked is: Should one screen elderly women for breast cancer? A Dutch breast cancer screening programme has shown that screening mammography of high quality is effective and appropriate up to 75 years of age. The results of this study strongly suggested that screening women aged 70-75 years has a positive impact on breast cancer mortality.

The biological characteristics of breast cancer change with increasing age. Tumours in older patients are more likely to be of low grade, have lower proliferation indices, and tend to be hormone-receptor positive and node negative. Breast cancer may follow a less aggressive course in older women.

Older patients are frequently undertreated, resulting in poor survival. Healthy elders should be managed like younger patients and should be considered for the state-of-the-art treatment programme. Outcomes are compromised in whom less than complete combined modality treatment is undertaken. Multimodality therapy should not be routinely withheld in this group in view of the demonstrated safety.

The oncological management of breast cancer has evolved from radical surgery to modern-day preservation of breast structures. Surgery is the primary treatment of choice. Older patients who do not undergo surgical removal of the tumour are at an increased risk of breast cancer progression and mortality. Breast-conserving therapy has become a primary management option among elderly patients. Breast-conserving surgery, whenever possible, is preferred by most elderly patients. It is offered to patients with small tumours that have not spread. A mastectomy is done for large tumours, and cancer that is in more than one part of the breast. Breast-conserving surgery without radiation treatment results in a significant increase in local recurrence. The elderly patients can be treated with surgery and radiotherapy in accordance with the accepted recommendations for the stage of the disease. Studies have shown the potential benefits as it decreases the risk of local recurrence.

Breast cancer surgery-related mortality is low for the elderly population. Careful pre-surgical evaluation can identify patients at high risk.

Hormone therapy is widely used in the treatment of breast cancer because the proportion of hormone-receptor positive tumours increases with age.

Elderly patients in good clinical health gain benefit from adjuvant chemotherapy. However, chemotherapy decisions are complex because of comorbidity and toxicity. Treatment thus should be individualised based on the type of comorbidities.

Other options should be considered in accordance with the circumstances when standard treatment is not possible. Endocrine therapy is justifiable in a patient who is unfit for surgery. Adjuvant therapies should be considered weighing the risks and benefits for each patient.

A significant controversy remains regarding what constitutes appropriate care for elderly patients. Elderly women who are completely and correctly treated with realistic treatment options that are based on surgery and adjuvant therapy have a similar chance of being cured as younger patients. More clinical trials are needed for older women if the benefits of recent advances in the management of this disease are to be extended to these patients.

The writer is retired Professor and Head, Department of Surgery, PGI.

Breast Cancer

Breast Cancer Risk Far Higher From Mutations in BRCA1/2 Genes (Med India: 3.11.2011)

Not all women in breast cancer families face the same risk of developing the dreaded disease. It is those with genetic mutations BRCA1 or BRCA2 who could be more in the danger zone, according to a new international study involving the University of Melbourne

The new study also found that women who do not have a genetic mutation, but are closely related to women who do have genetic mutations are at an average risk of developing the disease.

Professor John Hopper from the School of Population Health, University of Melbourne, who led the Australian component of the study, said some women in this scenario were worrying unnecessarily.

“Our study revealed that these women have an average risk of developing the disease as opposed to the high risk of their mutation-carrying close relatives and hence do not need to worry unnecessarily and over screen to detect the disease,” he said.

“These findings go against a 2007 clinic-based study in the UK which claimed that all women in breast cancer families with known genetic mutations are at increased risk of developing the disease even if they don’t carry the family-specific mutation,” he said.

“Our results revealed there was no evidence of increased breast cancer risk for non-carriers of the genetic mutations, certainly not the five-fold increased risk suggested by the authors of the 2007 study.”

The international study is the largest analysis to date of breast cancer risk for non-carriers of family specific breast cancer mutations. It was led by Professor Alice Whittemore from Stanford University School of Medicine, USA and was published today in the Journal of Clinical Oncology.

Tamoxifen Resistance

Tamoxifen Resistance -- And How to Defeat It (Science Daily: 14.11.2011)

In the last three decades, thousands of women with breast cancer have taken the drug tamoxifen, only to discover that the therapy doesn't work, either because their tumors do not respond to the treatment at all, or because they develop resistance to it over time. Now researchers at the University of California, San Francisco (UCSF) have discovered the molecular basis for tamoxifen resistance and found a potential way to defeat it.

On Nov. 13, 2011, at the AACR-NCI-EORTC International Conference: Molecular Targets and Cancer Therapeutics, UCSF oncologist Pamela Munster, MD, and her colleagues presented the results of clinical studies and laboratory experiments that show how some tumors resist tamoxifen and how this resistance can be overcome by administering a second class of drugs.

"Understanding the mechanism of tamoxifen resistance and how to defeat it may help a large number of women with hormone-resistant breast cancer," said Munster. "It may lead quickly to new, more effective treatment strategies and may help to identify biomarkers to help to gauge whether or not someone will respond to treatment in the first place."

Tamoxifen Resistance and Breast Cancer The National Cancer Institute estimates that more than 200,000 Americans are diagnosed with breast cancer every year. It is the second leading cause of cancer death among American women, claiming more than 40,000 lives in 2009 alone.

About 65 percent of women with breast cancer have tumors that, when examined in biopsies, show signs of co-opting a naturally occurring molecule in the human body called the estrogen receptor. This receptor helps to stimulate the proliferation and growth of cells -- something that is normally tightly controlled in the body.

Tumors can use the machinery of this receptor to stimulate the unregulated growth and proliferation of cancer cells. Doctors have known for decades that this is one of the main drivers of breast cancer, and elevated levels of estrogen receptor is something oncologists look for when they take tumor biopsies.

Tamoxifen, which blocks the estrogen receptor, is the front-line treatment for premenopausal women whose breast cancer biopsies show elevated levels of the receptor. It can be something of a wonder drug when it works, inhibiting cancer growth and shrinking tumors without the same side effects as chemotherapy.

However, tamoxifen only works in half the women to whom it is prescribed. It may not work in some women because they may have forms of cancer in which the estrogen receptor does not actually play a central role. However, many women taking tamoxifen acquire resistance to it. Their tumors respond to the treatment at first, but then the cancer rebounds and develops the ability to proliferate and grow even when the estrogen receptor is blocked.

While doctors have documented cases of tamoxifen resistance in the clinic for decades, nobody knew exactly how the cells were able to acquire resistance. Many scientists thought that genetics were to blame -- certain variations in one's DNA that would pass from parents to children and make one more likely to develop a tamoxifen-resistant form of breast cancer. According to Munster, that is not the case.

"We always thought that resistance was genetic," said Munster. "But now we have discovered that cells have a way of developing resistance by means of epigenetic modification."

Epigenetics is a general phenomenon in biology that explains how some cells, tissues, and whole organisms can acquire traits that go beyond mere genetic differences. Rather than genes being mutated or changed and then passed on to offspring, which is the domain of genetics, epigenetic changes are not in the genes themselves but in their levels of expression and activity.

Queen bees, for instance, are genetically identical to worker bees, but they are much larger and characteristically quite different. Genes don't account for these differences -- epigenetics does. Queens start out life the same as workers, but they are fed a steady diet of chemicals in their food that alter the levels of expression and activity of their genes, and over time these changes account for their queenly form.

According to the research Munster and her colleagues are presenting this week, it is a similar epigenetic story that accounts for tamoxifen resistance. They discovered that when cancer cells are fed tamoxifen, they sometimes respond by elevating expression of a gene known as AKT.

AKT is a "survival" gene that in normal situations helps to stimulate growth and proliferation of cells and prevent cells from dying. In breast cancer, however, it can become overactive and confer resistance by allowing the cancer cells to continue to use the estrogen receptor even in the presence of tamoxifen.

The good news clinically, said Munster, is that several existing compounds known as histone deacetylase inhibitors directly target AKT. Two of these are already approved by the U.S. Food and Drug Administration for treating a rare type of lymphoma. Several more are actively under development and at least one is in early clinical trials, said Munster.

She and her colleagues showed that when cells in the laboratory are fed these histone deacetylase inhibitors, their levels of AKT are knocked back. Giving the same cells tamoxifen at the same time dramatically curtails the ability of the cells to proliferate.

In clinical studies published earlier this year, Munster and her colleagues also showed that taking both drugs together can reverse tamoxifen resistance.

This approach will have to prove safe and effective in additional, large-scale clinical trials before it becomes generally available.

Breast cancer

Revolutionary anti-landmine technology to detect breast cancer within seconds (World Newspapers: 5.12.2011)

A revolutionary breast-screening system has been created by scientists in Britain that uses anti-landmine technology to detect cancer in seconds.

The pain-free radio-wave scanner is safer than traditional mammogram X-rays, which carry a radiation risk and are used on hundreds of thousands of women every year.

Experts believe the new device, which is also cheaper, can be used on women of any age, unlike the current technology.

It is expected the system, called Maria, will be in widespread use within five years in GPs' surgeries and clinics.

Women under 50 are not routinely screened for breast cancer partly because of the risks from regular doses of ionising radiation from an early age.

They also have denser breast tissue, which makes it harder to detect tumours using X-rays.

Using radio waves makes it easier to find problems in all tissue.

But the most appealing aspect for women is pain-free examinations, with an end to having the breast squeezed between two X-ray plates.

Instead, the breast is held in a ceramic cup-shaped scanner while data are transferred to a computer within eight seconds to produce a 3D image.

Conventional screening uses low-dose X-rays and two scans are taken of the breast, during which the technician has to shelter from the radiation.

It takes an average of one minute for a radiologist to examine a case, but this can be more than doubled if another opinion is sought or the X-ray is difficult to interpret.

Women are usually informed of the results within two weeks.

Developed by Micrima, a company that began at Bristol University, the Maria technology is based on a landmine-detection project that was able to locate non-metallic explosives in soil, the Daily Mail reported.

In the same way, the Maria system can find dangerous 'hot spots' in breasts using scanning signals from radio waves.

Breast Cancer

Southampton Varsity says every third women with secondary breast cancer needlessly living in pain (New Kerala: 7.12.2011)

New research released by Breast Cancer Care and the University of Southampton reveals that more than a third (34 per cent) of women with secondary breast cancer are unnecessarily living with uncontrolled pain.

The study, which was led by the Dean of the Faculty of Health Sciences at the University, Professor Jessica Corner, was funded by Breast Cancer Campaign and published in the Journal of Pain and Symptom Management.

Researchers found that of the 235 women surveyed 27 per cent had shortness of breath and 26 per cent experienced nausea – both symptoms which can be managed with medication. Women whose breast cancer had spread to their bones were more likely to experience pain, with four in ten (44 per cent) reporting significant pain.

There was little evidence of GP (8 per cent) or local palliative care services (7 per cent) involvement with the study participants. Given the choice, the majority of women (62 per cent) chose their hospital consultant as the healthcare professional they would choose to see on a regular basis. But, with better life prolonging treatments, the prognosis of secondary breast cancer is improving, so for many it is becoming a long-term, complex illness requiring ongoing symptom control and emotional and practical support.

Currently palliative care teams focus on end-of-life care, but more than half of the women surveyed had been living with secondary breast cancer for at least two years, so despite their pain, few were at the end-of-life stage of illness and their needs were not being met. This resulted in half saying they were dissatisfied with the care they received.

Elizabeth Reed, Secondary Breast Cancer Research Nurse at Breast Cancer Care and principal investigator of the research said: "Until now there has been little research into the quality of life of women living with secondary breast cancer outside of clinical trials. This study, which is the first of its kind, shows that women with secondary breast cancer have a range of complex, multidimensional needs that are not being met.

"No woman should live with controllable pain or without the information and advice they need to make decisions about their own health. Developments in treatment mean that those living with secondary breast cancer are now considered cancer survivors rather than necessarily at the end of life. It is therefore vital that healthcare professionals are equipped with the knowledge and expertise they need to offer women with secondary breast cancer adequate symptom control and the medical and psychological support they need."

Breast Cancer

Study Finds Poor Breast Cancer Survival among Hispanic Women (Med India: 8.12.2011)

Hispanic women are more likely to die from breast cancer than non-Hispanic white women, reveals a study presented at the 2011 CTRC-AACR San Antonio Breast Cancer Symposium, held Dec. 6-10, 2011.

"This difference may be associated with a tumor phenotype that is less responsive to chemotherapy," said Kathy B. Baumgartner, Ph.D., professor of epidemiology and associate dean for faculty affairs in the School of Public Health and Information Sciences at the University of Louisville in Kentucky. "Increased awareness of this ethnic disparity is needed to improve survival in Hispanic women with breast cancer."

Breast cancer is the most common cancer and is the second cause of cancer death in women in the United States. Incidence and survival rates vary by ethnicity, and previous research has demonstrated a trend toward poorer survival in Hispanic women.

From 1992 to 1996, Baumgartner and colleagues conducted the New Mexico Women's Health Study (NMWHS), a statewide, population-based, case-control breast cancer study that examined the difference between Hispanic and non-Hispanic white women for breast cancer risk. In all, 692 women with a first primary breast cancer participated.

In a recent study, researchers followed the 577 women with invasive breast cancer through 2008 to assess differences in long-term survival between Hispanic and non-Hispanic white women in the NMWHS.

Hispanic women were about 20 percent more likely to die from breast cancer than non-Hispanic white women, which is consistent with other reports, Baumgartner said. After adjusting for age, stage, lymph node involvement and estrogen receptor (ER) status, the researchers saw the risk drop considerably to almost equal that of non-Hispanic white women - suggesting that "the ethnic difference in breast cancer mortality may be mostly biologically based," Baumgartner said.

In addition, Hispanic women who received chemotherapy were about 1.5 times more likely to die from breast cancer compared with non-Hispanic white women who received chemotherapy, after adjusting for age and the characteristics noted above.

"It is not clear how much of this ethnic difference in survival is due to socioeconomic factors influencing access to screening and treatment or to biological ones," Baumgartner said. "Some studies suggest that Hispanic women are more likely to develop ER-negative tumors that are resistant to chemotherapy."

She added, "Altered response to chemotherapy may partly explain the Hispanic vs. non-Hispanic white disparity in breast cancer survival."

There was no difference between Hispanic and non-Hispanic white women for all-cause or non-breast cancer mortality.

Baumgartner and her colleagues will continue to monitor this cohort for the long term. This research was supported by a grant from the National Cancer Institute and the James Graham Brown Cancer Center.

Breast cancer

Breast cancer treatment may impair survivors' mental abilities (New Kerala: 13.12.2011)

Experts have revealed that breast cancer survivors may experience problems with certain mental abilities several years after treatment, regardless of whether they were treated with chemotherapy plus radiation or radiation only.

The study indicated that there might be common and treatment-specific ways that cancer therapies negatively affect cancer survivors' mental abilities.

Previous research had suggested that chemotherapy could cause problems with memory and concentration in breast cancer survivors.

To compare the effects of different types of cancer treatment on such mental abilities, Paul Jacobsen, PhD, of the Moffitt Cancer Centre and Research Institute in Tampa, and his colleagues examined 62 breast cancer patients treated with chemotherapy plus radiation, 67 patients treated with radiation only, and 184 women with no history of cancer.

Study participants completed neuropsychological assessments six months after completing treatment and again 36 months later.

The study confirmed that chemotherapy could cause cognitive problems in breast cancer survivors that persist for three years after they finish treatment.

In addition, the investigators found that breast cancer survivors who had been treated with radiation (and not chemotherapy) often experienced problems similar to those in breast cancer survivors treated with both chemotherapy and radiation.

They did not find that hormonal therapy (such as tamoxifen) caused cognitive difficulties.

“These findings suggest that the problems some breast cancer survivors have with their mental abilities are not due just to the administration of chemotherapy,” said Dr. Jacobsen.

“Our findings also provide a more complete picture of the impact of cancer treatment on mental abilities than studies that did not follow patients as long or look at mental abilities in breast cancer survivors who had not been treated with chemotherapy,” he added.

The study has been published early online in *CANCER*, a peer-reviewed journal of the American Cancer Society. (ANI)

Breast implant

Breast implant fears spread across world (The Times of India: 23.12.2011)

Health officials in at least a half-dozen countries are grappling with the intense anxiety of tens of thousands of women who received breast implants that were made in France with substandard silicone — and that have been rupturing at unusually high rates.

It is unclear whether there are health risks posed by the substandard silicone used in the implants, and the French government is expected to decide soon whether to require as many as 30,000 women in France to have their implants removed. If the government mandates the removals, it will also pay for the procedures, though not for replacements. Regulators will have to weigh whether the known risks associated with removing the implants outweigh uncertain risks and anxieties associated with leaving them in.

British health authorities sought to calm women's fears, saying that there was no evidence that the suspect implants, which were manufactured by Poly Implant Prothèse, known as PIP, had caused cancer. They urged women with implants to take any concerns to their surgeons, but they also said, "There is currently no evidence to support routine removal" of the implants.

Silicone implants have had a contentious history, with the US imposing a 14-year moratorium on their use that ended in 2006, after years of lawsuits contending that they had caused cancer.

Concerns over implants caught the attention of European health officials after a woman whose implant had ruptured died last month from a rare cancer called anaplastic largecell lymphoma. NY NEWS SERVICE

Breast Implants

Breast Implants: S.America Mulls on Next move (Med India: 26.12.2011)

After France recommended that 30,000 women with implants from troubled French firm PIP have them removed, South American health authorities are mulling over future action.

Tens of thousands of women in over 65 countries around the world have the same implants, made from industrial rather than medical quality silicone. Most of them live in South America and western Europe.

The implants are particularly widespread in Venezuela, Brazil, Colombia and Argentina across different economic levels, with many young girls eager to augment their bust size before they become adults.

Brazil's National Health Surveillance Agency (ANVISA) said through a spokesman that it "has not yet made a recommendation," echoing the sentiments of health professionals and officials in other Latin American countries.

They stressed that France's health ministry, in recommending women to take out the implants because they could rupture dangerously, had acknowledged that there is no proven cancer risk.

Breast implants produced by the now-bankrupt Poly Implant Prothese were banned in Brazil in April 2010 when problems were first reported, but 25,000 implants had already been performed in the country, according to ANVISA. Around 100,000 women get silicone breast implants in Brazil each year.

PIP was shut down and its products banned last year after it was revealed to have been using non-authorized silicone gel that caused abnormally high rupture rates in its implants.

Facing financial difficulties, the company, once the world's third-largest producer of silicone implants, replaced the medical-grade silicone in its implants with industrial-strength material.

"The medical facts that we know suggest that these implants can rupture earlier and with a greater risk of inflammatory reaction," said Brazilian Society of Plastic Surgery president Jose Horacio Aboudib.

Calling the French move "more of a political decision than a medical one," he said his group in Brazil recommended that women who received the implants get tested early to make sure the implants were viable.

Venezuela's union of plastic surgeons agreed, declining to recommend that women with the PIP implants get them removed, recommending preventative checkups instead.

The Health Ministry has not yet provided an official recommendation.

Union of plastic surgeons president Marisol Graterol said the country had taken steps since 2010 to ban imports and marketing of the products. Around 80 percent of implants in Venezuela come from different French brands.

Venezuela, where about 40,000 breast augmentations are performed each year and plastic surgery is widespread, has been a regular top contender for Miss Universe.

Surgeon Juan Jorge Blanco noted that breast augmentations used to be prohibitively expensive but that costs have since dropped to \$3,000-7,000.

"Women from all social backgrounds now get operations," he said.

Argentina's ANMAT drugs authority urged 15,000 women who received implants to "consult" their doctors.

In Colombia, implants are sometimes offered as birthday gifts, especially for "quinceaneras" -- girls' 15-year-old birthdays -- that mark a girl's passage into young womanhood.

"Drug traffickers also offer the surgery as a gift to their girlfriends," said surgeon Celio Bohorquez, spokesman of the Colombian Society of Plastic Surgery.

Breast cancer

Breast cancer has younger women in its death grip (World Newspapers: 26.12.2011)

Chandrika Rao had everything going for her — a job in a multi-national company in the western suburbs of Mumbai and the feeling that at the age of 26, she was on the right side of 20s. But life, as she knew, changed the day she noticed lumps in her breasts.

Since she had gained weight, the lumps were assumed to be caused by a hormonal imbalance, for which she began treatment. But high doses of antibiotics had no effect; the lumps increased in size. When she was soon diagnosed with breast cancer, it took her some time to come to terms with the ‘older woman’s disease’.

Rao isn’t an isolated case. For long, breast cancer was thought of striking only women above the age of 40. Oncologists, though, are noticing a trend where women in their mid-20s or early 30s are being diagnosed with it.

Oncologist Dr Manish Aggarwal said, “The rise is being documented mainly in the metros, but many cases in rural areas go unnoticed. It is reported that one in 22 women in India is likely to suffer from breast cancer during her lifetime with almost a quarter of those afflicted with it being in their early 20s. The incidence is higher in the West, with one in eight being a victim of this deadly form of cancer. It is difficult to work on preventive measures as there is no one cause that’s the culprit.”

Dr Vinay Deshmane, consulting oncologist, PD Hinduja Hospital, concurred. “It is true that we are getting more younger women in the age group of 20 to 30 with breast cancers. Even doctors wrongly diagnose breast cancer in such women as fibroadenoma (benign tumour), which is common in the younger group. Women should not neglect any lump in the breast and should get it checked.”

Dr Sanjay Sharma, senior oncologist, SL Raheja Hospital, pointed out that the only way to tackle this trend is by creating awareness of it among younger women. “Delay in diagnosis of breast cancer is a problem. Many young women who have breast cancer ignore the warning signs — such as a lump in the breast or an unusual discharge. Similarly, the lack of guidelines from the Medical Council of India on breast cancer screening for the younger age group means that patients do not get consistent advice.”

Dr Deshmane attributed the rise in number of young women being diagnosed with breast cancer to better detection and the spurt in growth of the younger population.

Lung Cancer

Lung Cancer

Lung Cancer Patients with Diabetes Show Prolonged Survival (Science daily: 18.10.2011)

Lung cancer patients with diabetes tend to live longer than patients without diabetes, according to a Norwegian study published in the November issue of the Journal of Thoracic Oncology, the official publication of the International Association for the Study of Lung Cancer.

Researchers did not speculate on the reason for the effect, but said that the survival benefit warranted more study and that diabetes should not be considered a reason to withhold standard cancer treatment.

"Standard therapy should not be withheld from patients with diabetes mellitus provided they are otherwise fit, even if it may be considered a significant comorbidity," researchers wrote in the study. "The survival benefit may be of clinical importance and should be focused on in future studies."

Researchers at the Norwegian University of Science and Technology and Trondheim University analyzed 1,677 lung cancer cases from the Nord-Trøndelag Health study (HUNT), the pemetrexed gemcitabine (PEG) study and the Norwegian Lung Cancer Biobank study. It was the first cohort study from a well-defined geographical area, with a stable and large number of inhabitants, investigating lung cancer, diabetes and survival.

They found that the 1-, 2-, and 3-year survival in patients with lung cancer with and without diabetes mellitus were 43% versus 28%, 19% versus 11%, and 3% versus 1%, respectively.

"The fact that patients with diabetes mellitus showed a lower frequency of metastatic diseases may partly explain the survival benefit in patients with diabetes mellitus, because the majority of the patients with lung cancer die of metastasis and not of the primary tumor," researchers wrote. "However, as we adjusted for stage of disease in our analyses this potential advantage can hardly explain the observed increased survival in patients with diabetes mellitus. In addition, increased survival in patients with diabetes mellitus was clearly demonstrated in the PEG study where all patients had advanced lung cancer."

Lung Cancer

Now, breath test can detect, characterize lung cancer: Study (World Newspaper: 19.12.2011)

A new breath test will now help in identifying and differentiating between the types of lung cancer in humans with high accuracy, a new study has suggested.

Metabolomx, a diagnostic company focused on the detection of the metabolomics signature of cancer from exhaled breath.

This seminal study, conducted at the Cleveland Clinic and led by Dr. Peter Mazzone, used Metabolomx' first-generation colorimetric sensor array, and reported accuracy exceeding 80 percent in lung cancer detection, comparable to computerized tomography (CT) scan.

Further, the study found that Metabolomx' first-generation colorimetric sensor array could identify the subtype of lung cancer (small cell versus adenocarcinoma versus squamous cell) with accuracy approaching 90 percent.

"Our research shows that breath testing may help identify patients with lung cancer, as well as provide us with information that can help with treatment decisions, such as the type of lung cancer, its stage, and prognosis," Dr Mazzone said.

"The accuracy of these non-invasive tests can be further augmented when combined with existing clinical predictors, such as health status and age," he stated.

According to Paul Rhodes, PhD, Founder and CEO of Metabolomx, the results demonstrate the broad potential for use of breath analysis in the early detection of lung cancer.

"These results show that the first generation of our breath test technology compares well with CT scans," Rhodes noted.

"Detection of the metabolomic signature of lung cancer in exhaled breath is non-invasive, rapid, and inexpensive, and will become a valuable adjunct to help assess an indeterminate CT, and may come to have a central role in early detection and differentiation of lung cancer, while lowering costs to the healthcare system," he added.

The study has been published in the online issue of the Journal of Thoracic Oncology (JTO), the official Journal of the International Association for the Study of Lung Cancer.

Biosensors

Soon, biosensors to detect lung cancer from exhaled breath (New Kerala: 26.12.2011)

Scientists are developing biosensors capable of detecting the presence of tumour markers of lung cancer in exhaled breath.

This will be possible because of the changes produced within the organism of an ill person, changes reflected in the exhaled breath of the patient and which enable determining the presence of this type of marker during the initial stages of the disease.

Tecnalis, through the Interreg project Medisen, is contributing to develop biosensors with lung cancer patients, treated in the Section of Medical Oncology of the Institute of Onco-Haematology of the Donostia Hospital (IDOH).

Human breath, whether from a healthy or ill person, is comprised of a hundreds of organic compounds – acetone, methanol, butanol, hydrocarbons, amongst others. There is not a single specific component in the exhaled breath capable of acting as a marker for the diagnosis of lung cancer.

A range of biomarkers and its combination should be selected. The compounds of interest are generally to be found at 1-20 parts per billion (ppb) in healthy human breath but can be increased 10-100-fold in the breath of sick patients. In order to be able to detect these changes the development of novel materials was required.

During the first phase of the project, breath samples were collected by the hospital staff by a breath collecting device. A detailed analysis of the most representative compounds present in the breath samples has been carried out and the family or families of compounds required to act as markers for the presence of lung cancer selected.

Organic compounds have been analysed using gas chromatograph or mass spectrometry analysis (GC or MS). Then, the GC or MS results of breath tests have been analysed by statistical and structural algorithms to discriminate and identify "healthy" and "cancerous" patterns that really provide information for the design of the sensor.

In parallel, novel materials for the detection of the selected organic compounds have been developed by Tecnalia in order to increase the sensitivity of the devices.

As a conclusion, the biosensors will facilitate the diagnosis of certain diseases – mainly those located in the lungs, at the initial stages of the illness, which could increase considerably the chances of survival.

Lung Cancer

Gene Fusion Linked to Lung Cancer Identified (Med India: 26.12.2011)

Gene fusion that could explain a significant proportion of lung cancer cases in never-smokers has been identified by researchers

Recent strides have been made to identify gene mutation events driving cases of lung adenocarcinoma in never-smokers, but the underlying genetic events leading to these lung cancers still remain unknown in a large number of cases. In this report, using a combination of genome sequencing and RNA sequencing, a team of researchers in South Korea has characterized a previously unknown gene fusion event in a case of lung adenocarcinoma striking a 33-year-old Korean male with no history of smoking or cancer within his family.

The group sequenced and compared the genome of the patient's cancer and normal tissue (blood), but they found no mutations in known-cancer related genes, such as EGFR, KRAS, and EML4-ALK mutations, that were likely to explain this case. Delving deeper, they also sequenced RNA isolated from the cancer cells, which when analyzed, can reveal gene rearrangement events that are difficult to detect by genome sequencing and may be driving the cancer.

From the RNA sequencing analysis they built a list of candidate gene fusions, narrowing it down to a single gene fusion that could be a cancer-causing event. A genomic inversion event occurred on chromosome 10 in the cancer, fusing the KIF5B and RET genes. This fusion was particularly interesting because RET has been previously implicated in other gene fusion events known to drive thyroid cancers, and although it is normally expressed at low levels in the lung, chimeric RET in this patient is highly expressed. Furthermore, KIF5B contains a protein domain that is necessary for activation of the fusion gene.

They then confirmed that the KIF5B-RET fusion occurs in other lung cancer cases, finding two instances in twenty additional cases of lung cancer, indicating that this fusion event is not rare. The authors suggest that the KIF5B-RET fusion occurs in about 6% of all lung adenocarcinoma cases. The authors note that although further epidemiological studies are needed to accurately define the frequency of KIF5B-RET in lung cancers, they expect that the fusion gene may be a promising molecular target for treatment.

"We showed that genome sequencing technology could reveal a previously hidden cause of human cancer, which can be used as a therapeutic target for personal cancer therapy", said Dr. Jeong-Sun Seo, director of the Genomic Medicine Institute-Seoul National University, chairman of Macrogen Inc., and senior author of the study.

Ovarian cancer

Ovarian cancer feeds on fat cells in abdomen (New Kerala: 1.11.2011)

A research team based at the University of Chicago has found that large pad of fat cells that extends from the stomach and covers the intestines provides nutrients that promote the spread and growth of ovarian cancer.

In 80 percent of women, by the time ovarian cancer is diagnosed, it has spread to the pad of fat cells, called the omentum. Often, cancer growth in the omentum exceeds the growth of the original ovarian cancer.

“This fatty tissue, which is extraordinarily rich in energy-dense lipids, acts as a launching pad and energy source for the likely lethal spread of ovarian cancer,” said study author Ernst Lengyel, MD, PhD, professor of obstetrics and gynecology at the University of Chicago.

“The cells that make up the omentum contain the biological equivalent of jet fuel. They feed the cancer cells, enabling them to multiply rapidly. Gaining a better understanding of this process could help us learn how to disrupt it,” Lengyel stated.

The researchers found that ovarian cancer cells injected into the abdomen of healthy mice find their way to the omentum within 20 minutes.

Once ovarian cancer cells reach the omentum, they quickly develop the tools to devour the sustenance provided by this fatty tissue, reprogramming their metabolism to thrive on lipids acquired from fat cells.

Ovarian cancer can rapidly convert the entire omentum, a soft fat pad, into a solid mass of cancer cells.

The researchers believe that a protein known as fatty acid binding protein (FABP4), a fat carrier, may be crucial to this process and could be a target for treatment.

When the researchers compared primary ovarian cancer tissue with ovarian cancer tissue, which had spread to the omentum, they found that tumour cells next to omental fat cells produced high levels of FABP4.

When they inhibited FABP4, the transfer of nutrients from fat cells to cancer cells was drastically reduced. Inhibition of FABP4 also reduced tumour growth and the ability of tumours to generate new blood vessels.

"Therefore," the authors wrote, "FABP4 emerges as an excellent target in the treatment of intra-abdominally disseminating tumours, which preferentially metastasises to adipose tissue such as ovarian, gastric, and colon cancers."

The finding was reported in the journal *Nature Medicine*, published online October 30th, 2011.

Ovarian Cancer

Discovery May Help Fight Late-Stage Ovarian Cancer (Science daily: 18.11.2011)

A potential breakthrough in treating late-stage ovarian cancer has come from University of Guelph researchers who have discovered a peptide that shrinks advanced tumours and improves survival rates for this deadly but often undetected disease.

"We're extremely excited about this," said Jim Petrik, a professor in U of G's Department of Biomedical Sciences who conducted the research with PhD student Nicole Campbell. "It has the potential, particularly in ovarian cancer, to have a significant impact."

Their findings will appear in *Molecular Cancer Therapeutics*, published by the American Association for Cancer Research.

Ovarian cancer is the most lethal gynecological cancer. Its symptoms, which include nausea, bloating and abdominal pain, are vague and can be attributed to a number of ailments.

Often the disease remains undetected until it's well advanced, when the odds of survival are poor. "It's called the silent killer because it really does sneak up on you," Petrik said.

He and Campbell discovered that ABT-898, a peptide derived from the thrombospondin molecule, shrinks established late-stage tumours in mouse models of ovarian cancer. In addition to regressing tumours, ABT-898 essentially prunes dysfunctional blood vessels in the tumour while leaving healthy vessels intact.

Petrik explains that chemotherapy treatment relies on blood vessels to transport tumour-fighting drugs. But abnormal blood vessels inside tumours make drug delivery inefficient.

"This new treatment enhances the ability to deliver chemotherapy drugs inside of the tumour where they need to go. So in combination with chemotherapy, it has fantastic potential."

Besides shrinking tumours, ABT-898 improves survival rates because cancer cells do not have time to adapt to the treatment.

"This is crucial. Women tend to succumb to ovarian cancer because the inefficient delivery of chemotherapy drugs allows the cells to build up resistance and they no longer respond to treatment," Petrik said.

More efficient drug delivery also means doctors can administer lower amounts, alleviating many of the side effects of chemotherapy. As well, said Petrik, "this is a naturally occurring protein that we are exploiting; we are not making anything synthetic."

He hopes the research will lead to human trials and, ultimately, to the development of targeted cancer therapies.

Petrik has studied ovarian cancer for more than a decade, especially regulation of growth factors and formation of blood vessels in the ovary. A U of G faculty member since 2001, he teaches physiology and anatomy at the Ontario Veterinary College.

This latest discovery was possible because Petrik's laboratory had developed a model in which cancer cells are injected directly into healthy mouse ovaries. Ovarian cancer spontaneously occurs in about two months, allowing U of G researchers to follow tumour progression.

Most researchers rely on artificially cultured clumps of cells and immunocompromised mice that poorly mimic disease progression in normal animals.

"It provides us with a tool to ask questions like this and look at interventions such as this in a way that is far more relevant to the human disease," Petrik said.

Ovarian Cancer

Ovarian Cancer Outcome can be predicted by a Tiny Genetic Variation (Med India: 8.12.2011)

Yale Cancer Center researchers have pointed out that a small genetic variation can predict chances of survival and response to treatment for patients with ovarian cancer.

The findings, published in the journal *Oncogene*, provide new insights into the biology of a new class of cancer marker and suggest a genetic test may help guide the treatment of women with ovarian cancer.

"This gives us a way to identify which women are at highest risk for resistance to platinum chemotherapy, the standard treatment for ovarian cancer, and helps identify ovarian cancer patients with the worst outcomes," said Joanne Weidhaas, associate professor of therapeutic radiology and senior author of the study. "There just aren't many inherited gene variants than can do that."

Women who possess the biomarker identified by the Yale team – a variant of the well-known KRAS oncogene – are three times more resistant to standard platinum chemotherapy than women without the variant. Also, post-menopausal women with the variant are significantly more likely to die from ovarian cancer. About 12-15 percent of Caucasians and 6 percent of African-Americans are born with the variant of the gene, which helps regulate destruction of damaged cells. This variant is found in up to 25% of newly diagnosed ovarian cancer patients.

Although good alternatives to chemotherapy are not yet available for women with ovarian cancer and this variant, several drugs in development which target the KRAS gene and associated pathways have shown great promise, Weidhaas said.

Weidhaas is a co-founder of a company that has licensed intellectual property from Yale that has developed a diagnostic test based on the Kras-variant.

The biomarker intrigues scientists because it is a functional variant in an area of DNA that does not code for proteins. Instead this variant disrupts how a microRNA controls gene expression.

"This is a new paradigm," Weidhaas said.

Yale researchers have also found this microRNA variant of the KRAS gene is associated with an increased risk of developing breast cancer and lung cancer. Other researchers have found associations with poor outcome in colon as well as head and neck cancers.

In laboratory tests, researchers blocked the variant and significantly reduced growth of ovarian cancer cells. This suggests targeting the variant site may someday help treat cancer in these patients.

Pancreatic Cancers

Pancreatic Cancers

Faster test to diagnose bowel, pancreatic cancers (New Kerala: 27.12.2011)

A simple online calculator could help diagnose two of the deadliest forms of cancer - pancreatic and bowel - much faster than existing tests and save thousands of lives every year.

Researchers have developed two new QCancer algorithms, which cross-reference symptoms and risk factors of patients to red flag those most likely to have the two types of cancer.

The test was successful in predicting 62 percent of all pancreatic cancers diagnosed over two years which were in the top 10 percent of patients predicted to be most at risk, the British Journal of General Practice reports.

Said Julia Hippisley-Cox, professor of primary care at Nottingham University who led the study: "We hope these new tools will help GPs (general practitioners) with ... identifying patients ... (and) help improve treatment options and outcomes for patients."

Pancreatic cancer has the worst survival rate for any cancer, almost three-quarters of patients die within a year of diagnosis. Famous victims include Steve Jobs, Patrick Swayze and Luciano Pavarotti.

Catching the disease in the early stages can offer a more optimistic prognosis for patients - however, with very few established risk factors and no reliable screening test available, according to a university statement.

The study used data from 564 GPs to develop the algorithm and test its success at predicting which patients were likely to have pancreatic cancer, based on a combo of symptoms including weight and appetite loss, abdominal pain and risk factors such as age, chronic pancreatitis, smoking and diabetes.

Colorectal cancer, or bowel cancer, is the second most common cancer in Europe as well as the second most common cause of cancer-related death. (IANS)

Pancreatic cancer

Gene that increases pancreatic cancer risk identified (new Kerala: 30.12.2011)

A gene that increases the risk of pancreatic cancer has been identified, experts say. Mutations in the ATM gene may increase the hereditary risk for pancreatic cancer, researchers at the Johns Hopkins University have found. The findings were published in the latest edition of the journal Cancer Discovery Thursday.

Pancreatic cancer is one of the most morbid cancers, with less than five percent of those diagnosed with the disease surviving to five years.

Approximately 10 percent of patients come from families with multiple cases of pancreatic cancer.

"There was significant reason to believe this clustering was due to genetics, but we had not, to this point, been able to find the causative genes that explained the cluster of pancreatic cancer for a majority of these families," Xinhua quoted lead author Alison Klein, associate professor at Johns Hopkins University, as saying.

Klein and colleagues identified ATM gene mutations in two kindreds with familial pancreatic cancer.

He said knowledge of the presence of the ATM gene could lead to better screening for pancreatic cancer, the fourth most common cause of cancer-related death. (IANS)

Pediatric Cancer

Pediatric Cancer

Parental Preferences Differ From That of Doctors Regarding Pediatric Cancer and Palliative Care (Med India: 19.10.2011)

Parents of children in the palliative stage of cancer favour aggressive chemotherapy over supportive care compared with health care professionals, states an article in CMAJ (Canadian Medical Association Journal) (pre-embargo link only)

Cancer is the second most common cause of death for children aged 5 to 14 in North America. When it is unlikely the cancer will be cured, parents and health care professionals must often choose between continuing aggressive treatments or providing supportive care alone to alleviate discomfort.

"The choice between palliative chemotherapy and supportive care alone is one of the most important and difficult decisions for parents of children whose disease cannot be cured," writes Dr. Lillian Sung, Division of Haematology/Oncology, The Hospital for Sick Children (SickKids), Toronto, with coauthors.

The researchers sought to compare preferences between parents and health care professionals in making these decisions. They included 77 parents whose children (under the age of 18) had no reasonable chance of recovering from cancer as well as 128 staff physicians, senior fellows, nurses and social workers who work with pediatric cancer patients.

They found that 55% of parents favoured chemotherapy over supportive care compared with 16% of health care professionals. Health care professionals viewed supportive care more positively than parents did. The researchers suggest that "parents may focus more on hope for their child compared with health care professionals, who are more aware of eventual outcomes given their experiences with many similar children."

Prostate cancer

Prostate cancer

New prostate cancer test advice overturns dogma (The Asian Age: 10.10.2011)

By LAURAN NEERGAARD, AP Medical Writer – 2 days ago

WASHINGTON (AP) — Men finally may be getting a clearer message about undergoing PSA screening for prostate cancer: Don't do it.

They may not listen. After all, the vast majority of men over 50 already get tested.

The idea that finding cancer early can harm instead of help is a hard one to understand. But it's at the heart of a government panel's draft recommendation that those PSA blood tests should no longer be part of routine screening for healthy men.

The U.S. Preventive Services Task Force examined all the evidence and found little if any reduction in deaths from routine PSA screening. But it did conclude that too many men are diagnosed with tumors that never would have killed them and suffer serious side effects from resulting treatment.

That recommendation isn't final — it's a draft open for public comment. But it goes a step further than several major cancer groups including the American Cancer Society, which urges that men be told the pros and cons and decide for themselves.

The new advice is sure to be hugely controversial. Already some doctors are rejecting it.

"We all agree that we've got to do a better job of figuring out who would benefit from PSA screening. But a blanket statement of just doing away with it altogether ... seems over-aggressive and irresponsible," said Dr. Scott Eggener, a prostate cancer specialist at the University of Chicago.

In the exam room, explaining the flaws in PSA testing has long been difficult.

"Men have been confused about this for a very long time, not just men patients but men doctors," said Dr. Yul Ejnes, a Cranston, R.I., internal medicine specialist who chairs the American College of Physicians' board of regents.

He turned down his own physician's offer of a PSA test after personally reviewing the research.

"There's this dogma ... that early detection saves lives. It's not necessarily true for all cancers," Ejnes said.

That's an emotional shift, as the American Cancer Society's Dr. Len Lichtenfeld voiced on his blog on Friday.

"We have invested over 20 years of belief that PSA testing works. ... And here we are all of these years later, and we don't know for sure," Lichtenfeld wrote. "We have been poked and probed, we have been operated on by doctors and robots, we have been radiated with fancy machines, we have spent literally billions of dollars. And what do we have? A mess of false hope?"

Too much PSA, or prostate-specific antigen, in the blood only sometimes signals prostate cancer is brewing. It also can mean a benign enlarged prostate or an infection. In fact, most men who undergo a biopsy for an abnormal PSA test don't turn out to have prostate cancer.

Screening often detects small tumors that will prove too slow-growing to be deadly — by one estimate, in 2 of every 5 men whose cancer is caught through a PSA test. But there's no way to tell in advance who needs treatment.

"If we had a test that could distinguish between a cancer that was going to be aggressive and a cancer that was not, that would be fabulous," said Dr. Virginia Moyer of the Baylor College of Medicine, who chairs the task force, an independent expert group that reviews medical evidence for the government.

About 1 in 6 U.S. men will be diagnosed with prostate cancer at some point in their life. Yet the cancer society notes that in Western European countries where screening isn't common, 1 in 10 men are diagnosed and the risk of death in both places is the same. In the U.S., about 217,000 men are diagnosed with prostate cancer each year, and 32,000 die.

Why not screen in case there's a mortality benefit that studies have yet to tease out? The task force outlined the problem with that:

—Up to 5 in every 1,000 men die within a month of prostate cancer surgery, and between 10 and 70 more suffer serious complications.

—At least 200 to 300 of every 1,000 men treated with surgery or radiation suffer incontinence or impotence.

—Overall, Moyer said 30 percent of men who are treated for PSA-discovered prostate cancer suffer significant side effects from the resulting treatment.

Among the questions sure to be raised during the public comment period are how doctors should advise men with prostate cancer in the family or black men, who are at increased risk.

PSA testing also is used to examine men with prostate symptoms, and to check men who already have had prostate cancer. The new recommendation doesn't affect those uses.

Congress requires that Medicare cover PSA tests, at a cost of \$41 million in 2009. Other insurers follow Medicare's lead, especially in light of conflicting recommendations.

Nor does the new recommendation mean that men who want a PSA test can't have one. If the rule is adopted — something the government will review once the task force hears comments and finalizes its guidance — it would just advise against doctors pushing it routinely.

"The truth is that like so many things in medicine, there's no one-size-fits-all," said Dr. Michael Barry of Massachusetts General Hospital who heads the Foundation for Informed Medical Decision-Making that backs ways to help patients make their own choices.

Prostate Cancer

Prostate cancer found in 2000-year-old Mummy (World Newspapers: 3.11.2011)

A 2150-year-old Egyptian mummy, catalogued as M1, has been diagnosed with prostate cancer, a new study has revealed.

The mummy, kept at the National Archaeology Museum of Lisbon, was decked with a cartonnage mask and bib and also had an elaborately painted shroud.

The man, about 5ft 5in tall, was between 51 and 60 years old when he died a slow, painful death.

For the study, the researchers subjected the mummy to powerful Multi Detector Computerized Tomography (MDCT) scans.

The specially designed protocol produced “really unusual high quality images,” Carlos Prates, a radiologist at Imagens Médicas Integradas in Lisbon told Discovery News.

The scan showed a pattern of round and dense tumours, measuring between 0.03 and 0.59 inches, interspersed M1's pelvis and lumbar spine.

"The bone lesions were considered very suggestive of metastatic prostate cancer" the researchers said.

Initially, the researchers had zeroed in on other diseases as well but M1's sex, age, the distribution pattern of the lesions, their shape and density, strongly argued for prostate cancer.

"It is the oldest known case of prostate cancer in ancient Egypt and the second oldest case in history," Prates said.

Prostate Cancer

Future Prostate Cancer Treatments Might Be Guided by Math (Science daily: 22.11.2011)

Scientists have designed a first draft of a mathematical model that someday could guide treatment decisions for advanced prostate cancer, in part by helping doctors predict how individual patients will respond to therapy based on the biology of their tumors.

These decisions would apply to treatment of cancer that has already spread beyond the prostate gland or that has recurred after initial treatments, such as surgery or radiation. Patients with this more advanced prostate cancer receive a therapy called androgen ablation, which inhibits production of testosterone -- the culprit that allows a tumor to keep growing.

Though the model's outcomes remain theoretical at this point, the researchers have developed enough of a system to show that their incorporation of some personalized data -- details about a patient's tumor cell characteristics in particular -- would give doctors more than they currently have to work with in making decisions about this stage of treatment.

"The model in its current form is proof of the concept that we can capture all of these different outcomes that are observed clinically. But we still need to refine the model with as much individual data as we can obtain," said Harsh Jain, a postdoctoral fellow in Ohio State University's Mathematical Biosciences Institute and lead author of the study.

"We envision that this model would be useful for clinicians who could keep feeding the equations with data about how a patient is responding to therapy, which would offer clues about how his cancer cells are mutating. Once you have an idea about that for the short or medium term, the model could predict the optimal therapy for that patient," Jain said.

The model is described this week in the online early edition of the Proceedings of the National Academy of Sciences. Jain conducted the work with co-authors Steven Clinton,

professor, and Arvinder Bhinder, assistant professor-clinical, in Ohio State's division of medical oncology, and Avner Friedman, a Distinguished University Professor at Ohio State.

Prostate cancer is diagnosed in about 240,000 American men and leads to about 34,000 deaths each year, according to the National Cancer Institute.

The treatment of this cancer in its more advanced stages brings about chemical castration by targeting one of several mechanisms involved in the production of testosterone. In most patients, cancer cells develop castration resistance over time -- on average, between 1½ and two years after the start of treatment. However, the overall range of resistance development spans from a few months to more than 10 years.

Jain said that some scientists have proposed that this treatment leads directly to castrate-resistant disease because once testosterone is removed from the body, mutant cancer cells that can survive in a no- or low-testosterone environment are able to take over the tumor. Currently, continuous treatment to eliminate testosterone is the standard of care. But because clinicians know castration resistance is inevitable, a new approach is under study. A national clinical trial is assessing the benefits and risks of intermittent androgen ablation -- keeping patients on the drugs until symptoms improve, and then giving men time off from the medication until the disease begins to progress again.

The math model developed by Ohio State scientists suggests that based on average clinical data currently available, such intermittent therapy could actually accelerate the development of castration resistance.

"In the same way that intermittent use of antibiotics gives a chance for bacteria that are resistant to the drug to take over, you might actually end up with intermittent anti-androgen therapy even more positively selecting for mutating cancer cells," Jain said.

However, the averages don't always apply, which is why the scientists are pursuing a system of differential equations to account for individual differences. For example, the "normal" levels of prostate-specific antigen, or PSA, in men's blood cover a fairly broad range, Jain noted. Yet the PSA test remains the most common screening method for prostate cancer, and is used to gauge the effectiveness of treatments in advanced stages, as well.

"The PSA ranges are massive. It's a very heterogeneous thing," Jain said. "When we are talking about cancer, our point is that those variables should be personalized. Everyone's cancer grows differently.

"There are a lot of questions. If you take an intermittent therapy route, how do you decide the scheduling of treatment? Is it based solely on PSA levels? Shouldn't there be some incorporation of personal patient characteristics into these treatment decisions? Can you identify a subgroup of patients who are predicted to respond well to this, or are there conditions when one treatment vs. another could actually make things worse?"

Math offers some answers. The model's foundation is based on existing animal and human data on prostate cancer characteristics. Beyond that, the researchers have selected parameters to plug into the equations that more specifically detail what could be going on in an individual tumor: cancer cell growth rates, cancer cell death rates, the level of activation of PSA in tumor cells, and how quickly one person's PSA can travel from the prostate to the bloodstream.

The scientists even took into account the competitive power of individual types of cancer cells -- for example, some mutated cancer cells aren't as strong as their normal cancer cell counterparts. In those cases, the math model predicts, the best treatment option would be intermittent therapy because the stronger normal cancer cells would keep mutant cells in check during time off from the medication. With the cancer consistently dominated by cells that rely on the presence of testosterone, the treatment would continue to target those stronger cells that respond to androgen ablation therapy, Jain explained.

"That's an important question with any therapy -- is it making things better or worse in terms of allowing mutated cells to take over?" he said.

Jain and colleagues are now working to boost the model's power by adding parameters that account for the blood vessel architecture in prostate tumors, a major indicator of how persistent the cancer will be. They also plan to add hundreds of individual patients' case study data to make its predictions even more authentic.

This research was supported by Ohio State's Mathematical Biosciences Institute, the National Science Foundation, and a Molecular Carcinogenesis and Chemoprevention Program Grant from Ohio State's Comprehensive Cancer Center.

Skin Cancer

Skin Cancer

'Encouraging' Skin Cancer Discovery: P-Rex1 Plays Key Role in Spread of Malignant Melanoma (7.12.2011)

Scientists in Glasgow have made an important discovery in the fight against malignant melanoma, the most dangerous form of skin cancer.

Unlike most other cancers, malignant melanoma is disproportionately higher in younger people than in other age groups. More than two young adults (aged 15-34) in the UK are diagnosed with the disease every day.

While survival rates have been improving for the last 25 years and are now amongst the highest for any cancer, malignant melanoma still causes around 46,000 deaths worldwide each year -- around 2,560 of those in the UK. The high death rate is due to cancer cells breaking away from the original tumour and spreading or 'metastasising' to other organs like the brain, causing them to fail. It is its ability to metastasise that makes cancer so dangerous.

Using a grant from the Association for International Cancer Research (AICR), Professor Owen Sansom and his team at the Beatson Institute for Cancer Research have shown that a specific gene (P-Rex1) must be present before malignant melanoma can spread.

In research just published in the scientific journal Nature Communications, Professor Sansom and his colleagues demonstrated the key role that P-Rex1 plays in the spread of malignant melanoma.

Using mice models which mirror the common human genetics of melanoma, the researchers found that if P-Rex1 was absent from the cells, the melanoma tumours were unable to spread. Further investigation enabled them to decipher the exact mechanism that P-Rex1 uses to drive metastasis and which is blocked when P-Rex1 is removed.

They then clearly confirmed that human melanoma samples, taken from patients' tumours, contained raised levels of P-Rex1.

Said Professor Sansom: "By contrast P-Rex1 is not present in most other normal human cell types, pointing up its suitability as a gene to be 'switched off' with chemotherapeutic drugs, as there are unlikely to be any unwanted side effects on nearby healthy cells.

"As malignant melanoma is resistant to many forms of chemotherapy, these findings are encouraging. Earlier studies using cancer cell lines implicated P-Rex1 in prostate, breast and ovarian cancer but this is the first time it has been shown to be involved in the metastasis of melanoma in mice models as well as being present at high levels in human tumours and cell lines where it drives invasion into surrounding tissue.

Dr Lara Bennett, scientific communications manager for AICR said Professor Sansom's discovery was an excellent example of how basic research, like that funded by AICR, can help form the building blocks for future treatments.

"Although it is early days and more research is needed, if drugs could be designed to block the effects of P-Rex1, melanoma could be prevented from metastasising," she explained. "This would ensure it remained on the surface of the skin where it could easily be removed through surgery, leading to higher survival rates."

Malignant melanoma incidence rates in Britain have quadrupled over the last thirty years with around 11,760 cases diagnosed in the UK each year and almost 200,000 worldwide.

"If malignant melanoma is caught sufficiently early -- while still only a very thin tumour in the top layers of the skin -- survival rates are much higher," said Dr Bennett.

Thyroid cancer

Thyroid cancer

Genes that increase risk of thyroid cancer identified (New Kerala: 26.12.2011)

Scientists have discovered the genetic cause of thyroid cancer, which can lead to the formulation of more targeted treatment for the disease.

Cleveland Clinic researchers have discovered three genes that increase the risk of thyroid cancer, which is has the largest incidence increase in cancers among both men and women.

Research led by Charis Eng, M.D., Ph.D., Chair and founding Director of the Genomic Medicine Institute of Cleveland Clinic's Lerner Research Institute, included nearly 3,000 patients with Cowden syndrome (CS) or CS-like disease, which is related to an increased risk of breast and thyroid cancer.

Mutations in the PTEN gene are the foundation of Cowden syndrome. PTEN is a tumour suppressor gene, helping to direct the growth and division of cells. Inherited mutations in the PTEN gene have been found in approximately 80 percent of Cowden syndrome patients.

These mutations prevent the PTEN protein from effectively regulating cell survival and division, which can lead to the formation of tumours.

"Our investigation into the genetics behind thyroid disease raises important details relevant to diagnosis and treatment," said Dr. Eng.

"We hope to promote the earliest diagnosis and most targeted treatment possible."

The study found that all six patients under age 18 had pathogenic PTEN mutations. The researchers recommend that the thyroids of children with PTEN mutation-causing CS-related disease receive increased surveillance.

Children with thyroid cancer are recommended to have testing for PTEN mutations, which could warrant surveillance for additional cancers or maladies. In contrast, alterations in the SDH and KLLN genes did not associate with thyroid cancer in children.

PTEN gene testing in the setting of genetic counselling is already routinely practiced, and has been a powerful gene-enabled diagnostic test, which then personalizes clinical screening and treatment.

Once SDH and KLLN findings are independently validated, the tests could be implemented as a clinical routine test as well. Importantly, these three genes belong to different cell pathways so that specific molecular-targeted treatments can be utilized depending on which gene is involved.

The study has been published in the Journal of Clinical Endocrinology and Metabolism.

Tumors Cancer

Brain Tumors

Brain Tumors That Glow in the Dark, a Big Help for Surgeons (Med India: 3.11.2011)

A recent development that enables tumours to glow in the dark holds promise in the treatment of malignant brain tumours.

A trial is on in the UK for patients newly diagnosed with glioblastoma.

As a part of the trial, more than 60 patients will receive injections of 5-amino-levulinic acid (5-ALA), which will be converted into a fluorescent chemical in the tumour. The tumor will then glow when placed under a UV light.

This fluorescent colour of the tumor helps surgeons clearly view the edges of the tumor, so that the tumor can be removed completely from the brain.

Brain Tumour

No risk of brain Tumour (The Hindu: 31.10.2011)

Five months after the World Health Organisation classified radiofrequency electromagnetic fields as only “possibly carcinogenic to humans (Group 2B),” the findings of a study published in the British Medical Journal (BMJ) suggest no risk of brain tumour from mobile phone use. There was no indication of “dose-response relation either by years or by anatomical location of the tumour” (“Use of mobile phones and risk of brain tumours: update of Danish cohort study,” by Patrizia Frei et al.). It was found to be true even among those who used mobile phones for more than 10 years. The conclusion is in line with more than a dozen large studies that looked for a possible link, including the first cohort study involving more than 400,000 Danish phone subscribers. In the latest instance, the study covered those diagnosed with brain tumour between 1990 and 2007 among more than 350,000 mobile phone subscribers in Denmark. By using digitised subscriber data obtained from operators, the researchers avoided two important methodological shortcomings — that of relying on users' ability to recall phone usage pattern and, two, selection bias.

But the study has certain limitations. The conclusion was not based on the actual use of mobile phones — the period of subscription was used as a surrogate for phone usage. The compounding limitation was the potential misclassification of exposure. Corporate subscriptions were excluded from the study, and the data on subscribers were available only till 1995. Hence all corporate subscribers and those who had a subscription post-1995 were labelled 'non-users'. However, it will be difficult, if not impossible, to conduct proper case-controlled studies that are free from selection and recall biases. For various reasons, even the most robust study to find a link based on usage pattern over the last 10 years or more will not be able to arrive at a correct conclusion. For instance, older analog phones used more energy than the currently available digital versions. Moreover, the energy given off by all the latest phones is not the same, and it also varies according to the strength of the signal — more energy is emitted when the signal is poor. Studies looking at effects from long-term usage will have little relevance to children, whose use of mobile phones has grown dramatically in recent years. Therefore, the need to adopt a precautionary approach to the use of mobile phones, especially by children, becomes extremely important. This, despite the fact that developed countries have witnessed no sudden spurt in brain tumour incidence, and the radiowaves, unlike X-rays and gamma rays, are non-ionising in nature and do not have the energy to damage cellular DNA.

Tumor

Tumor-Targeting Compound Points the Way to New Personalized Cancer Treatments (Science Daily: 5.12.2011)

One major obstacle in the fight against cancer is that anticancer drugs often affect normal cells in addition to tumor cells, resulting in significant side effects. Yet research into development of less harmful treatments geared toward the targeting of specific cancer-causing mechanisms is hampered by lack of knowledge of the molecular pathways that drive cancers in individual patients.

"A major goal of cancer research is to replace chemotherapy with drugs that correct specific molecular pathways disrupted by cancer," says Dr. Ari Melnick, one of the study's lead investigators and director of the Raymond and Beverly Sackler Center for Biomedical and Physical Sciences and associate professor of medicine at Weill Cornell Medical College. "But looking for mutations isn't always the way to find the most important factors that are keeping cancer cells alive."

Through a collaboration among Weill Cornell Medical College, the Sloan-Kettering Institute at Memorial Sloan-Kettering Cancer Center and the National Cancer Institute (NCI), a team of scientists has now reported that a tumor-targeting compound called PU-H71 can reveal with great accuracy the set of altered pathways that contribute to malignancy. Because the drug specifically binds to abnormal protein complexes in cancer cells, it could lead to the development of more targeted and effective therapies that

produce fewer side effects. These findings were recently published in the journal *Nature Chemical Biology*.

"The holy grail in the field was to develop some way to figure out what factors keep cancer cells alive, regardless of whether they have mutations," says Dr. Melnick. "In this paper, we present a method to do just that."

Through nearly a decade of research, PU-H71 was discovered and refined in the laboratory of Dr. Gabriela Chiosis, associate member of the Molecular Pharmacology and Chemistry Program at the Sloan-Kettering Institute and an associate attending chemist of Memorial Hospital, Memorial-Sloan Kettering Cancer Center. Dr. Chiosis, who is the senior investigator in this new study, reported initial findings about the drug five years ago. The compound was designed to inhibit heat shock protein 90 (Hsp90), which helps other proteins fold into the correct three-dimensional shape and function properly.

Hsp90 plays an essential role in the ability of cells to tolerate stress. The altered growth and metabolism of tumors induce a high degree of stress in these cells. To cope with this stress, tumor cells produce a special form of Hsp90 that is tuned to specially protect those proteins required for their growth and survival. Because this tumor/stress form of Hsp90 regulates many pathways that go awry in cancer, it is a more promising drug target than current targets that play a role in only a single pathway, Dr. Chiosis says. Importantly, PU-H71 specifically suppresses the cancer form of Hsp90 but has little effect on Hsp90 in normal cells.

Several years ago, Dr. Chiosis partnered with Dr. Melnick to examine the effectiveness of PU-H71 in treating breast cancer and lymphomas, and they have previously reported that the drug has dramatic antitumor effects without being toxic to animals. As a result of the drug's success in fighting these two aggressive types of cancer, the research team received approval from the National Cancer Institute to carry out clinical trials. Patients are currently being recruited for the first trial, which will test the drug's safety in treating a variety of tumor types, and subsequent clinical trials are being planned for patients with lymphomas, breast cancer, chemotherapy-resistant leukemia and other specific types of cancer.

In their new study Dr. Chiosis, Dr. Melnick, and collaborators demonstrated that because PU-H71 binds to tumor-Hsp90, and tumor-Hsp90 binds to proteins that are required for tumor survival, it is possible to use PU-H71 as a method to "fish out" entire networks of abnormal proteins in tumor cells in an unbiased fashion, which has not been possible up until now. Importantly, many or even most of the genes encoding proteins that maintain tumor cell survival are not mutated in tumors. Hence genetic screening would not be able to detect these networks, Dr. Melnick says. "The value of this method is that it's the first time you can go and probe the functional proteome, or the whole set of proteins that are important to maintaining the tumor." This strategy opens up new avenues for understanding in greater detail the molecular basis of cancer and identifying novel drug targets.

For example, in chronic myeloid leukemia cells, the PU-H71 drug preferentially binds to the Hsp90 complex containing Bcr-Abl, an abnormal protein that is overactive in these cells, rather than to Hsp90 associated with the normal protein Abl. Similar findings were observed in other tumor types, with PU-H71-Hsp90 complexes protecting only the tumor-associated proteins.

The researchers then used PU-H71 and proteomic analyses to identify all of the abnormal proteins bound to Hsp90 in chronic myeloid leukemia cells and built networks of these proteins using bioinformatics analyses. They found that these proteins are part of signaling pathways involved in cell death, growth and division. Bcr-Abl is known to use many of these pathways to propagate abnormal signaling in this type of cancer cell. The researchers experimentally confirmed that proteins from these pathways are crucial for cancer cell growth, division and survival, suggesting that their approach can be used to accurately identify Bcr-Abl-related protein networks. Moreover, the same experiments identified many proteins not previously known to drive chronic myeloid leukemia cells. One example of such a protein was CARM1, a regulator of gene expression, which the investigators showed maintains survival of these tumor cells.

Importantly, this PU-H71 cancer proteome method can also be used to identify networks of abnormal proteins in the cells from individual patients, paving the way to personalized therapies that target multiple pathways. "No two tumors are exactly alike, and we don't really know what is driving cancer in one patient versus the other," the researchers say. "If you can use this method to identify in a given individual the factors that are maintaining that patient's particular cancer, then you could develop targeted drugs that hit these specific factors -- in effect, designing personalized therapy for individual patients."

Based on these findings, Dr. Melnick and Dr. Chiosis recently received a multi-investigator collaborative grant from the National Cancer Institute to use this new PU-H71 proteome method to identify the proteins that maintain the survival of lymphoma cells. This funding is an example of how collaboration between investigators and institutions can synergistically accelerate the pace of biomedical research.

Study collaborators include Kamalika Moulick, James Ahn, Anna Rodina, Erica Gomes DaGama, Eloisi Caldas-Lopes, Fabiana Perna, Ly Vu, Xinyang Zhao, Danuta Zatorska, Tony Taldone, Mary Alpaugh, Stephen Nimer, Peter Smith-Jones, Nagavarakishore Pillarsetty, Thomas Ku, Jason Lewis, Steven Larson, Ross Levine and Hediye Erdjument-Bromage of Memorial Sloan-Kettering Cancer Center in New York City; Hongliang Zong, Leandro Cerchiatti, Katerina Hatzi, Steven Gross and Monica Guzman of Weill Cornell Medical College; and Kristin Beebe and Len Neckers of the National Cancer Institute in Bethesda, Md.

This work was supported in part by the National Cancer Institute, Leukemia and Lymphoma Society, the Breast Cancer Research Fund, the SPOR Pilot Award and Research and Therapeutics Program in Prostate Cancer, the Hirshberg Foundation for Pancreatic Cancer Research, the Byrne Fund and the V Foundation for Cancer Research.

Brain Hippocampus

Better Memory Associated With Larger Posterior Brain Hippocampus (Med India: 26.12.2011)

Scientists have revealed that the sizes of the posterior and anterior segments of the hippocampus could predict individual's ability to remember past events. Hippocampus is an important brain structure associated with recollection memory.

They found that a larger posterior hippocampus and a smaller anterior hippocampus were associated with better recollection.

Although research has generally linked smaller hippocampi with worse recollection in neuropsychological patients and during aging, this relationship has not held up among healthy young adults.

"There is some evidence that extensive spatial memory acquisition leads to enlargement of the posterior hippocampus and a decrease in the anterior hippocampus," explained lead study author, Dr. Jordan Poppenk who conducted the study at Baycrest's Rotman Research Institute.

"This suggested to us that the crucial predictor of individual differences in recollection ability might not be the overall size of the hippocampus but the separate contributions of the posterior and anterior segments of the hippocampus," he said.

Dr. Poppenk and co-author Dr. Morris Moscovitch analysed high-resolution magnetic resonance imaging brain scans of healthy adults who had participated in recollection memory tests.

The result showed that better recollection was linked with a larger posterior hippocampus and a smaller anterior hippocampus.

The overall size of the hippocampus did not predict recollection, as larger posterior hippocampi were offset by smaller anterior hippocampi.

The researchers went on to show that the link between the posterior hippocampus and recollection depended on interactions with other parts of the brain between the times that memories were learned and retrieved, particularly regions involved in perception which form the basis of recollected experience.

"Our results show for the first time that the size of the posterior hippocampus, especially when expressed as a ratio to the size of the anterior hippocampus, reliably predicts recollection in healthy adults," Dr. Poppenk stated.

"This finding explains the longstanding failure to correlate the overall size of the hippocampus with memory.

"We also provide evidence that it is the functional connections, possibly related to memory consolidation, between the posterior hippocampus and other parts of the brain that may underlie enhanced memory recollection," he added.

The findings have been published by Cell Press in the December 22 issue of the journal Neuron.

Depression

Dad's depression

Dad's depression may lead to emotional and behavioral problems in kids (New Kerala: 9.11.2011)

Children who live with a father who has mental health problems and depression have higher rates of behavioural and emotional problems themselves, according to a new study.

Though the effect of mother's depression upon her children is a well known, this study is the first to reveal the influence a father's depression may have on his children, the Daily Mail reported.

The team, led by Dr Michael Weitzman at NYU's Langone Medical Center, looked at a nationally representative sample of almost 22,000 children over four years.

They found that 11 per cent of children with depressed fathers had behavioural and emotional problems.

For children without depressed parents, the figure was just six per cent; while for a child of a depressed mother, the number was 19 per cent.

It is believed that a parents' depression affects the way he or she interacts with a child, in turn contributing to a child's behaviour.

Dr Weitzman told Good Morning America that the study is "remarkable" because it is the first of its kind.

The researchers hope the study will add to more successful treatment of depressed fathers and better education of health care workers.

Depression

Depression linked to heart disease risk (New Kerala: 14.11.2011)

Depression among young adults can have an unwanted spinoff -- it could elevate their chances of dying from heart disease.

Depression or a history of suicide attempts in people younger than 40, especially women, markedly increases their risk for dying from heart disease, results from a nationwide study have revealed.

"This is the first study looking at depression as a risk factor for heart disease specifically in young people," says senior study author Viola Vaccarino, who heads epidemiology at Emory's Rollins School of Public Health.

"We're finding that depression is a remarkable risk factor for heart disease in young people," said Vaccarino, the journal Archives of General Psychiatry reports.

"Among women, depression appears to be more important than traditional risk factors such as smoking, hypertension, obesity and diabetes which are not common in young women," said Vaccarino, according to an Emory statement.

Researchers analysed data from 7,641 people aged between 17 and 39 years who participated in the NHANES-III (National Health and Nutrition Examination Survey-III), between 1988 and 1994. Deaths were tracked through 2006.

Women with depression or a history of attempted suicide had a three times higher risk of dying from cardiovascular disease and a 14 times higher risk of dying from ischemic heart disease (heart attack).

The corresponding figures for men were 2.4 times higher risk for cardiovascular disease and 3.5 times higher risk for ischemic heart disease.

Depression

Risk of Depression High in Women Who Lead a Sedentary Lifestyle (Med India: 16.11.2011)

A new study published in the American Journal of Epidemiology suggests that women who do not exercise regularly and often sit in front of the television are more prone to suffer from depression.

Harvard School of Public Health researchers analyzed data from the Nurses' Health Study conducted between 1992 and 2000 and chose nearly 50,000 women who did not have depression in 1996. The researchers made use of the data filled in the questionnaire that all the participants had filled in the initial study and then followed up on the chosen candidates in 2006.

Over 6,505 cases of depression were found in 2006 and the researchers found that those who were physically active had a lower risk of depression compared to those who exercised less than 10 minutes every day.

Watching television too had an effect on the chances of depression with the risk increasing by 13 percent among those who 21 hours or more of TV per week. Commenting on the study, lead researcher Michael Lucas wrote, "Higher levels of physical activity were associated with lower depression risk."

Depression

Depression Doubles Heart Attack Risk (Medical News Today: 30.11.2011)

According to recent data, depression may have more severe consequences than previously thought. Compared to people who are not depressed, those with a mood disorder could be two times as likely to suffer a heart attack.

To date, this process has not been clearly understood. A novel investigation led by Concordia University has discovered that recovery time following exercise is slower for individuals who suffer from depression than for those who are non-depressed. The study is published in the journal Psychophysiology.

Findings from the investigation indicate that a dysfunctional biological stress system is active among individuals who are depressed. The study warns that it is vital that patients suffering from major depression be tested for cardiovascular disease.

First author, Jennifer Gordon, who is a PhD candidate at McGill University, explains:

"There have been two competing theories as to why depression is linked to cardiovascular disease. Depressed people may have poorer health behaviors, which may in turn lead to heart problems.

The other possibility is physiological: a problem with the stress system known as the fight or flight response. Our study was the first to examine the role of dysfunctional fight or flight response in depression in a large population."

The study, carried out by Concordia in association with the Montreal Heart Institute, McGill University, the Hôpital Sacré-Coeur de Montréal, the Université du Québec à Montréal and the University of Calgary, enrolled a total of 886 individuals, who were on average 60 years old, to participate in the investigation.

Around 5% of the participants were diagnosed with a major depressive disorder. After they all underwent a stress test, their blood pressure and heart rate were recorded. The researchers then compared recovery blood pressure levels and heart rates between those who were depressed with non-depressed participants.

Senior author, Simon Bacon, a professor in the Concordia University Department of Exercise Science and an investigator at the Montreal Heart Institute, said: "We found that it took longer for the heart rate of depressed individuals to return to normal. Heart rate recovery from exercise is one way to measure the fight or flight stress response. The delayed ability to establish a normal heart rate in the depressed individuals indicates a dysfunctional stress response. We believe that this dysfunction, can contribute to their increased risk of heart disease.

The take-home message of this study is that health care professionals should not only address the mental disorder, but also the potential for heart disease in patients who are suffering from major depression. Both of these health issues should be treated to minimize risk of severe consequences."

Depression

AA battery-powered devices can relieve pain, depression (New Kerala: 5.12.2011)

Scientists have been exploring the healing powers of electricity, particularly microcurrent therapy (MCT), involving a plethora of domestic gadgets that seemingly relieve pain, gout or depression.

Named Alpha-Stim and Microdoctor, these devices powered by a few AA batteries deliver a tiny current to the skin which cannot be felt through clips or sticky pads.

They are being touted as treatments for everything from joint pain to back pain to headaches, gout, multiple sclerosis and even depression.

Our bodies are composed of billions of atoms which produce electrical signals that run almost instantaneously through the body as nerve signals, controlling all bodily functions both conscious and unconscious.

MCT device companies claim injury and illness upset these signals and the treatment resets our natural electrical currents, aiding healing and reducing pain, the Daily Mail reported.

MCT involves electrical currents measuring less than one milliampere while a lightbulb may use about 500 milliamperes.

"New applications are mostly used for pain relief and soft tissue injury," said Tim Watson, professor of physiotherapy at the University of Hertfordshire.

His team concluded that microcurrent is most effective when used for significantly longer than the daily 20 minutes recommended by most manufacturers.

Joanne Thompson, 32, a photographer who lives in Cambridgeshire with her husband Steve, 41 and their daughters, Ella, eight and four-year-old Amy, reported remarkable results.

She developed depression four years ago after her youngest daughter was born with a rare bowel condition.

"For the next two years I suffered panic attacks and had severe side effects from the medication - tummy upsets, nausea and weight gain. A friend of mine had been using a machine called Alpha-Stim. She suggested I try it alongside the pills. I was sceptical at first, but did some research and was impressed by the clinical studies and testimonials," she said.

"You attach the clips to your ears and turn it on. I used it daily for two to three hours and would fall asleep with it. Within two months I felt a definite lift in my mood. After three months I felt I was able to cope with everyday life. It was a gradual process," said Joanne.

Mood and anxiety disorders

Mood and anxiety disorders likelier to trigger abuse of opioids (New Kerala: 14.12.2011)

Individuals suffering from mood and anxiety disorders such as bipolar, panic disorder and major depressive disorder may be more likely to abuse opioids, a new study has suggested.

An opioid is a psychoactive chemical that works by binding to opioid receptors, which are found principally in the central and peripheral nervous system and the gastrointestinal tract. The receptors in these organ systems mediate both the beneficial effects and the side effects of opioids.

Led by researchers from the Johns Hopkins Bloomberg School of Public Health, the study found that mood and anxiety disorders are highly associated with non-medical prescription opioid use.

Prescription opioids such as oxycontin are a common and effective treatment for chronic and acute pain. They are highly addictive and their prolonged use can produce neurological changes and physiological dependence.

For the study, the researchers examined the association between individuals with mood and anxiety disorders with non-medical prescription opioid use and opioid disorder.

“Lifetime non-medical prescription opioid use was associated with the incidence of any mood disorder, major depressive disorder, bipolar disorder and all anxiety disorders. Non-medical opioid-use disorder due to non-medical prescription opioid use was associated with any mood disorder, any anxiety disorder, as well as with several incident mood disorders and anxiety disorders,” Silvia Martins, lead author of the study, said.

“However, there is also evidence that the association works the other way too. Increased risk of incident opioid disorder due to non-medical use occurred among study participants with baseline mood disorders, major depressive disorder, dysthymia and panic disorder, reinforcing our finding that participants with mood disorders might use opioids non-medically to alleviate their mood symptoms.

“Early identification and treatment of mood and anxiety disorders might reduce the risk for self-medication with prescription opioids and the risk of future development of an opioid-use disorder,” she said.

Using data from the National Epidemiologic Study on Alcohol and Related Conditions (NESARC), a longitudinal face-to-face survey of individuals aged 18 years and older between 2001 to 2002 and 2004 to 2005, researchers assessed participants for a history of psychiatric disorders.

Non-medical use of prescription opioids was defined to participants as using a prescription opioid without a prescription or in greater amounts more often or longer than prescribed or for a reason other than a doctor's instruction to use them.

Logistic regression was used to determine whether lifetime non-medical prescription opioid use and opioid disorders due to this use predicted incident mood and anxiety disorders and the reverse.

The researchers believe that these findings provide support for a bi-directional pathway between non-medical prescription opioid use and opioid-use disorder due to non-medical use and several mood and anxiety disorders.

“With the current increased use of non-medical prescription drugs, especially among adolescents, the association with future psychopathology is of great concern. Using opioids, or even withdrawal from opioids, might precipitate anxiety disorders, suggesting that there is a subgroup of people who are vulnerable to future development of anxiety disorders,” Carla Storr, author of the study, said.

“Additional studies are needed to examine the relationship between non-medical prescription opioid use and prescription opioid-use disorder with mood and anxiety disorders since they could co-occur due to shared genetic or environmental risk factors,” Martins adds.

The study has been recently published in the Journal of Psychological Medicine. (ANI)

Depression

Depression drives teenage girls to overeat (New Kerala: 19.12.2011)

Teenage girls who feel depressed are twice as likely to start binge eating as compared to their counterparts, a new study has found.

According to the new nationwide study, the reverse is also true, as, girls who engage in regular binge eating have double the normal risk of symptoms of depression.

The study, conducted by Alison Field and his team of researchers from Harvard Medical School and Harvard School of Public Health, is the largest to look at the relationship between binge eating and depression during adolescence, when most eating disorders surface.

The study authors defined binge eating as eating a large amount of food in a short amount of time and feeling a lack of control over eating during the episode. It also labelled girls who ate large amounts of food but did not feel out of control "overeaters".

The findings of the study rely on surveys conducted as part of the nationwide Growing Up Today Study. The authors focused on girls because eating disorders and depression are more common in females than in males.

The researchers analysed data from nearly 5,000 girls aged 12 to 18 who answered questions in 1999, with follow-up surveys in 2001 and 2003.

Teens and young women who reported in the first survey that they always or usually felt "down in the dumps" or "depressed" were about twice as likely as others were to start overeating or binge eating during the following two years.

"The most common approach to obesity has been to focus on eating better and exercising more, but many pathways can lead to being overweight," Marian Tanofsky-Kraff, a clinical psychologist at the Uniformed Services University of the Health Sciences in Maryland, said.

"There is a group of people where it may be more psychologically driven. Targeting some of these psychological factors might help prevent obesity," Tanofsky-Kraff added.

The authors note that the survey respondents included few youths belonging to ethnic minorities or lower socioeconomic groups, so the study findings might not apply to all populations. In addition, the surveys did not include information on use of medications, such as antidepressants, which might affect outcomes.

The study has been published in current issue of the Journal of Adolescent Health. (ANI)

Hypertension

Hypertension Treatment Associated With Long-Term Improvement in Life Expectancy (Science Daily: 22.12.2011)

Patients with systolic hypertension who were treated with the diuretic chlorthalidone for 4.5 years as part of a clinical trial had a significantly lower rate of death and a gain in life expectancy free from cardiovascular death about 20 years later compared to patients who received placebo, according to a study in the December 21 issue of JAMA.

"Antihypertensive drug therapy has been shown to decrease nonfatal and fatal cardiovascular events in controlled clinical trials and meta-analyses. However, long-term data on gain in life expectancy are not available," according to background information in the article.

John B. Kostis, M.D., of the UMDNJ-Robert Wood Johnson Medical School, New Brunswick, N.J., and colleagues conducted a study to examine the effect of blood

pressure (BP) lowering on long-term outcomes such as life expectancy. The researchers obtained long-term mortality data for participants in the Systolic Hypertension in the Elderly Program (SHEP) trial, which was a randomized, placebo-controlled, clinical trial designed to assess the effect of antihypertensive drug treatment (chlorthalidone) in reducing the risk of stroke in patients with isolated systolic hypertension. Recruitment for SHEP was between March 1985 and January 1988. After the end of a 4.5-year randomized phase of the SHEP trial, all participants were advised to receive active therapy. The time interval between the beginning of recruitment and the ascertainment of death (December 2006) was approximately 22 years (21 years 10 months). Of the 4,736 participants enrolled in the SHEP trial, 2,365 (49.9 percent) were randomized to active treatment therapy and 2,371 (50.1 percent) were randomized to placebo. The average age of participants was 72 years, 57 percent were women, and 14 percent were black.

At the end of follow-up, 2,851 of the 4,736 randomized patients (60.2 percent) had died, with 1,416 deaths (59.9 percent) in the active treatment group and 1,435 deaths (60.5 percent) in the placebo group. The researchers found that both life expectancy and time to the 70th percentile survival at the end of follow-up were longer for the SHEP participants who were randomized to the active group compared with those randomized to the placebo group. Life expectancy gain at 22 years was 158 days for cardiovascular death and 105 days for death from all causes. The gain in life expectancy free from cardiovascular death corresponds with 1 day (0.89 days) gained per month of treatment. For all-cause mortality, the gain in life expectancy from 1 month of antihypertensive drug treatment was estimated at a half day (0.59 days).

The authors also found that the active treatment group was associated with higher survival free from cardiovascular death compared with the placebo group (669 deaths [28.3 percent] vs. 735 deaths [31 percent], respectively).

"Reporting that each month of antihypertensive therapy was associated with 1 day prolongation of life expectancy free from cardiovascular death is a strong message that may result in increased patient adherence to drug therapy and decrease the degree of therapeutic inertia by health care providers," the authors write.

Depression

New Approach to Study Depression: Finding May Lead to New Marker for Risk (Science Daily: 27.12.2011)

Scientists at the Texas Biomedical Research Institute and Yale University have identified a new target area in the human genome that appears to harbor genes with a major role in the onset of depression.

Using the power of Texas Biomed's AT&T Genomics Computing Center (GCC), the researchers found the region by devising a new method for analyzing thousands of

potential risk factors for this complex disease, a process that led them to a new biomarker that may be helpful in identifying people at risk for major depression.

"We were searching for things in psychiatric disease that are the equivalent of what cholesterol is to heart disease," said John Blangero, Ph.D., director of the GCC and a principal investigator in the study. "We wanted to find things that can be measured in everybody and that can tell you something about risk for major depression."

The study was directed by Blangero and David Glahn, Ph.D., of Yale University. It was published online in October in the journal *Biological Psychiatry* and supported by the National Institutes of Health.

Major depressive disorder is one of the most common and most costly mental illnesses. Studies have estimated that up to 17 percent of Americans will suffer depression at some point in their lives. The disorder has proven to be a tough challenge for geneticists. Despite strong evidence that people can inherit a susceptibility to major depression, years of study have failed to locate any of the key genes that underlie the illness.

The scientists used blood samples from 1,122 people enrolled in the Genetics of Brain Structure and Function Study, a large family study that involves people from 40 extended Mexican American families in the San Antonio area.

Blangero and his colleagues looked at more than 11,000 endophenotypes, or heritable factors, and searched for the ones that were linked with the risk of major depression. They found that disease risk correlated most strongly with expression levels of a gene called RNF123, which helps regulate neuron growth.

Once they found this risk factor, further analysis directed scientists to an area on chromosome 4 containing genes that appear to regulate RNF123.

Because the RNF123 expression levels can be measured relatively easily in the blood, this finding could lead to a way of identifying people at risk for major depressive disorder, Blangero said.

"We might be able to know in advance that a person will be less able to respond to the normal challenges that come about in life," he said. "Then doctors may be able to intervene earlier after a traumatic life event to remove some of the debilitation of depression."

The study also shows the potential for using this method of analyzing a multitude of heritable traits as a way to zero in on disease-causing gene variants.

The research capitalized on the newest 'deep sequencing' technology that enables Texas Biomed scientists to search through more genetic variables. The GCC has 8,000 linked computer processors that are capable of analyzing millions of genetic variables drawn from thousands of research subjects.

Diseases

Neurological diseases

New pills to treat neurological diseases come closer to reality (New Kerala: 10.10.2011)

University of Notre Dame researchers have made a promising step on the road to developing new drugs for a variety of neurological diseases, by focusing on the design, synthesis and evaluation of water-soluble "gelatinase inhibitor" compounds.

Gelatinases, a class of enzymes, have been implicated in a host of human diseases from cancer to cardiovascular conditions and in particular neurological conditions such as stroke, aneurysm and traumatic brain injury.

The Notre Dame group has been investigating variants of a compound called "SB-3CT," which shows promise as a selective and potent gelatinase inhibitor.

The preferred method of treatment for acute gelatinase-dependent diseases is intravenous infusion. Intravenous administration requires that the compound be water-soluble.

Unfortunately SB-3CT has poor water solubility and poor drug-like properties.

In a new approach, the group from the University's Departments of Chemistry and Biochemistry and Biological Sciences and the Friemann Life Sciences Centre, used a prodrug strategy to address this issue.

A prodrug is an inactive precursor of a drug that is converted into its active form in the body by normal metabolic processes.

The prodrug strategy produced a greater than 5,000-fold increase in water solubility compared to SB-3CT.

In addition to its high water solubility, the prodrug (referred to as ND-478) was chemically stable, non-toxic and was quickly converted to the active drug in the blood.

These favourable properties of ND-478 make it suitable for intravenous administration in the treatment of acute gelatinase-dependent diseases.

Such a compound offers the possibility of translation into the clinic for treatment of strokes, aneurysms and traumatic brain injury.

Rotavirus infection

India leads in rotavirus infection deaths: Lancet (The Hindu: 25.10.2011)

Close to one lakh children below the age of five years died of diarrhoea attributable to rotavirus infection in 2008, accounting for 22 per cent of the total deaths reported globally, reports the latest edition of the Lancet Infection Diseases magazine.

Diarrhoea related with the rotavirus infection resulted in 453,000 deaths worldwide in 2008 among children younger than five years—37 per cent of deaths attributable to diarrhoea with five countries accounting for more than half of all deaths attributable to such infection: Democratic Republic of the Congo, Ethiopia, India, Nigeria and Pakistan. Introduction of effective and available rotavirus vaccines in other countries, mostly middle-income or poorer, could substantially reduce worldwide deaths attributable to diarrhoea, the paper has suggested.

In this new study, Dr. Jacqueline E. Tate and Dr. Umesh D. Parashar, Centre for Disease Control and Prevention, Atlanta, US, and colleagues did a systematic review and meta-analysis of studies with at least 100 children younger than five years who had been admitted to hospital with diarrhoea. They also included data from countries that participated in the WHO-coordinated Global Rotavirus Surveillance Network. Studies were classified into one of five groups on the basis of region and the level of child mortality in the country in which the study was done.

Estimate of deaths

The authors note that their estimate of deaths due to rotavirus-related diarrhoea in 2008 is somewhat lower than the previous estimate of 527 000 deaths in 2004, saying the difference is largely because of an overall decrease in diarrhoea-related deaths in children younger than 5 years from 1·8 million in 2003 to 1·2 million in 2008. “However,” they add, “we do not know what proportion of this decrease is due to a true decline in diarrhoea-related mortality and what proportion is due to a change in the methods used to estimate the number of diarrhoea-related deaths.”

Meanwhile, Save the Children, a non-government organization working for children, said efficacy trials were still on in India on the rotaviral vaccines and till these trials are over there is little data to prove the efficacy or otherwise of these new vaccines. Secondly and critically, these patented vaccines are so far being produced by a handful of private pharmaceutical companies and are hugely expensive. Introducing these vaccines in the public health system will involve huge resources. When the government is unable to raise

the resources for critical primary health care, including routine immunization, it would appear inappropriate if the government were to invest additional resources on newer vaccines.

Tropical diseases

India facing heavy burden of neglected tropical diseases (The Hindu: 2.11.2011)

Even as the world welcomed the seven billionth member of the global population this week, medical researchers warned that rapid-growth economies such as India's still had a high proportion of morbidity with more than 290 million Indians suffering from Neglected Tropical Diseases (NTDs).

In an article on A Disproportionate Burden of NTDs found in India and South Asia, tropical diseases scientists said that although India and South Asia had made significant economic progress, NTDs continued to perpetuate a cycle of poverty among its most disadvantaged populations.

These NTDs include visceral leishmaniasis, also known as "kala-azar," lymphatic filariasis, which causes elephantiasis, leprosy, dengue fever, rabies and soil transmitted helminth.

Speaking to The Hindu Peter Hotez, an author of the report and President of the Sabin Vaccine Institute in the United States, highlighted the strong link between NTDs and poverty, noting that many cases of NTDs had even occurred in the U.S. wherever poverty had been found.

However the scale of NTD infections in India and South Asia was high, he suggested, noting for example that 12 to 17 per cent of all intestinal worm infections globally occurred in India and were often associated with hookworm, whipworm and the Ascaris worm.

With more than half of the major NTDs attaining endemic proportions in India and South Asia the economic loss attributed to these diseases was significant, Dr. Hotez said, indicating that close to \$1 billion per year was lost due to lymphatic filariasis alone.

Dr. Hotez also argued that while the government of India had made rapid strides towards eliminating some NTDs such as leprosy, greater coordination between the government and the network of drug and vaccine producers in the private sector would lend additional momentum to this process.

The need for more coordination notwithstanding, there have been some major success stories in India, and among them is the de-worming drive in Bihar between February and April this year, when over 17 million children were de-wormed.

India has also already demonstrated its capacity to create vaccines, Dr. Hotez said, highlighting the fact that the Serum Institute of India was the first institution globally to create a meningococcal A-vaccine. Similarly Hyderabad-based Shantha Biotechnics Ltd. has launched an oral vaccine for preventing cholera.

While mass drug administration programmes for lymphatic filariasis, worms and leprosy could help completely eliminate these NTDs in India, India ought to focus on developing the next generation of drugs, diagnostics and vaccines for NTDs, Dr. Hotez said.

The presence of a sophisticated biotech industry implied the potential for public-private partnerships the results of which would not only bring benefits to the poor in India but to the poor globally, he added. A good example of international coordination in this regard was a partnership between India, Bangladesh and Nepal in a drive to control leishmaniasis that occurs heavily in the border areas between these nations.

Congenital syphilis

Country closest ever to eliminating congenital syphilis (The Tribune: 2.11.2011)

India is on its way to eliminating a serious infection that causes high mortality among neonates. For the first time in 61 years since the national Sexually Transmitted Infection (STI) Prevention Programme was launched, the health authorities today said they were the closest in history to eliminating congenital syphilis - a severe, disabling and often life-threatening infection seen in infants.

A pregnant mother who has contracted syphilis through the sexual route from an infected partner can spread the disease through the placenta to the unborn infant. Syphilis is caused by bacterium *Treponema pallidum*, passed from mother to child during foetal development or at birth.

Half of all children infected while in the womb die shortly before or after birth. Those born, report blindness, deafness, face deformity and neurological problems.

“Syphilis leads to still births, foetal wastage and recurrent abortions among women. It is a major cause of neonatal and infant mortality though we can’t estimate the actual loss because we have no way of screening every single case of abortion to determine if congenital syphilis caused it,” TLN Prasad, technical expert with the National AIDS Control Organisation (NACO) today told The Tribune.

The District Health Survey launched recently had found neonatal mortality rates whopping, with seven out of every 10 infant deaths involving neonates (who die within the first seven days of birth).

NACO, which manages the STI prevention programme (STI is a major driver of HIV infection), today said India was in the process of making a commitment to the WHO to eliminate congenital syphilis and was waiting for it to develop indicators for validation in that regard.

On the eve of the 12th World Congress on STIs starting in India tomorrow, SD Khaparde, Deputy Director General, NACO, told TNS, "Syphilis prevalence among pregnant women is down to under 1 pc. This is the lowest ever. We are now capable of making an elimination commitment to the WHO."

In 1950, when the STI prevention plan began, half of Indians had syphilis. Today its prevalence rate is 4 pc in general population and 10 to 12 per cent among groups at the highest risk of HIV - female sex workers, men who have sex with men and injecting drug users. Among pregnant mothers, it is 0.8 pc.

The development is significant in the wake of a recent African study which said 40 pc new HIV infections can be prevented by preventing STIs, syphilis being a treatable, curable STI.

Asked what took India so long to reach this stage with syphilis elimination considering a simple blood test can detect it and penicillin can treat it, Khaparde said, "We had no way of monitoring pregnant women due to high rate of home-based deliveries until NRHM began. Today, 60 pc deliveries are institutional and we can better screen pregnant women. Even developed nations like the US are struggling with syphilis."

During the National AIDS Control Programme-II, 1,200 suspected syphilis cases were reported; in NACP-III, which is about to wind up, only six had cases surfaced. "Although we have ruled out syphilis only in 2 million women out of 28 million that get pregnant annually, we are sure that when we scale up screening, we will find similar trends among all pregnant women because we are not seeing cases in the community anymore," Prasad said.

Epidemic

Epidemic in US: Lethal overdose of painkillers (The Times of India: 3.11.2011)

The United States is facing an epidemic of lethal overdoses from prescription painkillers, which have tripled in the past decade and now account for more deaths than heroin and cocaine combined.

The quantity of painkillers on the market is so high that it would be enough for every American to swallow a standard dose of Vicodin every four hours for one full month, according to the Centers for Disease Control and Prevention.

“The unfortunate and in fact shocking news is that we are in the midst of an epidemic of prescription drug overdose in this country. It is an epidemic but it can be stopped,” said CDC chief Thomas Frieden.

“Now the burden of dangerous drugs is being created more by a few irresponsible doctors than by drug pushers on street corners.”

The CDC Vital Signs report focused on opioid pain relievers, including oxycodone, methadone and hydrocodone, better known as Vicodin, which have quadrupled in sales to pharmacies, hospitals and doctors’ offices since 1999.

Last year, 12 million Americans reported taking prescription painkillers for recreational uses, not because of a medical condition.

The number of deaths from overdoses of opioid pain relievers has more than tripled from 4,000 people in 1999 to 14,800 people in 2008.

The epidemic is at its height among middle-aged white men, age 35-54, and American Indians or Alaska natives, the CDC said. Rural and poor areas tend to have the highest prescription drug overdose death rates, and the severity of the problem varies widely. The drugs are highly addictive and people can build up tolerance quickly, according to Michael Lowenstein, who treats patients at his pain clinic in Los Angeles and was not involved with the CDC research. AFP

Breast pain

How not to suffer breast pain (The Tribune: 14.12.2011)

Neeru, 29, was still celebrating the birth of her son when she had to visit her gynaecologist with stabbing breast pain, swelling and dry cracked nipple on the left side after six months of her delivery. The doctor, after a careful look, pronounced her suffering from “mastitis”, which could be feeding-related. She could be infected with the Staph Aureus bacteria or fungus named Candida.

The panic-stricken patient put a volley of questions: Is it cancer, doctor? Is it curable? Will it harm my son in any way? Will it need surgery? How long will it take to get relief? Can I feed my child? Do other mothers also suffer it, or I am the unlucky one?

Breast pain, also called mastalgia, is one of the commonest complaints among women. One may feel chronic tenderness, sharp burning or tightness. The pain may be constant or occasional. Some women have severe breast pain, occurring for more than five days every month. Postmenopausal women sometimes have breast pain, but the symptom is more common in younger women, who are menstruating.

Breast pain rarely signifies breast cancer. If it is related to the menstrual cycle, it may disappear without any treatment or with just home remedies, common painkillers, hot fomentation, etc. If the pain is not menstruation-related, then it is significant. However, only 15 per cent of all breast pain cases require antibiotics as they are infected with bacteria. Breast cancer may also be the cause for pain, but here we will confine ourselves to non-cancerous pain only.

Common causes

- 1 Hormonal changes during your period.
- 1 Water retention, which may happen during your period.
- 1 Injury to your breast or infant teeth-bite.
- 1 Pregnancy
- 1 Breastfeeding
- 1 An infection in the breast
- 1 Breast cancer; uncommon cause

If you are younger than 35 years of age and don't have a breast lump, your doctor might decide that you don't need any tests. If you're older than 35 years and don't have a breast lump, your doctor may still want you to get a mammogram done. A mammogram is a special X-ray of the breasts. If you do have a lump (or several lumps) in your breast, your doctor might decide that you need one or more tests. Multiple cysts call for thorough investigations, including MRI.

What is mastitis?

Mastitis usually affects one breast. It often happens while a woman is breastfeeding. The symptoms: Breast pain, swelling, red wedge-shaped area on the breast, a burning sensation while breastfeeding, fever, fatigue, etc. It is important to keep breastfeeding when you have mastitis. Your breast milk will not be bad for your baby, even if you have mastitis. If you stop breastfeeding, germs can spread in the milk that is left in your breast, and your infection can get worse. If you cannot nurse your baby, you should pump your breasts to remove the milk.

How to prevent mastitis?

Below are some basic breastfeeding techniques to lower your risk of developing mastitis.

- 1 Your baby should latch onto the nipple with his or her mouth open wide.
- 1 Allow your baby to empty one breast before switching to the other breast.
- 1 Change your baby's position from one feeding to the next to help empty all the areas of the breast.
- 1 If you need to stop a feeding, break the suction using your finger.
- 1 Don't wear tight-fitting clothes. Air your nipples when possible.
- 1 Tell your doctor if you have nipple pain during nursing.
- 1 Use non-steroidal anti-inflammatory medication. You should apply the medication directly to the area affected by breast pain, but avoid ingestion of the drug by the infant.
- 1 Take an oral contraceptive.
- 1 Reduce the dose of menopausal hormone therapy or stop it.
- 1 Take to medication under medical advice.
- 1 Prevent irritation and cracking but do not stop breastfeeding your child.
- 1 Stop breastfeeding slowly.

Diseases

Are the days of incurable diseases really over? (The Hindu: 20.12.2011)

Venkatraman Ramakrishnan and Richard J. Roberts deconstruct the unseen world of bacteria

Students, scientists and members of the public thronged Indian Institute of Science's (IISc) Tata Auditorium on Monday to hear Nobel laureates Venkatraman Ramakrishnan and Richard J. Roberts deconstructing the fascinating workings of that invisible, yet ubiquitous life form: bacteria.

Are the days of incurable diseases really over? Not quite, when diseases such as tuberculosis are seeing a resurgence, said biologist Ramakrishnan, Joint Head of the Structural Studies Division at the Medical Research Council, Cambridge.

He was delivering a lecture on 'How antibiotics illuminate Ribosome function and vice versa.'

"The world has 100 million active cases of tuberculosis, a disease that claims two million lives every year," he said, attributing the complexities in treating the disease to drug resistance, among other reasons.

"When a new antibiotic is introduced, you can be guaranteed that it will at some point gain drug resistance."

Bacteria counter antibiotics through several *modus operandi*: by degrading or altering enzymes and by actually ejecting them out of their cells, said Professor Ramakrishnan, who was awarded the Nobel Prize for Chemistry in 2009 for "studies of the structure and function of the ribosome."

It was significant that it took \$1 billion to develop new drugs from scratch, he said.

"As public, we need to be aware that structural biologists and pharmaceutical companies cannot alone solve the problem of drug resistance. We need infection control, measures to improve sanitary conditions and promote the rational use of antimicrobials," he said.

"Do not, for instance, insist on an antibiotic if you catch a cold and flu."

In his lecture "Why I love Bacteria," Professor Roberts, who is the Chief Scientific Officer at New England Biolabs, Massachusetts, offered a look at the unseen bugs — friendly and unfriendly — that share our body and planet.

"If we removed every bacterium from our body, we will cease to exist," he said. "Our bodies have some 10 trillion human cells, but it has 10 times the number of bacterial cells: 100 trillion to be precise."

Whether the "picturesque" and colourful bacteria that lived in the Yellowstone geothermal pools or the deadly *Yersinia pestis* (or plague bacterium) that decimated Europe in the Middle Ages, the microscopic organism just cannot be ignored, he said.

Professor Roberts received the Nobel Prize in Physiology or Medicine in 1993.

He described as "illogical" the European fear of genetically modified products, which has stalled research in several areas, including probiotic food that could have had several benefits.

The M.J. Thirumalachar and M.J. Narasimhan Endowment Lectures were organised to honour the memory of biologist Thirumalachar, who established the Jeersannidhi-Anderson Institute at Walnut Creek, California, along with his son M.J. Narasimhan.

Keywords: Nobel laureates, Venkatraman Ramakrishnan, Richard J. Roberts, Ribosome functions

CNS Disease

CNS Disease Caused by Concomitant Immune Challenges (Med India: 26.12.2011)

A novel mouse model to show that a fatal central nervous system (CNS) disease can be caused by a pathogen that does not replicate in the CNS has been developed by a research team led by Glenn Rall at the Fox Chase Cancer Center in Philadelphia, PA.

The results of this new study are published December 22nd in the Open Access journal PLoS Pathogens.

The authors found that the immune response induced in response to a peripheral viral infection can be "mis-recruited" to the brain, where these activated immune cells can then lead to inflammation-induced neuropathology and disease. While "mis-recruitment" has been observed in other mouse models, this is the first study to show that this phenomenon can have pathogenic consequences.

The novel model used two, tissue-restricted infections: lymphocytic choriomeningitis virus (LCMV), which, when injected intraperitoneally, is restricted to peripheral tissues such as the liver, spleen and kidney, and measles virus (MV), which is limited to CNS neurons. While infection with either virus alone resulted in no mortality, co-infection caused CNS symptoms in all mice, and death in approximately half. The authors show that this was due to migration of peripherally activated LCMV-specific T cells into the CNS, where they triggered edema leading to brain herniation, despite the apparent absence of LCMV antigens within the affected brain.

While the broader implications of this study await further investigation, this is a proof of principle study that addresses a key question: can a pathogen cause disease "at a distance"? Typically, we envision that diseases are manifested where infectious pathogens replicate: influenza causes respiratory infection because this is the primary site of replication. In contrast, this study suggests that infection can activate immune responses that can be deleterious in tissues that are not directly infected by the initiating pathogen. This may be of broader relevance to human CNS diseases of unknown etiology, including multiple sclerosis and amyotrophic lateral sclerosis.

The authors of this study point out, however, that "while making direct connections between this model system and human diseases would be premature, a similar phenomenon could account for both the reported increase in inflammatory cells found in the brain of patients, as well as the lack of consistent and convincing presence of any specific pathogen in the brains of affected individuals."

AIDS-HIV Infection

HIV cases

New HIV cases down by 56% in India: UNAIDS(The Times of India: 22.11.2011)

UNAIDS's World AIDS Day report for 2011, which was released on Monday, revealed a dramatic decrease of 56 per cent between 1996 and 2010 in the number of new HIV infections in India. South and South East Asia with an estimated 2,70,000 new HIV cases in 2010 showed a 40 per cent reduction but India's figure is significant as it is the country with the largest HIV load in the region. Worldwide, with 2.7 million new HIV infections in 2010, the number of new infections went down by 21 per cent compared to 1997.

Incidentally, the report points out, the rate of HIV prevalence is lower in Asia than in some other regions but the absolute size of the population means it is the second largest group of people living with HIV. Sub-Saharan Africa continues to be the region most heavily affected by HIV in 2010 with 70 per cent of the new infections being reported from the region. The number is 26 per cent less than at the height of the epidemic in 2007. An estimated 5.6 million people are believed to be living with HIV in South Africa alone

The report highlighted the burgeoning HIV load of countries in Eastern Europe and Central Asia where there was a 250 per cent increase between 2001 and 2010 in people living with HIV and the fact that the HIV epidemic in North America and Western and Central Europe remains "stubbornly steady". The total number of people living with HIV in the region was 34 per cent more than the figure in 2001. More than half of the total 2.2 million HIV positive people in the area are from the US.

Commenting on India's success in restricting the epidemic, Sayan Chatterjee, secretary, National Aids Control Organisation (NACO), said: "It gives us great satisfaction to see India's efforts in the area of prevention bearing fruit and our programmes being lauded by international organisations. It is the whole bouquet of measures that we have put in place, including programmes for care, support and treatment that have ensured this."

Behaviour change among young people, sex workers, injectible drug users and MSM groups is the biggest reason for the fall in new HIV infections, the report pointed out.

Increased coverage of anti-retroviral therapy programmes was pronounced as the key to universal access to treatment, care and support.

According to UNAIDS and WHO estimates, 47 per cent (6.6 million) of the estimated 14.2 million people eligible for treatment in low and middle income countries were accessing lifesaving ART in 2010 — a rise of 1.35 million since 2009. Around 400,000 new HIV infections in children are estimated to have been averted since 1995 due to increased access to effective ART regimens.

HIV infections

HIV infections fall 56% in 4 years (The Times of India: 22.11.2011)

In India, new HIV infections fell by 56% between 2006-10. India says it has overshoot treatment targets for 2012 — with 4.48 lakh HIV positive patients on the lifesaving anti-retroviral therapy at present, against the target of 3.4 lakh.

The UNAIDS HIV AIDS report 2011 released on Monday said that in India, 20-40% of the eligible HIV population was actually receiving ART — one of the lowest HIV treatment coverage in the world. It added that less than 40% of pregnant women had access to ART to prevent new HIV infections among children.

“In India, 40% people don’t even know their HIV status. So how can we put them on treatment? UNAIDS estimates include these 40%. “In fact, against a target of putting 3.4 lakh HIV positive people on ART by end of 2012, we expect to cross the five lakh mark by that time,” a health ministry official said.

According to the new estimates, 47% (6.6 million) of the estimated 14.2 million people eligible for treatment in low- and middle-income countries were accessing ART in 2010, an increase of 1.35 million since 2009.

The year 2010 saw 2.7 million new HIV infections while 1.8 million people died of AIDS-related illnesses. Michel Sidibe, executive director of UNAIDS, said, “We’ve seen a massive scale up in access to HIV treatment which has had a dramatic effect on the lives of people everywhere.”

The report said new HIV infections had been significantly reduced or had stabilized in most parts of the world. The number of new HIV infections in south and south-east Asia dropped by more than 40% between 2006-10. In India, new infections fell.

The report said the number of new HIV infections continued to rise in eastern Europe and central Asia, west Asia and North Africa, while it remained stable in other regions.

Big Dip

HIV prevalence remains substantially lower in Asia than in some other regions. In 2010, an estimated 0.1% of the population in east Asia was living with HIV, and 0.3% in south and south-east Asia.

Asian population represents the second largest grouping of people living with HIV globally, due to its absolute size.

New HIV infections among adults and children in south and south-east Asia declined from an estimated 3.8 lakh in 2001 to 2.7 lakh in 2010.

Since the epidemic's peak in 1996, there has been a 40% decline in new infections in south and south-east Asia.

NACO

NACO against home testing (The Times of India: 22.11.2011)

India will not allow home testing for HIV. The country's National AIDS Control Organization is against allowing finger pricks or mouth swabs to be used by individuals to know their HIV status.

A variety of tests are now available which can produce results in 1-20 minutes. The cost of these tests are also low. However, NACO says its policy is clear — testing will have to accompany pre-testing and post-result counselling. "Self-testing is against Indian national treatment guidelines. We don't allow it," a NACO official said.

A UNAIDS report on Monday said the world was opening up to home testing for HIV since fewer than half of those living with HIV knew their status. This is, therefore, a huge barrier to treatment scale up. In India, 40% of the 2.3 million people living with HIV don't know that they are infected with the virus. A senior health ministry official said, "We don't want people to self-test and then commit suicide or self-harm because they test positive. Also, the quality of such tests are under scrutiny. What if the person harms himself after finding himself HIV positive but he is actually HIV negative?"

Around 8,000 centres across India counsel people who undertake a test. In 2010, an estimated 6 million people got tested for HIV. "Counselling is vital. We tell those who get tested and are found HIV positive how to lead a healthy life, how we will connect them to care, support and treatment services, put them on nutritional support and prevent further spread of the virus. In case they are found negative, they are counselled on how to stay that way and safe sex," the official said.

The UNAIDS report 2011 talks about self-testing. “Despite the advances in technology, testing is still approached with fear, accessing clinics is inconvenient and the experience of testing is often stigmatizing,” the report said.

AIDS/HIV

HIV Infection Not Under Control in Nearly 75 Percent Americans with HIV: US Study (Medindia: 30.11.2011)

Nearly three quarters of Americans with HIV are raising the risk of death from AIDS and transmission to others because they do not have their infection under control, a US study found on Tuesday.

One in five people with human immunodeficiency virus are unaware that they have the disease, added the report by the Centers for Disease Control and Prevention, released ahead of World AIDS Day on December 1.

Among people who know their HIV status is positive, only about half (51%) get ongoing medical treatment, said the CDC's Vital Signs report.

Of those, 36 percent take antiretroviral therapy and 28 percent have a low amount of the virus in their body.

"Closing the gaps in testing, access to care and treatment will all be essential to slowing the US HIV epidemic," said Jonathan Mermin, director of CDC's Division of HIV/AIDS Prevention.

There are about 1.2 million people living with HIV in the United States, and just 28 percent have what the CDC defines as a viral load that is "suppressed," or less than 200 copies of blood-borne virus per milliliter of blood.

Treatment with antiretroviral drugs has been shown to suppress levels of the virus in 77 percent of people who follow the regimen, and studies have shown it can cut the risk of transmission to a partner by 96 percent.

About 50,000 new cases of HIV arise in the United States each year, and 16,000 people die annually of AIDS.

While the figure of 28 percent suppression is higher than a recent study that found just 19 percent, the CDC cautioned that more needs to be done to make sure people are tested and treated.

"The results in this report indicate that progress has been made; however, continued and intensified efforts are needed," it said.

"Increasing the percentages of HIV-infected persons who remain in HIV care, achieve viral suppression, and receive prevention counseling requires additional effort."

HIV/AIDS

India & America: leading with science, uniting for action on HIV/AIDS (The Hindu: 1.12 2011)

Today is World AIDS Day, an occasion to reflect on how recent scientific breakthroughs have altered the outlook on the future of the pandemic. 'Working with India, we are embracing smart investments to save more lives.'

Every year on December 1, we commemorate World AIDS Day. It is a day to reflect on lives lost, and lives forever changed, as a result of AIDS. It is also an opportunity to pay tribute to more than 34 million people living with AIDS worldwide. Today, we celebrate those lives saved and improved in India and recommit to the fight against AIDS.

Science is the key

On this World AIDS Day, we emphasise science as the way forward. Recent scientific breakthroughs have altered our outlook on the future of AIDS. Of particular importance is a study showing that antiretroviral treatment reduces the likelihood of transmission of HIV to an uninfected partner by a remarkable 96 per cent. For the first time, with this and other tools, we have a potential path to eliminate this disease from the global landscape. By using our new knowledge, we can implement more effective programmes to provide HIV prevention, treatment, and care to millions of people worldwide, and in communities throughout India.

Significant strides have been made in India and throughout the world. Despite early projections of a rapidly expanding epidemic, India has documented remarkable success in limiting HIV transmission. HIV incidence declined by 50 per cent between 2000 and 2009 as a result of successful evidence-based prevention programmes in high-prevalence districts, supported by important policy shifts, and scale-up of care and treatment services for people already infected.

PEPFAR and India

As part of its dynamic partnership with India, the United States, through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), supports evidence-driven and innovative approaches to support India's National AIDS Control Programme. PEPFAR provides expert technical cooperation to address priority areas linked to HIV prevention and treatment, and health system strengthening. For example, the U.S. has funded numerous demonstration projects that subsequently have been adopted and scaled up by the government of India or the private sector, including evidence-based prevention among most-at-risk-populations, private sector HIV service delivery models, helplines, drop-in centres, group insurance for people living with HIV, and workplace HIV

programmes. In recent years, we have collaborated with the government of India to develop and implement national policies on gender, migrants, and children affected by AIDS.

Working with India, we are embracing smart investments to save more lives. Throughout the world, treatment — both to save the lives of those infected, and to prevent infection of others — is a key evidence-based intervention, along with prevention of mother-to-child transmission, HIV counselling and testing and other strategies. In all we do, we are focusing on using our resources as effectively and efficiently as possible to maximise the human impact of our investments and save more lives. President Barack Obama's Global Health Initiative is using health systems built through PEPFAR to address public health challenges in a more integrated and comprehensive way.

Despite challenging economic times, the U.S. remains committed to its leadership role in the global AIDS response. Meeting the challenge of this disease will require commitment from all parties — including the governments of affected countries, donor governments, civil society, faith-based organisations, and the private sector.

Today, we recognise how far we have come in turning the tide against HIV, while acknowledging the lengths we still must travel. On this World AIDS Day, we stand together with India. With science as the road map, let us renew our efforts to reach the goal of an AIDS-free generation.

HIV

Half of HIV patients in Asia live in India (The Hindu: 1.12. 2011)

The prevalence is 18 per cent in South India, says UNAIDS report



LIGHTING UP A MESSAGE: NSS volunteers of Sector 42 Government College of Girls lighting earthen lamps to create public awareness about AIDS and remembering its victims on the eve of World AIDS Day in Chandigarh on Wednesday. Photo: Akhilesh Kumar

India houses half of Asia's HIV patients and is way ahead of China in disease burden. It also finds a place in the list of 22 countries prioritised for preventing mother to child transmission infection, according to the latest UNAIDS report, drafted jointly with the United Nations Children's Fund (UNICEF) and the World Health Organisation (WHO).

About 48 lakh people were living with HIV in Asia in 2010 and nearly half of them – 49 per cent to be precise – are in India, says the report released on the eve of World AIDS Day. The percentage of pregnant women who tested positive for HIV infection in India also rose from 2 per cent in 2005 to 23 per cent in 2010.

Seven Asian countries report an estimated 100,000 or more people living with HIV in 2009, collectively accounting for more than 90 per cent of people with HIV in the region. India tops the list followed by China, Thailand, Indonesia, Malaysia, Myanmar and Vietnam, though the highest prevalence rate, one per cent, was observed only in Thailand. In Asia, the rate of HIV transmission appears to be slowing down. The estimated 360,000 people who were newly infected with HIV in Asia in 2010 were considerably fewer than the 450,000 estimated for 2001.

Traditional risk groups

Notwithstanding regional variations, the HIV epidemic is being stabilised among female sex workers and traditional risk groups in the six high-prevalence States including Karnataka. But epidemics among men who have sex with men are growing across the region including India.

High prevalence

High prevalence — between 8 and 32 per cent — has been found among surveyed men who have sex with men in many Asian cities. The UNAIDS report quotes one study, which shows that the prevalence is 18 per cent in South India. The report also says that 35 per cent of children with HIV infection were receiving anti-retroviral therapy treatment.

Variation exists among commercial sex workers, with a 2009 survey showing HIV prevalence of 4.6 per cent among female sex workers in Mumbai and Thane and 24 per cent among street-based sex workers. The prevalence could be as high as 29 per cent among their brothel-based counterparts in some districts of Maharashtra.

Yielding results

There is also evidence that prevention programmes are working in India. One such programme in Karnataka was associated with a drop in HIV prevalence from 25 per cent to 13 per cent among female sex workers in three selected districts between 2004 and 2009.

A similar programme brought down the prevalence from 1.4 per cent to 0.8 per cent among young antenatal clinic attendees between 2004 and 2008 in 18 districts.

And yet another intervention programme in Mumbai and Thane led to a decline from 45 per cent HIV prevalence in 2004 to 13 per cent in 2010 among brothel-based sex workers.

DECEMBER 1 is WORLD AIDS DAY

India must invest to sustain gains, UNAIDS tells govt (The Tribune: 1.12. 2011)

On the eve of World AIDS Day, UNAIDS has cautioned the government against complacency on the HIV/AIDS front and recommended generous investment in the sector for sustenance of gains.

Speaking to The Tribune today, UNAIDS Country Coordinator Charles Gilks said India had made incredible progress in reducing the rate of new HIV infections by half and putting more people on life-saving treatment, but it needed to invest more to sustain those gains.

“The sting in the tale is that if money is not spent, gains will be lost very quickly. New infections will shoot up and the epidemic will return with a vengeance,” Gilks cautioned today.

Between 2000 and 2010, India reduced its new HIV infections by 50 per cent. In the National AIDS Control Programme-III, it also exceeded the five-year target on persons to be put on anti-retroviral treatment. Over 4 lakh Indians are now on treatment.

But even today, India has 2.5 million HIV positive people - 49 per cent of the HIV population of Asia which had about 4.8 million people living with HIVs at the end of 2010. This was 11 per cent more than the 4.2 million it had in 2001.

In India, the challenge is the funding, considering that global donors are backing out in the light of the economic meltdown. Currently, only 25 per cent of India's entire HIV/AIDS budget is domestic. The rest comes from global agencies like the World Bank, DFID, Bill and Melinda Gates Foundation etc. Several global donors have indicated cut backs in AIDS budgets.

Gilks today warned, “The challenge is for the (next) 12th Five-Year Plan to ensure enough domestic funding to sustain the progress made. To sustain 50 per cent drop in new infections over another decade will cost more and not less.

“That is a difficult message to convey to politicians. The issue now will be to make sure that the Ministry of Health proposes the right kind of budget for the HIV/AIDS sector in the 12th Plan and the government votes for it,” Gilks said.

‘Fast track HIV/AIDS Bill’

UNAIDS today called on the government to fast track the pending HIV/AIDS Bill, saying core groups which are at high risk would require legislative protection to secure their human rights once the funding shrinks. “There are concerns around the Bill, but there is no concern that can't be resolved,” Gilks said.

AIDS

Making AIDS history (The Asian Age: 1.12. 2011)

In the last three decades, HIV/AIDS, a disease first reported in humans in 1981 in the United States, has spread across all continents and claimed millions of lives. It has posed one of the biggest public health threats known to man, and changed the course of history. HIV proved to be a formidable enemy, resisting drugs quickly and evading potential vaccines. But the story of HIV/AIDS is also a tale of triumph of human ingenuity, determination and commitment. Infection with HIV was once considered a death sentence. But now progress achieved in the global response over the last decade has resulted in a 15 per cent reduction in new infections. Today, we are close to overcoming the HIV/AIDS epidemic, as we aim for “zero new infections, deaths and discrimination due to HIV/AIDS”. The World Health Organisation (WHO), along with United Nations

Programme on HIV/AIDS (UNAIDS), UNFPA, Unicef, and countries in the Asia-Pacific region, has also launched an initiative for elimination of new paediatric HIV infections and congenital syphilis by 2015.

How did we reach this point? Initial technological progress was rapid. In 1983, HIV was first isolated and by 1985, the first test kit to detect HIV was approved by the United States Food and Drug Administration (USFDA). In 1987, the drug zidovudine (AZT) — the first drug to treat people infected with HIV — was approved by the USFDA. However, the virus soon began to develop resistance to the drug. With the arrival of other antiviral drugs and “combination therapy”, approved in 1992, the disease finally showed signs of abatement.

Over the years, more effective and less toxic drugs have made their way to the market. “Combination therapy” is changing the profile of the disease to a chronic one and is the cornerstone of HIV/AIDS treatment today. In June 2010, the UNAIDS secretariat and WHO launched Treatment 2.0, an initiative designed to improve the efficiency and impact of HIV care and treatment programmes. It also aims to bring a realistic and sustainable solution to reducing illness and premature death from HIV.

Effective treatment is one of several prongs to successfully fight the epidemic. Sustained access to treatment is important. But along with treatment, prevention of the disease is vital. People need to know their HIV status, and need to have access to proper facilities for testing and counselling. Experiences from across the world have shown that political commitment and will, financial investment, widespread awareness and community involvement play a crucial part in preventing the disease.

Countries in Southeast Asia, like Thailand and India, have shown how developing countries can effectively fight HIV/AIDS. The first case of HIV/AIDS in Southeast Asia was reported in Thailand in a sex worker in 1984. By 1993, the government increased the budget for HIV/AIDS twenty-fold. A massive information campaign was launched, with anti-AIDS messages aired every hour by more than 400 radio stations and six TV networks. The Thai government's determination to enforce 100 per cent condom use in brothels and to ensure wide access to HIV prevention campaigns through schools, mass media and workplaces have been key factors in lowering HIV infection rates in the country.

Reported condom use in brothels in Thailand increased from only 14 per cent in 1989 to over 90 per cent by 1994. Over the same period, the number of new cases of sexually transmitted infections (STI) among men treated at government clinics plummeted by over 90 per cent. Regular surveys among young male recruits in the Thai Army revealed similar changes in sexual behaviour and infection rates. HIV infection rates among 21-year-old military conscripts peaked at four per cent in 1993 before falling steadily to below 1.5 per cent in 1997. By 1995, fewer recruits were visiting sex workers (down from almost 60 per cent of recruits in 1991 to about 25 per cent by 1995) and condom use had increased.

These changes in sexual behaviour were paralleled by a decline in HIV infections and other STIs. By 2009, Thailand had come close to eliminating perinatal (mother-to-child) HIV transmission. This was possible due to the dedication of public health workers, a strong health infrastructure as well as strong political leadership and commitment.

India, too, is a similar success story in spite of the size and diversity of the country. With strong political and administrative commitment and strategic focus on high-risk groups, India has the world's largest HIV prevention programme. The first case of HIV in India was identified in 1986. India responded to the HIV/AIDS challenge by setting up an AIDS Task Force under the Indian Council of Medical Research and a National AIDS Committee. In 1990, a medium-term plan (1990-1992) was launched in selected states. The plan facilitated targeted awareness campaigns, establishment of surveillance system and safe blood supply.

The National AIDS Control Organisation (Naco) was established in 1992. Currently nearing the completion of its third phase, Naco has used a network of HIV-positive people and NGOs, as well as secondary and tertiary health facilities, to successfully and rapidly scale up access to antiretroviral treatment. Epidemic projections reveal that the number of annual new HIV infections have declined by more than 50 per cent during the last decade as a result of persistent efforts.

Countries like Sri Lanka and Bangladesh, with a low prevalence of HIV, have also managed to keep infections low. In Sri Lanka, this has been achieved through strengthening of public health services while in Bangladesh the government has worked closely with civil society organisations to provide community-based services.

Such determined efforts in Southeast Asia and other parts of the world have ensured that progress made in providing access to treatment for people living with HIV/AIDS is unprecedented in global public health history.

Today, people with HIV, on regular therapy, are living longer and better lives, changing the profile of the disease to a chronic one. With regular treatment, more than four out of five people with HIV are alive in the Southeast Asia region 12 months after the start of therapy.

However, this is not the time for complacency. Despite the progress, there are challenges. The majority of people in Southeast Asia do not know their HIV status. Almost half of the people living with HIV, who are in need of treatment, have yet to start therapy. Poor adherence to treatment is resulting in resistance to first-line drugs. Poor access to prevention and treatment services of HIV-positive pregnant women continues to pose challenges for curbing transmission to newborns.

As HIV becomes a chronic infection, it also poses new challenges for our health systems. Destigmatisation and decriminalisation of the disease still remain big challenges.

In order to overcome HIV, we need to address the underlying social determinants, such as poverty, women's empowerment and gender equity. Finally, it is essential that investment in the disease, both political and financial, is maintained and scaled up where needed, so that HIV can be relegated to the history books in the next 30 years.

New hope of a cure of HIV (The Asian Age: 1.12.2011)

MEDICAL RESEARCHERS are again in pursuit of a goal they had all but abandoned: curing AIDS.

Until recently, the possibility seemed little more than wishful thinking. But the experiences of two patients now suggest to many scientists that it may be achievable. One man, the so-called Berlin patient, apparently has cleared his HIV infection, albeit by arduous bone marrow transplants.

More recently, a 50-yearold man in Trenton underwent a far less difficult gene therapy procedure. While he was not cured, his body was able to briefly control the virus after he stopped taking the usual antiviral drugs, something that is highly unusual.

“It’s hard to understate how the scientific community has swung in its thinking about the possibility that we can do this,” said Kevin Frost, chief executive of the Foundation for Aids Research, a nonprofit group. “Cure, in the context of HIV, had become almost a four-letter word.” There were attempts in the past to cure the disease, but most experts thought it more feasible to focus on prevention and treatment.

The push for a cure might seem even less urgent now that antiviral drugs have turned HIV infection from a near-certain death sentence to a chronic disease for many people. But the drugs are not available to everyone, and they do not eliminate the infection. Even if undetectable in the blood, the human immunodeficiency virus lurks quietly in the body. If a patient stops taking the drugs, the virus almost always comes roaring back.

So people with HIV now must take drugs every day for life, which some researchers say is not a sustainable solution for tens of millions of infected people.

“I don’t think the world has the resources to deliver these drugs to everyone who needs them for decades,” said Dr Steven Deeks, professor of medicine at the University of California, San Francisco.

A cure may be the only realistic solution. The National Institute of Allergy and Infectious Diseases, which says a cure is one of its top priorities, this year awarded grants that could total \$70 million over five years to three research teams in pursuit of that goal. More grants are coming. California’s stem-cell agency has committed a total of \$38 million to

three projects intended to find a cure. Companies like Merck, Gilead Sciences, Sangamo BioSciences and Calimmune have begun research.

It will be years before there is a cure, if there ever is, though some scientists are more optimistic than others. "I think we are much closer to a cure than we are to a vaccine," said Rafick-Pierre Sékaly, scientific director of the Vaccine and Gene Therapy Institute of Florida.

HIV/ AIDS

More Punjabis take to safer sex (The Tribune: 2.12. 2011)

In contrast, condom sales down 17% in Chandigarh

When it comes to practising safe sex, the Punjabi males are surely outdoing their Haryanvi counterparts. Punjab has witnessed a whopping 64 per cent increase in the sale of condoms, from 1.32 crore pieces in 2009-10 (July to June) to 2.16 crore pieces in 2010-11, under the National AIDS Control Organisation (NACO).

In contrast, the sale figures in Haryana have witnessed an increase of 45 per cent, from 50.46 lakh to 73.14 lakh in the same period. These figures pertain to the sale of only two brands of condoms, Deluxe Nirodh and Ustaad, distributed by HLL Lifecare Limited under the NACO-funded project. However, if the sale figures of other commercial brands are added, the total sale of condoms in Punjab and Haryana is likely to exceed 10 crore and 5.8 crore, respectively. NACO officials say the sale of condoms had gone up primarily due to the wide distribution network established through traditional (chemists etc) and non-traditional outlets like vegetable and fruit vendors. As compared to 1,826 traditional outlets and 2,825 non-traditional outlets in 2009-10, their number had gone up to 5,405 and 7,713 respectively in 2010-11.

Arun R Gangadharan, Deputy Manager, Marketing, HLL Lifecare, said there had been an overall increase in the sale of condoms throughout the country following awareness programmes. He said seven districts, Gurdaspur, Amritsar, Tarn Taran, Jalandhar, Ludhiana, Ropar and Mohali, in Punjab were enrolled with NACO where traditional and non-traditional outlets provided branded condoms on subsidised rates.

However, Chandigarh had seen a 17 per cent decrease in the condom sales under the project-from 16.21 lakh condoms in 2009-10 to 13.46 lakh in the subsequent year. SACS director Dr Vanita Gupta attributed the decline to weak marketing.

The sale of condoms has gone up due to the wide distribution network through traditional (chemists) and non-traditional outlets (vegetable vendors)

As compared to 1,826 traditional outlets and 2,825 non-traditional outlets in 2009-10, their number in the state went up to 5,405 and 7,713 respectively in 2010-11

In Gurdaspur, Amritsar, Tarn Taran, Jalandhar, Ludhiana, Ropar and Mohali districts, condoms were sold on subsidised rates.

HIV/AIDS

New law to protect those with HIV/AIDS (The Asian Age: 2.12. 2011)

Over five years after the Union health ministry finalised the draft of the HIV/AIDS Bill, it is likely to see the light of day. On Thursday, World AIDS Day, health minister Ghulam Nabi Azad said the government would soon enact legislation to end discrimination against HIV/AIDS patients. The draft bill is lying with the law ministry, and the minister said his officials would initiate the process to revive it.

“The government will soon bring in a law to ban discrimination against HIV/AIDS patients,” he said at a World AIDS Day event. The health ministry had finalised the draft in 2006 and sent it to the law ministry in 2007. The latter returned it after truncating 32 provisions. The health ministry was not happy with the truncated version, and sent it back again.

After some NGOs protested, the law ministry asked the solicitor-general to examine the draft bill in November 2009, when the senior law official advised reinstatement of the deleted provisions.

Activists working in this field had recently demanded that a strong law to outlaw discrimination against HIV/AIDS patients be enacted in the ongoing session. Several NGOs and Lawyers’ Collective, a legal advocacy group, which helped draft the bill, said the matter was urgent due to the “large-scale” discrimination faced by the HIV-positive people.

Gene Therapy

Gene Therapy Protects Mice against HIV (Medical News Today: 2.12. 2011)

December 1st, World AIDS Day, and we find ourselves reflecting on how nearly 30 years after it first reared its ugly head, HIV is still newly infecting some two million adults a year, and despite millions of dollars and hours of research, the virus has proved elusive and slippery to vaccine developers. But an alternative path is starting to open up: gene therapy.

A new study published in Nature on Wednesday, describes how Nobel Laureate David Baltimore, a virologist and HIV researcher at the California Institute of Technology (Caltech) in Pasadena, and colleagues, inserted a gene into the leg muscles of lab mice bred to be susceptible to human HIV, that caused them to make a broad range of antibodies that protected them against exposure to HIV.

This is still a long way from developing a gene therapy approach that works in humans, but it's a start. In fact it's more than a start because this has been done before, with monkeys. In 2009, researchers at the Children's Hospital of Philadelphia in Pennsylvania, were the first to raise the possibility of gene therapy for preventing HIV when they showed it was effective in preventing transmission of the simian immunodeficiency virus, which is similar to HIV but infects monkeys.

Both teams are now planning to test the method in humans.

Although it seems extreme to use gene therapy as a way to prevent an infectious disease as opposed to an inherited disease, if it works, and we still have no vaccine, then it may be an effective alternative, as long as it is safe.

So why is it proving so hard to find an effective vaccine against HIV? Well, it's not as though scientists haven't been trying. In fact, in 2009, they nearly got there, when a large trial in Thailand showed an experimental vaccine protected about one third of the people who received it from HIV infection. But one third is not high enough to stop transmission in the general population. So scientists are now back at the "drawing board" trying to improve the vaccine.

The reason HIV is proving so elusive to vaccine developers is because to make a vaccine you have to use either all or parts of an inactivated virus to induce an immune response to make antibody proteins against the real live virus. But HIV is a slippery character: it manages somehow to cloak or disguise most of the easily-recognized bits of itself that the antibody proteins are programmed to grab onto (it hides its grab-handles if you like).

Scientists are working hard to find at least one molecule that makes the immune system respond with a broad range of antibody proteins that can find grab-handles in all the various mutated forms of HIV: but the challenge is proving to be very tough. On the one hand they have found a broad range of antibodies that work against HIV, but on the other hand, they can't get the immune system to produce the required response to make them all.

The risk with gene therapy is that once you have inserted the gene, if it goes wrong and starts causing other side effects you hadn't bargained for, how do you switch it off? So the journey down this path has to be optimism tempered with caution.

In the Nature paper, Baltimore, who is also president emeritus and Robert Andrews Millikan Professor of Biology at Caltech, and colleagues, describe how they developed a gene therapy approach to HIV prevention that they call "Vectored ImmunoProphylaxis", or "VIP".

Mice are not naturally susceptible to HIV, so the researchers used mice that had been engineered to carry human immune cells that are able to grow HIV. (HIV wreaks havoc by invading host cells, merging with their DNA, then reprogramming them to behave in a way that helps the virus replicate and spread).

To insert the gene, Baltimore and his team used an adeno-associated virus (AAV), a small, harmless virus frequently used in gene-therapy trials, as a carrier to deliver genes bearing instructions for making the appropriate broad range of antibodies.

They injected the AAV and its payload into the leg muscle of the humanized mice, and found the muscle cells were pumping out the antibodies into the mice's bloodstream.

Remarkably, those antibodies, which the mice were producing in high concentrations after just one injection, were enough to protect the mice from HIV given to them

intravenously. And equally remarkable was the fact they continued to produce high concentrations of the antibodies for the rest of their lives.

The researchers were keen to point out that what works in mice does not necessarily work in humans, and there is still a long way to go before we will know for sure whether this approach bears out the hopes raised by this study.

But they are optimistic. They believe the large concentration of antibodies the mice produced, together with the finding that a relatively small amount of antibody has provided protection in the mice, may well translate into protection against HIV in humans.

"We're not promising that we've actually solved the human problem," Baltimore said in statement from Caltech. "But the evidence for prevention in these mice is very clear."

"If humans are like mice, then we have devised a way to protect against the transmission of HIV from person to person. But that is a huge 'if', and so the next step is to try to find out whether humans behave like mice," he added.

In their Nature paper the authors also describe how the VIP method worked even when they exposed the mice to higher amounts of HIV. The first test they did was with a virus dose of one nanogram. This is usually enough HIV to infect most mice who receive it. When they found the treated mice were able to withstand that dose, they continued to raise it until they reached 125 nanograms, and the mice still withstood it.

First author Alejandro Balazs, a postdoctoral scholar in Baltimore's lab, said:

"We expected that at some dose, the antibodies would fail to protect the mice, but it never did - even when we gave mice 100 times more HIV than would be needed to infect 7 out of 8 mice."

"All of the exposures in this work were significantly larger than a human being would be likely to encounter," he added.

Balazs said it was more likely that this result was down to the type of antibody they were testing rather than the VIP method itself. However, he points out that it is the VIP that enabled the large amount of the powerful antibody to get into the mice's bloodstream and beat the virus.

The other advantage is that VIP is a "platform" approach; you can change the payload to be other, perhaps even more powerful, antibodies, leaving open the door for scientists to find these and use VIP to deliver them. And not only against HIV, but also other infectious agents.

The team is now planning to test VIP in human trials. First they want to find out if the AAV vector can program muscles in humans to make the levels of antibody that would be needed to protect against HIV.

Balazs has high hopes of success: "In typical vaccine studies, those inoculated usually mount an immune response - you just don't know if it's going to work to fight the virus," he explains, but, "In this case, because we already know that the antibodies work, my opinion is that if we can induce production of sufficient antibody in people, then the odds that VIP will be successful are actually pretty high."

AIDS

252 die of AIDS in Mizoram in 11 years (Daily News & analysis:2.12.2011)

At least 252 people have died of AIDS and 6,399 people diagnosed as infected with HIV in Mizoram since October 1990 when the first HIV/AIDS case was detected in the state. Mizoram State Aids Control Society (MSACS) project Director Dr Eric Zomawia said among those having died due to full-blown AIDS were, 164 men, 78 women and 10 children, as per figures from October 1990 to October, 2011.

Zomawia said 1,71,513 blood samples, or 15.72 per cent of the total state population as per Census 2011, had been tested and the number of HIV positives detected (6,399) was 3.73 per cent of the tested samples.

Sexual contact is the main cause of spread of HIV/AIDS with 64.8 per cent of those identified as having HIV/AIDS contacted through sex, followed by Intravenous Drug Users contributing 28.5 per cent, he said.

While 3.7 per cent were infected in 'perinatal' period, the circumstances behind infection of rest three per cent were not known.

AIDS

AIDS rate among Surti gays doubles (Daily News & Analysis: 2.12.2011)

In Surat, the percentage of the gay community infected with HIV has doubled since last year, say doctors and researchers.

The primary cause for this is physical - practice of anal sex. Another reason is that a majority of the gays are unaware of the disease and its complications. Lakshya Trust in Surat alone has more than 5,000 members, while more than 200 gays are registered with the ART (Anti Retroviral Treatment) centre in New Civil Hospital. Similar registration figures can be seen at GNSP+ in SMIMER Hospital and a few other trusts working in the city.

"Most gay men resort to anal sex, which is unnatural for their bodies. Due to this cracks develop near the area. As the skin is hard, blood and other body fluids escape from these cracks. During copulation, these fluids are exposed to the other person's and thus the virus spreads. A homosexual man is five times more likely to get infected than a lesbian woman," said ART centre doctor, Alap Mehta.

He added that last year, 160 homosexual men came to ART centre for treatment, while this year over 300 have registered so far.

Surat tops the state with the maximum number of HIV infected people. There are more than 22,000 sex workers and over 8,000 registered homosexuals in the city. Populations living in shanties, ghettos and low-cost localities are rapidly being infected by the deadly disease, said Mehta.

NGOs estimate that there are more than 30,000-40,000 gays in the city, but very few are registered with them due to lack of awareness. Unmarried men as well as men, who have families living away from the city, are more likely to become homosexuals.

"A majority of the gays don't have knowledge of this disease and treatment modules. In some cases, gays voluntarily maintain unsafe sexual relations with infected people. Besides, they also indulge in sex with multiple partners, which increases chances of HIV and AIDS," a counsellor at Lakshya Trust said.

The counsellor added that a majority of homosexuals are aged between 21-35, who work or live together.

HIV cases

Plan panel eyes 60% reduction in new HIV cases by 2017(Business Standard: 5.12.2011)

120,000 new HIV infections were reported in 2009.

The 12th five-year plan will strive for a 60 per cent reduction in new Human immunodeficiency virus (HIV) infections by 2017. The plan document will also incorporate recommendations of a Planning Commission working group constituted to suggest measures to strengthen AIDS control in the country.

The group favours launching the fourth phase of the National Aids Control Programme (NACP-IV) with renewed focus on districts and states which have bucked the general declining trend of AIDS.

"The adult HIV prevalence at the national level has declined from an estimated 0.41 per cent in 2000 to 0.31 per cent in 2009, through 0.36 per cent in 2006. The high-prevalence states show a clear declining trend in adult HIV prevalence. However, low-prevalence ones such as Assam, Chandigarh, Orissa, Kerala, Jharkhand, Uttarakhand, Jammu & Kashmir, Arunachal Pradesh and Meghalaya have shown a rising trend in adult HIV prevalence over the last four years," the committee notes.

The reduction in the number of new cases should be from 2007-levels, the committee says. In 2009, new HIV infections stood at 1.2 lakh, down from 270,000 in 2000. The expert panel estimates the Budget for NACP-IV at Rs 12,824 crore, spread over a five-year period.

The panel also favours raising condom usage in the country to 3.1 billion by 2017, as against the prevailing 2.5 billion. "The government plans to make available free condoms in almost all the districts of the country through 2.4 million outlets, up from the current 1.2 million outlets," the report said.

The committee recommends that 90 per cent of the annual blood requirement of the country should be met through voluntary donation to prevent the spread of HIV through blood transfusion.

The fourth phase will strengthen coordination among various central ministries such as labour, health, social justice and empowerment to quicken the response for intervention among high-risk groups. The plan panel favours strong integration between the National Rural Health Mission and NACP to benefit more people.

NACO

NACO plans ART Plus centers to provide second-line therapy (The Indian Express: 5.12.2011)

The National AIDS Control Organisation (NACO) will roll out 21 Anti-Retroviral Treatment (ART) Plus centres to meet the increasing demand of providing second line drugs to HIV patients who have failed to respond to earlier treatment.

Dr B B Rewari, who heads the NACO's ART programme, said that 21 more ART Plus centres will be rolled out exclusively for such HIV positive people who require second line drug therapy.

Presently, 2,600 people are on second line drugs for HIV as they were critical despite taking medication.

Of these 21 centres, seven are already functional. Centres have been proposed in Surat, Patna, Guwahati, Lucknow, Ahmedabad, and Jaipur, Rewari said. The government has earmarked Rs 350 crore for the entire project of providing free of cost drugs at all ART centres. A total of 4.48 lakh people are availing free of cost drugs at 324 ART centres, he said.

This is in addition to the 10 centres that had been set up to provide the facility for second line drugs and seven paediatric HIV centres in the country.

In addition to the 324 ART centres and other second line ones, there are 678 link centres and 259 community care centres. In the private sector, a move had been initiated last year to encourage practitioners to report each and every HIV patient being treated. While 70 centres have provided details about their patients, Rewari admits that since HIV is not a notifiable disease not much action could be taken against the practitioners.

There is no mechanism of monitoring the private practitioners who give anti-retroviral drugs at expensive rates to their patients. According to NACO, there are around 30,000 patients availing of medication in the private sector.

The emphasis is to strengthen the link between the ART centres and more than 5,000 Integrated Counselling and Testing Centres where people are initially identified and detected with the virus.

As per the National Family Health Survey-3, there are 2.47 million HIV infected people in India of which 3.8 per cent are children. Nearly 40 per cent of the people are unaware of their HIV status and while the World AIDS Day theme is getting to zero, for the NACO it is also providing 100 per cent access to anti-retroviral drugs.

HIV/AIDS

HIV Cure Tops Agenda in World Top HIV Researchers' Meet (Med India: 7.12.2011)

An international AIDS research workshop this week will have scientists working on HIV persistence in viral reservoirs meeting between December 6 and 9. Their findings have potential implications for the 34 millions of patients who are chronically infected by HIV worldwide.

More than 210 international scientists meet Tuesday 6 December for the "International Workshop on HIV Persistence, Reservoirs & Eradication Strategies". The workshop is supported by the American National Institute of Health (NIH) and the French Agency for AIDS Research (ANRS).

"We are very excited by the fact that all top scientists involved in the quest of an HIV cure will be there" declared Doctor Alain Lafeuillade (Toulon, France) cofounder of the workshop with Professor Mario Stevenson (Miami, USA).

The workshop will begin on Tuesday 6 December by a satellite symposium entitled "Unique Challenges and Opportunities for Eradication of Brain HIV-1 Reservoirs" organized by the National Institute of Mental Health (NIMH). In the following days, sessions will discuss the animal models of HIV persistence, the virological and immunological factors at play, and the development of new therapeutic strategies to reach a functional or a sterilizing HIV cure.

"It is a unique program, involving researchers from America, Europe and Australia, and the abstracts we have received show that the field is moving quickly" Doctor Lafeuillade mentioned. The workshop will combine state-of-the-art lectures and more than 60 presentations of yet unpublished data as oral or poster publications. Embargo on these data will be lifted on December 6.

Several NIH representatives will attend the workshop, as well as members of the "Towards an HIV Cure" initiative from the International AIDS Society (IAS). The IAS will convene their group twice during the workshop to prepare the scientific strategy towards an HIV cure to be launched in Washington in July 2012.

"With the case of the Berlin patient we now know that an HIV cure is achievable, but we have to find strategies which are scalable" Doctor Lafeuillade added.

The Berlin patient was declared cured from HIV a year ago after receiving 2 bone marrow transplants for acute leukemia. The bone marrow donor exhibited a rare defect on the CCR5 coreceptor that HIV uses to enter cells. Researchers working in the USA on "zinc finger nucleases" to mimic the CCR5 defect will detail their latest advances at the workshop.

Another approach to a cure is purging residual HIV reservoirs with drugs capable of acting on latently-infected cells. Trials have already started with Histone Deacetylase inhibitors, disulfiram and bryostatin. Their preliminary results will also be published at the workshop.

But the workshop is not all about therapy and basic science will represent an important part of it. "It is still necessary to increase our understanding of the mechanisms involved in the maintenance of HIV reservoirs during effective antiretroviral therapy" Dr. Lafeuillade said, "That is why the NIH and the NIAID recently awarded \$14 million/year for research on eradication of HIV through the Martin Delaney Collaboratory".

The "International Workshop on HIV Persistence, Reservoirs & Eradication Strategies" is held at the Westin Sin Maarten Hotel, Philipsburg, December 6-9, 2011. It is a closed meeting where participants are selected for their commitment in HIV persistence research.

HIV cases

HIV cases in armed forces down to half in 5 yrs (The Indian Express: 7.12.2011)

Five years ago, HIV was one of the 20 top causes of death in the armed forces, seventh leading cause of death in the Army and the second most prevalent reason of death in the Navy.

Today, according to the the Director General of Armed Forces Medical Services (DGAFMS), there are barely 0.017 per cent HIV positive personnel in the 12-lakh strong

armed forces, with no deaths registered last year. Serving soldiers with HIV are no longer invalidated from service, it said.

While HIV infection is on the decline in the country, the efforts by the armed forces to combat the infection have proved successful to the extent that the HIV detection rate is now a miniscule 0.007 to 0.017 per cent in the serving population.

The prevalence rate of HIV in the armed forces is approximately 40 times less than the national prevalence. At present, the adult HIV prevalence in the country is 0.31 per cent.

According to top officials at the DGAFMS, the number of HIV cases — at less than 240 now — are half of what it was in 2004. The armed forces had reported 461 cases of HIV /AIDS in 2005 and 475 in 2004. A need-based HIV-AIDS control programme is being implemented in the armed forces with the latest revision in the policy being done last year.

The armed forces witnessed the spread of the disease in three phases — the first phase from 1991 to 1998, second from 1999 to 2003, and third phase from 2004 onwards.

The period from 1999- 2001 witnessed a sharp increase in the infection detected among the voluntary blood donors initially from 0.34 per cent to 1.3 per cent and then declined from 2002 onwards.

Action was immediately taken when the first-ever case of infection was detected in a jawan who returned from the UN Mission in 1991. This led to the formation of the AIDS Control Organisation (ACO) at AFMC, Pune in 1992.

The mode of contraction was mostly through sexual exposure and among the reasons for high prevalence were often the difficult service conditions.

HIV

HIV Study Named '2011 Breakthrough of the Year' by Science (Science daily: 26.12.2011)

The journal Science has chosen the HPTN 052 clinical trial, an international HIV prevention trial sponsored by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, as the 2011 Breakthrough of the Year. The study found that if HIV-infected heterosexual individuals begin taking antiretroviral

medicines when their immune systems are relatively healthy as opposed to delaying therapy until the disease has advanced, they are 96 percent less likely to transmit the virus to their uninfected partners.

Findings from the trial, first announced in May, were published in the New England Journal of Medicine in August. The complete top 10 list of 2011 scientific breakthroughs appears in the Dec. 23, 2011, issue of Science.

"The HPTN 052 study convincingly demonstrated that antiretroviral medications can not only treat but also prevent the transmission of HIV infection among heterosexual individuals," said NIAID Director Anthony S. Fauci, M.D. "We are pleased that Science recognized the extraordinary public health significance of these study results. This recognition also is a credit to the hard work and dedication of the HPTN 052 researchers and the more than 3,000 study participants who selflessly gave their time and energy to make such a significant contribution to the fight against HIV/AIDS."

Led by study chair Myron Cohen, M.D., director of the Institute for Global Health and Infectious Diseases at the University of North Carolina at Chapel Hill, HPTN 052 began in 2005 and enrolled 1,763 heterosexual couples in Botswana, Brazil, India, Kenya, Malawi, South Africa, Thailand, the United States and Zimbabwe. Each couple included one partner with HIV infection. The investigators randomly assigned each couple to either one of two study groups. In the first group, the HIV-infected partner immediately began taking a combination of three antiretroviral drugs. The participants infected with HIV were extensively counseled on the need to consistently take the medications as directed. Outstanding compliance resulted in the nearly complete suppression of HIV in the blood (viral load) of the treated study participants in group one.

In the second group (the deferred group), the HIV-infected partners began antiretroviral therapy when their CD4+ T-cell levels -- a key measure of immune system health -- fell below 250 cells per cubic millimeter or an AIDS-related event occurred. The HIV-infected participants also were counseled on the need to strictly adhere to the treatment regimen.

The study was slated to end in 2015, but an interim data review in May by an independent data and safety monitoring board (DSMB) found that of the total 28 cases of HIV infection among the previously uninfected partners, only one case occurred among those couples where the HIV-infected partner began immediate antiretroviral therapy. The DSMB, therefore, called for immediate public release of the study's findings.

The magnitude of protection against HIV infection demonstrated in HPTN 052 has made the successful strategy of the clinical trial a key component of public health policies recently discussed by federal officials and others saying that achieving an end to the HIV/AIDS pandemic is now feasible with additional research and implementation efforts.

"On its own, treatment as prevention is not going to solve the global HIV/AIDS problem," said Dr. Fauci. "Yet when used in combination with other HIV prevention

methods -- such as knowing one's HIV status through routine testing, proper and consistent condom use, behavioral modification, needle and syringe exchange programs for injection drug users, voluntary, medically supervised adult male circumcision, preventing mother-to-child transmission, and, under some circumstances, antiretroviral use among HIV-negative individuals -- we now have a remarkable collection of public health tools that can make a significant impact on the HIV/AIDS pandemic."

"Scale-up of these proven prevention methods combined with continued research toward a preventive HIV vaccine and female-controlled HIV prevention tools places us on a path to achieving something previously unimaginable: an AIDS-free generation," Dr. Fauci added.

HPTN 052 was conducted by the HIV Prevention Trials Network, which is largely funded by NIAID with additional funding from the National Institute on Drug Abuse and the National Institute of Mental Health, both part of the NIH.

Allergies

Allergies

Few Allergies in Unstressed Babies, Swedish Researchers Find (Science Daily: 14.12.2011)

A new study from Karolinska Institutet in Sweden shows that infants with low concentrations of the stress-related hormone cortisol in their saliva develop fewer allergies than other infants. Hopefully this new knowledge will be useful in future allergy prevention.

The study is published in the December paper issue of Journal of Allergy and Clinical Immunology.

The incidence of allergies in children has increased over the past few decades, especially in the West. In Sweden, 30 to 40 percent of children have some kind of allergy. A combination of environmental and lifestyle factors during pregnancy and early infancy are thought to be responsible for the sharp rise in allergic diseases.

"Psychosocial factors and the stress hormone cortisol are associated with allergic diseases," says Dr Fredrik Stenius of the Department of Clinical Research and Education at Stockholm South General Hospital. "Our study found that children with low salivary cortisol levels as infants have a lower prevalence of allergies during the first two years of life, compared to other children."

The team has previously described a link between a lower prevalence of allergies in school children and an anthroposophic lifestyle.

"And now we've found the same link in infants from families that follow anthroposophic lifestyles, and that they have relatively low levels of cortisol," adds Dr Stenius, who earned his PhD earlier in the year with a thesis on the subject.

The researchers believe that factors related to stress regulation also influence the development of infant allergies and will now monitor the infants from the neonate period and into childhood.

Alzheimer's disease

Alzheimer's disease

New Findings Contradict Dominant Theory in Alzheimer's disease (Science Daily: 31.10.2011)

For decades the amyloid hypothesis has dominated the research field in Alzheimer's disease. The theory describes how an increase in secreted beta-amyloid peptides leads to the formation of plaques, toxic clusters of damaged proteins between cells, which eventually result in neurodegeneration. Scientists at Lund University, Sweden, have now presented a study that turns this premise on its head. The research group's data offers an opposite hypothesis, suggesting that it is in fact the neurons' inability to secrete beta-amyloid that is at the heart of pathogenesis in Alzheimer's disease.

The study, published in the October issue of the Journal of Neuroscience, shows an increase in unwanted intracellular beta-amyloid occurring early on in Alzheimer's disease. The accumulation of beta-amyloid inside the neuron is here shown to be caused by the loss of normal function to secrete beta-amyloid.

Contrary to the dominant theory, where aggregated extracellular beta-amyloid is considered the main culprit, the study instead demonstrates that reduced secretion of beta-amyloid signals the beginning of the disease.

The damage to the neuron, created by the aggregated toxic beta-amyloid inside the cell, is believed to be a prior step to the formation of plaques, the long-time hallmark biomarker of the disease.

Professor Gunnar Gouras, the senior researcher of the study, hopes that the surprising new findings can help push the research field in a new direction.

"The many investigators and pharmaceutical companies screening for compounds that reduce secreted beta-amyloid have it the wrong way around. The problem is rather the opposite, that it is not getting secreted. To find the root of the disease, we now need to focus on this critical intracellular pool of beta-amyloid.

"We are showing here that the increase of intracellular beta-amyloid is one of the earliest events occurring in Alzheimer's disease, before the formation of plaques. Our experiments clearly show a decreased secretion of beta-amyloid in our primary neuron

disease model. This is probably because the cell's metabolism and secretion pathways are disrupted in some way, leading beta-amyloid to be accumulated inside the cell instead of being secreted naturally," says Davide Tampellini, first author of the study.

The theory of early accumulation of beta-amyloid inside the cell offers an alternate explanation for the formation of plaques. When excess amounts of beta-amyloid start to build up inside the cell, it is also stored in synapses. When the synapses can no longer hold the increasing amounts of the toxic peptide the membrane breaks, releasing the waste into the extracellular space. The toxins released now create the seed for other amyloids to gather and start forming the plaques.

Alzheimer's lies

Secret to beating Alzheimer's lies in potent vaccines (16.11.2011)

Vaccines need to be given to sufferers in the very early stages of Alzheimer's to stop it, scientists say.

They believe that by giving vaccines to patients before tell-tale signs set in could halt the terrible toll of dementia.

Preventing it from taking hold could one day, even pave the way for the disease to be wiped out completely.

Now the huge challenge scientists are facing, is to create an effective vaccine to slow down the progress of the disease.

This study adds to increasing evidence suggesting that an effective treatment for Alzheimer's disease will need to be given early.

The latest tests, in the US, found vaccines can help patients with lower levels of the toxic amyloid protein which builds up in Alzheimer's sufferers, destroying the vital links between brain cells, the Daily express reported.

Experts at Georgetown University Medical Center in Washington DC used mice to test vaccines, which are already being administered in human trials.

Their study is the first to show that mice with large amounts of amyloid protein in the brain were much more likely to experience significant brain inflammation.

In contrast, mice with less amyloid did not have this side effect, and showed a significant benefit from the vaccine.

The findings were significant as they suggested that benefits from the vaccine will most likely be found in those with a lower level of amyloid proteins.

The study was presented at the annual meeting of the Society for Neuroscience.

Alzheimer's disease

'India to be capital of Alzheimer's and dementia by 2030' (Daily News & Analysis: 30 .11.2011)

One in two octogenarians suffers from Alzheimer's disease, the most common form of dementia where memory declines slowly and the elders need to depend on others even for the simplest of tasks. One in five people between 75 and 84 years of age and 3% of those between 65 years and 75 years have the illness.

With around 5 lakh of city population above the age of 60 years, the statistics are scary to say the least, according to experts, who pointed out that early detection, access to treatment and trained family care remain largely unexplored in the city.

A two-day national conference on 'Alzheimer's and dementia related diseases - emerging challenges' started on Saturday in Pune where experts from across the country have gathered to deliberate on challenges in age-related diseases. The conference, in its 16th year, is being organised by International Longevity Centre India (ILCI) and Pune chapter of Alzheimer's & Related Disorders Society of India (ARDSI), which functions under the aegis of Chaitanya Mental Healthcare Centre (CMHC).

Besides raising awareness on Alzheimer's and dementia, the conference will discuss challenges in managing patients, holistic treatment and combining all pathies, training family members and problems of caregivers, and lifestyle-risk factors amongst other issues. Speaking at the inauguration, founder director of Symbiosis Society SB Mujumdar spoke about how aging is a natural process and asked experts to discuss strategies to slow down the process of degeneration by creating awareness on disorders relating to old age.

CMHC also shared the Dementia India Report 2010 on this occasion where research pointed out that India was going to be the capital for Alzheimer's and dementia by 2030. "There is a need for all pathies like allopathy, homeopathy, Ayurveda and even non-drug therapies like music therapy etc to converge and work together for a healthy India," he said.

The research carried out by ARDSI president and ILC-I Dr Sharadchandra Gokhale, psychiatrists Dr Vidhyadhar Watave and Dr Jacob Roy Kuriakose also highlighted the need for trained family members towards proper care of Alzheimer's patients.

Gokhale pointed out that currently Alzheimer's has no known cure though research is being carried out and screening patients early is the only hope. "Usually patients and families do not consider screening until late. By then the disease progresses and it is too late to help them," he said.

Experts also expressed joy at the Union government taking up the issue of familial support to affected patients seriously and giving a nod to public-private partnerships to look into these concerns.

"The conference will especially focus on caregivers i.e. family support, how to train them, hurdles faced in the task of care giving as well as psychological issues of caregivers," said CMHC (Pune) director, Rony George.

Actor Amol Palekar's latest venture 'Dhusar' is a story of the relationship between a mother and daughter after the former is diagnosed with Alzheimer's. He requested people to watch it foreducating themselves and hoped for many such films.

Alzheimer's disease

Eating fish reduces risk of Alzheimer's five-fold (The Times of India: 1.12. 2011)

India's fish eating population has something to cheer about.

A new research presented at Radiological Society of North America (RSNA) Congress says that consuming baked or broiled fish reduces the risk for five-year decline to mild cognitive impairment or Alzheimer's disease by almost five-fold.

The results showed that people who consumed baked or broiled fish at least once a week had better preservation of grey matter volume on MRI in brain areas at risk for Alzheimer's disease.

"This is the first major study to link fish consumption with reduction in risk of developing mild cognitive impairment (MCI)," said lead author Cyrus Raji from the University of Pittsburgh Medical Center.

"The findings showed that consumption of baked or broiled fish on a weekly basis was positively associated with grey matter volumes in several areas of the brain. Greater hippocampal, posterior cingulate and orbital frontal cortex volumes in relation to fish consumption were recorded," he added.

The results also demonstrated increased levels of cognition in people who ate baked or broiled fish.

In MCI, memory loss is present, but to a lesser extent than in Alzheimer's. People with MCI often go on to develop Alzheimer's.

Grey matter volume is crucial to brain health. When it remains higher, brain health is being maintained. Decrease in grey matter volume indicate that brain cells are shrinking. For the study, 260 cognitively normal individuals were selected. Information on fish consumption was gathered. There were 163 patients who consumed fish on a weekly basis, and the majority ate fish one to four times a week. Each patient underwent 3-D volumetric MRI of the brain.

Alzheimer's disease

'India to be capital of Alzheimer's and dementia by 2030' (Daily News & Analysis: 2.12.2011)

One in two octogenarians suffers from Alzheimer's disease, the most common form of dementia where memory declines slowly and the elders need to depend on others even for the simplest of tasks. One in five people between 75 and 84 years of age and 3% of those between 65 years and 75 years have the illness.

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Natural Dye

Natural Dye Obtained from Lichens May Combat Alzheimer's disease (Science Daily: 5.12.2011)

A red dye derived from lichens that has been used for centuries to color fabrics and food appears to reduce the abundance of small toxic protein aggregates in Alzheimer's disease. The dye, a compound called orcein, and a related substance, called O4, bind preferentially to small amyloid aggregates that are considered to be toxic and cause neuronal dysfunction and memory impairment in Alzheimer's disease. O4 binding to small aggregates promotes their conversion into large, mature plaques which researchers assume to be largely non-toxic for neuronal cells.

Further research with animal models is needed to determine whether this new approach by Dr. Jan Bieschke (Max Delbrück Center for Molecular Medicine, MDC, Berlin-Buch), Dr. Martin Herbst (Charité -- Universitätsmedizin Berlin) and Professor Erich Wanker (MDC) in Berlin, Germany, will be useful for therapy development.

Protein misfolding is considered to be the cause of Alzheimer's, Parkinson's and also Huntington's disease. In a multistep process, proteins misfold and accumulate into large extra- or intracellular plaques. Researchers assume that small misfolded protein aggregates that are precursors of mature plaques are toxic for nerve cells and are the reason why they are eventually destroyed.

Dye from the Canary Islands

The dye orcein is isolated from lichens that grow on the Canary Islands, among other places. Lichens have been used for centuries to color fabrics and food. Eight years ago Professor Wanker screened hundreds of natural compounds to find potential candidate drug molecules for the treatment of neurodegenerative diseases. Among those substances he found orcein, a compound made up of about 14 small molecules. As these molecules might have different biological effects, the researchers in Berlin began to search for pure chemicals with similar properties. They identified the substance O4, a blue dye, which is structurally very similar to one of the 14 molecules. Moreover, they showed that O4 stimulates the formation of large, non-toxic protein plaques from small toxic protein assemblies.

New Mechanism

A few years ago Professor Wanker and his colleagues discovered that EGCG (Epigallocatechin-3-gallate), a natural chemical compound found in green tea, renders toxic protein assemblies non-toxic. With orcein and O4 the researchers have now found another mechanism to eliminate small toxic protein aggregates. However, instead of remodeling protein plaques, the dyes reduce the abundance of small, toxic precursor protein assemblies by accelerating the formation of large plaques, as the researchers could now show in their laboratory.

"This is a new mechanism," Professor Wanker explained. "Up to now it has been considered to be very difficult to stop the formation of small toxic protein assemblies. If our hypothesis is correct that the small aggregates, which are precursors of plaques, indeed cause neuronal death, with O4 we would have a new mechanism to attack the disease."

The synthetic dye methylene blue is currently being tested in clinical trials. This dye also seems to stimulate the formation of large plaques in a way similar to O4. Other therapeutic approaches tested in clinical trials which aim at eliminating small precursor aggregates have so far not led to a significant improvement of disease symptoms.

However, it still remains to be seen whether the blue dye O4 can also be effective against small amounts of misfolded proteins in the brains of Alzheimer's patients and whether the accelerated formation of larger plaques can indeed reduce the signs and symptoms of Alzheimer's disease in humans. Further studies will be necessary to address the question whether the accelerated formation of large plaques can be a therapeutic approach. "We hope that our findings will stimulate research activities in this direction, especially in drug discovery," Professor Wanker said.

Alzheimer's

Jab to delay memory loss can help beat Alzheimer's (The Times of India: 5.12.2011)

Scientists are currently testing a jab on British patients with mild memory problems, which they claim may help ward off the devastating effects of Alzheimer's disease in its earliest stages.

A team, led by Alzheimer's expert Dr Richard Perry, says that in its trial the first jabs have been given to nearly 50 men and women with mild memory problems — in fact, they will be given monthly injections of the drug which the scientists say could be in widespread use in five years.

Unlike other drugs, which are given once dementia has taken hold, the new medication, called gantenerumab, is designed to set to work when symptoms are confined to slight memory lapses, the Daily Mail reported.

The drug is not a cure, but slowing the development of dementia would allow people to live normally for longer, delaying the time when they have to give up work and perhaps go into care, say the scientists.

“There is no guarantee but this is the best chance of a medication that is going to affect the underlying condition at the earliest stage,” Dr Perry was quoted as saying. PTI

Alzheimer's test

Alzheimer's test predicts loss of brain function in Parkinson's disease (New Kerala: 14.12.2011)

A method of classifying the pattern in which cells in the brain are lost or damaged in Alzheimer's using MRIs can also predict cognitive impairment in Parkinson's disease, a new study has revealed.

Researchers from the Perelman School of Medicine at the University of Pennsylvania also found that higher baseline Alzheimer's patterns of atrophy predicted long-term cognitive decline in cognitively normal Parkinson's patients.

“On the basis of a simple neuroimaging study, we can now predict which patients with Parkinson's disease will experience long-term cognitive decline or develop dementia in the future,” said the study's lead author, Daniel Weintraub, MD, associate professor of

Geriatric Psychiatry with Penn's Perelman School of Medicine and the Philadelphia Veterans Affairs Medical Center.

“Diagnostic tests like this can help us determine which patients would benefit from future clinical trials of medications aiming to stave off or prevent dementia progression in Parkinson's disease.”

This research raises the possibility that both Alzheimer's disease and Parkinson's disease pathology contribute to cognitive decline in Parkinson's disease.

As biomarkers for Alzheimer's and Parkinson's disease continue to emerge, the researchers suggest at least an overlap in regions undergoing neurodegeneration with cognitive decline, and point to the Spatial Pattern of Abnormalities for Recognition of Alzheimer's disease (SPARE-AD) classification system to detect brain atrophy in Parkinson's disease, to detect patients at imminent risk of cognitive decline before clinically identifiable symptoms emerge.

The Penn research team applied a pattern classification individual-based score, the SPARE-AD score, to a cross-sectional cohort of 84 Parkinson's patients including patients with dementia, mild cognitive impairment and no dementia.

In the cross-sectional analyses, the SPARE-AD score correlated to cognitive impairment across all groups. From this group, 59 Parkinson's patients without dementia were followed for an additional two years.

Researchers determined that a higher baseline SPARE-AD score predicted worsening cognitive performance over time, even in those patients with normal cognition at baseline.

Alzheimer's

Soon, test to spot Alzheimer's early (The Times of India: 14.12.2011)

New Imaging Agent Will Predict Onset 3-4 Yrs before Symptoms Show

will help predict the onset of Alzheimer's disease (AD) three to four years before any clinical symptoms start to show.

Scientists from the United States and Europe will announce results of the final phase III clinical trial of imaging compound Flutemetamol, which would help identify people most at risk from AD, in a few weeks.

The build-up of beta amyloid plaques in the brain lead to the degeneration of neurons ultimately causing AD. Now, AD is confirmed by identifying the presence of these beta amyloid plaques, in post-mortem brain samples.

Experts say use of targeted imaging agents may help doctors detect amyloid deposition in humans, helping diagnose AD accurately. How does this compound work? Once Flutemetamol is injected in the arm, it travels to the brain and sticks to the beta amyloid plaques, making them glow red confirming the patient is at risk of Alzheimer's.

Radiologists look at the Positron Emission Tomography (PET) scan and gauge the level of such plaque build-up.

Hadi Moufarrej, vice president of medical diagnostics at GE Healthcare, told ToI that "The compound is going through final stages of clinical trials, and we are just weeks away from the final results. It will be a major breakthrough to have a compound that can warn patients years before clinical symptoms start to show that they might suffer from AD." GE Healthcare is developing the compound. According to Moufarrej, the trials are on in eight sites across the US and Europe. "It will take only one hour — from injection to the scan — to detect the plaque build-up in the brain."

The compound will be a boon for India, where around 37 lakhs are affected by AD, and the burden is

Alzheimer's/Parkinson's

Alzheimer's/Parkinson's: Unexpected Signaling Role for Foul-Smelling Hydrogen Sulfide in Cell Response to Protein Misfolding (Science Daily: 16.12.2011)

Something rotten never smelled so sweet. This is what members of a team of scientists at Cold Spring Harbor Laboratory (CSHL) are telling one another as they discuss a new finding they did not expect to make. They have discovered that hydrogen sulfide (H₂S) -- the flammable, highly toxic gas that we usually associate with the smell of rotten eggs in landfills and sewers -- plays an important role in the regulation of a signaling pathway implicated in biological malfunctions linked to Alzheimer's and Parkinson's diseases, among others.

"H₂S comes under the category of things that people think of as toxic and nasty, but which can actually be harnessed to serve a useful purpose," says CSHL Professor Nicholas K. Tonks, FRS, who led the research team. In fact, H₂S, which is produced naturally in small quantities in various tissues, is a gasotransmitter, one of a family of gaseous signaling molecules that includes nitrous oxide (NO) and carbon monoxide (CO). Unlike growth factors, cytokines and hormones that act through receptors in the cell membrane, these gasotransmitters are able to permeate membranes and enter freely the interior of living cells.

Tonks and colleagues were intrigued by reports in the scientific literature suggesting that H₂S was produced as part of the cell's response to what is called ER stress. The ER is the cellular organ called the endoplasmic reticulum. It is an extensive network of membranes spread throughout the cytosol, which is involved in protein synthesis and processing.

When the cell is placed under stress, specifically when newly formed proteins are being manufactured in the ER so rapidly that they do not fold properly, rendering them non-functional, the cell must make a decision either to slow protein production to match its physiological requirements, which could restore proper protein folding, or, if that is not sufficient, to commit a form of suicide called apoptosis.

The surprise in the research performed by Tonks' team -- which is published online December 13 in *Science Signaling* -- is that H₂S plays a critical role in the exquisitely tuned signaling pathway through which cells make this fateful determination.

Navasona Krishnan, a postdoctoral fellow, performed an experiment to determine whether H₂S could covalently modify an enzyme called PTP1B. Discovered by Tonks in 1988, PTP1B is a protein tyrosine phosphatase, or PTP -- an enzyme that specifically removes phosphate groups from amino acid residues called tyrosines. This function is critical in regulating cellular signaling in normal and disease conditions.

H₂S did indeed modify PTP1B, specifically on a cysteine amino acid residue in the enzyme's active site, which inactivated the enzyme. A number of subsequent experiments performed in collaboration with CSHL Professor Darryl Pappin, who directs the proteomics Shared Resource at the Laboratory, identified this modification and revealed that it occurred in vitro and in vivo.

Because PTP1B is itself a signaling pathway regulator, this inactivation was immediately understood to be important and potentially useful. Further experimentation revealed that the H₂S-induced modification to PTP1B prevented this phosphatase from inactivating an enzyme called PERK, which is a sensor of the presence of unfolded proteins and a critical regulator of the cell's response to ER stress.

The completed puzzle is as follows: small amounts of hydrogen sulfide are produced when the cell senses ER stress; PTP1B undergoes a unique covalent modification at its active site in response to the H₂S that is produced, which in turn prevents the phosphatase from dephosphorylating PERK thereby allowing the latter protein to play its specific regulatory role in response to the stress. Importantly, the process is fully reversible, such that this previously undiscovered pathway can act like a switch, to help fine-tune a response to stress that potentially can lead to cell death.

"We hypothesize that the controlled production of H₂S could have a profound impact on how this part of the ER stress pathway -- the PERK 'arm' -- is regulated. When proteins are misfolded in response to cellular stress, the inactivation and reactivation of PTP1B

appears to be one means by which the cell regulates its protein synthesis machinery and can exert tight control over whether it lives or dies,," says Tonks.

The linkage of such regulation with human disease is a subject that bears further exploration. ER stress is causally related to the protein-folding-related pathologies seen in such illnesses as Alzheimer's and Parkinson's diseases, Tonks says. "What we are trying to do is understand the structure of PTP1B in the presence and absence of its modification by H₂S -- to define this modification in molecular detail and understand its importance to the control of this major signaling enzyme in normal and disease states."

"H₂S-Induced sulfhydrylation of PTP1B and its role in the endoplasmic reticulum stress response," was published December 13, 2011 in Science Signaling. The authors are: Navasona Krishnan, Cexiong Fu, Darryl Pappin and Nicholas K. Tonks.

Alzheimer's disease

Progression to Alzheimer's disease may be predicted by Biochemical Signature (Med India: 20.12.2011)

Alzheimer's disease is preceded by a molecular signature indicative of hypoxia and up-regulated pentose phosphate pathway, a study led by Research Professor Matej Orešič from VTT Technical Research Centre of Finland suggests.

This indicator can be analysed as a simple biochemical assay from a serum sample months or even years before the first symptoms of the disease occur. In a healthcare setting, the application of such an assay could therefore complement the neurocognitive assessment by the medical doctor and could be applied to identify the at-risk patients in need of further comprehensive follow-up.

Alzheimer's disease (AD) is a growing challenge to the health care systems and economies of developed countries with millions of patients suffering from this disease and increasing numbers of new cases diagnosed annually with the increasing ageing of populations.

The progression of Alzheimer's disease (AD) is gradual, with the subclinical stage of illness believed to span several decades. The pre-dementia stage, also termed mild cognitive impairment (MCI), is characterised by subtle symptoms that may affect complex daily activities. MCI is considered as a transition phase between normal aging and AD. MCI confers an increased risk of developing AD, although the state is heterogeneous with several possible outcomes, including even improvement back to normal cognition.

What are the molecular changes and processes which define those MCI patients who are at high risk of developing AD? The teams led by Matej Orešič from VTT and Hilkkka Soininen from the University of Eastern Finland set out to address this question, and the results were published on 13th Dec. 2011 in Translational Psychiatry.

The team used metabolomics, a high-throughput method for detecting small metabolites, to produce profiles of the serum metabolites associated with progression to AD. Serum samples were collected at baseline when the patients were diagnosed with AD, MCI, or identified as healthy controls. 52 out of 143 MCI patients progressed to AD during the follow-up period of 27 months on average. A molecular signature comprising three metabolites measured at baseline was derived which was predictive of progression to AD. Furthermore, analysis of data in the context of metabolic pathways revealed that pentose phosphate pathway was associated with progression to AD, also implicating the role of hypoxia and oxidative stress as early disease processes.

The unique study setting allowed the researchers to identify the patients diagnosed with MCI at baseline who later progressed to AD and to derive the molecular signature which can identify such patients at baseline.

Though there is no current therapy to prevent AD, early disease detection is vital both for delaying the onset of the disease through pharmacological treatment and/or lifestyle changes and for assessing the efficacy of potential AD therapeutic agents. The elucidation of early metabolic pathways associated with progression to Alzheimer's disease may also help in identifying new therapeutic avenues.

Alzheimer's disease

Brain Size May Predict Risk for Early Alzheimer's disease (Science Daily: 23.12.2011)

New research suggests that, in people who don't currently have memory problems, those with smaller regions of the brain's cortex may be more likely to develop symptoms consistent with very early Alzheimer's disease. The study is published in the December 21, 2011, online issue of *Neurology*®, the medical journal of the American Academy of Neurology.

The ability to identify people who are not showing memory problems and other symptoms but may be at a higher risk for cognitive decline is a very important step toward developing new ways for doctors to detect Alzheimer's disease," said Susan Resnick, PhD, with the National Institute on Aging in Baltimore, who wrote an accompanying editorial.

For the study, researchers used brain scans to measure the thickness of regions of the brain's cortex in 159 people free of dementia with an average age of 76. The brain regions were chosen based on prior studies showing that they shrink in patients with Alzheimer's

dementia. Of the 159 people, 19 were classified as at high risk for having early Alzheimer's disease due to smaller size of particular regions known to be vulnerable to Alzheimer's in the brain's cortex, 116 were classified as average risk and 24 as low risk. At the beginning of the study and over the next three years, participants were also given tests that measured memory, problem solving and ability to plan and pay attention. The study found that 21 percent of those at high risk experienced cognitive decline during three years of follow-up after the MRI scan, compared to seven percent of those at average risk and none of those at low risk.

"Further research is needed on how using MRI scans to measure the size of different brain regions in combination with other tests may help identify people at the greatest risk of developing early Alzheimer's as early as possible," said study author Bradford Dickerson, MD, of Massachusetts General Hospital in Boston and a member of the American Academy of Neurology.

The study also found 60 percent of the group considered most at risk for early Alzheimer's disease had abnormal levels of proteins associated with the disease in cerebrospinal fluid, which is another marker for the disease, compared to 36 percent of those at average risk and 19 percent of those at low risk.

The study, performed by Dickerson and collaborator David Wolk, MD, of University of Pennsylvania in Philadelphia and a member of the AAN, using data collected as part of the Alzheimer's Disease Neuroimaging Initiative, was supported by the National Institute on Aging (NIA), the National Institute of Biomedical Imaging and Bioengineering (both part of the National Institutes of Health), Abbott, AstraZeneca AB, Bayer Schering Pharma AG, Bristol-Myers Squibb, Eisai Global Clinical Development, Elan Corporation, Genentech, GE Healthcare, GlaxoSmithKline, Innogenetics, Johnson and Johnson, Eli Lilly and Co., Medpace, Inc., Merck and Co., Inc., Novartis AG, Pfizer Inc, F. Hoffman-La Roche, Schering-Plough, Synarc, Inc., the Alzheimer's Association, Alzheimer's Drug Discovery Foundation, with participation from the U.S. Food and Drug Administration and the Dana Foundation. Funding for this particular data analysis came from the NIA and the Alzheimer's Association.

Alzheimer's

Early detection may delay Alzheimer's development among patients (New Kerala: 26.12.2011)

A researcher has found a new way to approach early detection of Alzheimer's disease.

The researcher at the University of the Basque Country (UPV/EHU) Xabier Elcoroaristizabal is looking for complementary genetic factors.

One of our genes is apolipoprotein E (APOE), which often appears with a variation which nobody would want to have: APOEε4, the main genetic risk factor for sporadic Alzheimer's disease (the most common form in which this disorder manifests itself and which is caused by a combination of hereditary and environmental factors).

It is estimated that at least 40 percent of the sporadic patients affected by this disease are carriers of APOEε4, but this also means that much more still remains to be studied.

Elcoroaristizabal has opened up a channel for making a start by analysing candidate genes, which always in combination with APOEε4, could help to explain more cases.

The long-term aim is to contribute towards the early detection of Alzheimer's disease by identifying signs that could be detectable in the very early phases. And, as Elcoroaristizabal explains, while there is no cure for this disorder, the alternative is to get ahead of it and delay its development.

"Certain preventive measures involving cognitive stimulation delay its appearance. There are even new drugs that could start to be used earlier. Today there is no solution, but the more we maintain a person's correct cognitive state, the better," he said.

The individuals who develop Alzheimer's go through a transition period first of all, and this could be the key moment for the effective application of preventive measures. This is mild cognitive impairment (MCI), in which slight cognitive alterations take place but do not affect everyday activities.

Among the different types of MCI, one affects memory almost exclusively (amnesic MCI), and those people who suffer from it have a high probability of developing the disorder. The difficult and interesting part is knowing which genetic components are linked to this impairment and also in determining by what percentage the risk of developing the disease increases, a task which Elcoroaristizabal has set himself.

"If we can identify which genes are involved and what susceptibility factors there are, preventive measures could be taken," he said.

So a contrast study has been carried out among a sample of patients with MCI, ones with Alzheimer's and healthy people. This can be used to observe the changes and narrow down the field for the zones to be studied, so that candidate genes can be sought there.

Elcoroaristizabal himself notes one example among the many others identified.

"It has been observed that the brain's capacity to control cholesterol levels seems to play a key role throughout the illness. So, protein encoding genes linked to this control have been analysed," he claimed.

In this quest for candidate genes, Elcoroaristizabal has confirmed that the APOEε4 genetic variation is, in fact, the main risk factor for developing Alzheimer's disease. But

it does not end there; he has identified several genes which, as long as they are manifested in combination with APOEε4, could take us one step further towards the early detection of this disorder.

“Genes that in some way are connected with neurotransmission channels, oxidative stress or the effectiveness of oestrogens seem to be linked to a greater risk for APOEε4 carriers,” he explains. Specifically, the candidate genes are as follows: COMT (neurotransmission), SOD2 (oxidative stress elimination) and ESR1 and ESR2 (oestrogen action facilitators).

His thesis is entitled ‘Molecular markers in mild amnesic cognitive impairment and Alzheimer’s disease’ (Marcadores moleculares en deterioro cognitivo leve tipo amnésico y enfermedad de Alzheimer). An initial article on this can be read in the journal BMC Neuroscience.

The study has been published in the journal BMC Neuroscience. (ANI)

Anemia

Hemoglobin A1C

Hemoglobin A1c Testing Method Fails to Identify Kids With Diabetes, Study Shows (Science daily: 22.11.2011)

In 2009, the American Diabetes Association (ADA) recommended that Hemoglobin A1c be exclusively used for the diagnosis of diabetes in children. The simple test measures longer-term blood sugar levels -- without requiring patients to fast overnight. However, a new U-M study has shown that these tests are not very accurate in children.

Asthma

Asthma

Practical tips for asthma and allergy management (The Tribune: 2.11.2011)

Allergies and asthma are affecting an increasing number of persons worldwide.

Management of asthma can improve if allergies are identified by proper scientific methods. The field of allergy has developed tremendously in the last few years, making tests and treatment patient friendly. Asthmatics can enjoy life to its fullest with the help of a few practical tips.

1. Wheezing, cough, choking, nose block or runny nose, excessive sneezes, eye irritation, indigestion, abdominal discomfort , bloating, chronic diarrhoea, itchy skin with or without rashes and swelling of lips are typical symptoms of allergy. Allergy can affect each system of the body.
2. Allergy diagnosis is done after getting a detailed history and examination of the patient and is highly individualised. It should never be done as a remote test just by sending blood to a laboratory. Tests are simple and helpful provided they are done by a qualified doctor, and minor and major allergens are pinpointed, rather than giving a vast list to the patient making his life difficult!
3. Inhalers are the cornerstone of asthma management. An inhaler is just a device; which salts should be used will depend upon the doctor's wisdom. Patients ought to understand the difference between preventive inhalers and rescue inhalers. It's not wise to keep nebulising Asthalin as this can result in strain on the heart besides many other complications. It's wise to consult a doctor; you need a preventive inhaler. Asthalin is only a rescue medicine.
4. Inhalers are safe and the surest method of making the drug reach in the airways where the effect is needed. They should be taken regularly and with proper technique for adequate drug delivery.
5. It is not uncommon to find the co-existence of food allergy and asthma in the same patient. As part of the atopic march, many food allergy patients may develop asthma later in life. Each can adversely affect the other. Food allergy patients with asthma have a higher risk of developing life-threatening food-induced reactions. An asthmatic patient

with food allergy may have higher rates of morbidity and mortality associated with asthma. It is wise to modify food only if it is detected on tests rather than based on myths. Many people stop taking milk, curd, cheese, eggs and nuts just due to myths whereas these are calcium, protein and vitamin A& D-rich foods, absolutely essential for the health of the young as well as the elderly.

6. Exercises are good and should be encouraged. Of course, exercises are also prescribed scientifically. Walking in fresh air and exposure to sun is best for Vitamin D and the improvement of immunity.

7. Now with winter setting in, even minor coryza and cold can trigger asthma attacks. To prevent such misery, please follow scientific advice, visit a doctor, eat well and walk in fresh air. People with asthma and allergies have even won medals in Olympics. Let us attack asthma by all scientific means.

The writer, a former President of the Indian Academy of Paediatrics, is a Chandigarh-based allergy specialist.

Bacteria

Vampire' bacteria

Vampire' bacteria could serve as living antibiotic for infectious diseases (New Kerala: 2.11.2011)

Scientists have found that a vampire-like bacteria that leeches onto certain other bacteria – including certain human pathogens – could serve as a living antibiotic for a range of infectious diseases.

The bacterium, *Micavibrio aeruginosavorus*, was discovered to inhabit wastewater nearly 30 years ago, but has not been extensively studied because it is difficult to culture and investigate using traditional microbiology techniques.

However, Martin Wu and graduate student Zhang Wang at the University of Virginia's College of Arts and Sciences, have decoded its genome and are learning "how it makes its living."

The bacterium "makes its living" by seeking out prey – certain other bacteria – and then attaching itself to its victim's cell wall and essentially sucking out nutrients.

Unlike most other bacteria, which draw nutrients from their surroundings, *M. aeruginosavorus* can survive and propagate only by drawing its nutrition from specific prey bacteria. This kills the prey – making it a potentially powerful agent for destroying pathogens.

One bacterium it targets is *Pseudomonas aeruginosavorus*, which is a chief cause of serious lung infections in cystic fibrosis patients.

"Pathologists may eventually be able to use this bacterium to fight fire with fire, so to speak, as a bacterium that will aggressively hunt for and attack certain other bacteria that are extremely harmful to humans," Wu said.

"It is possible that a living antibiotic such as *M. aeruginosavorus* – because it so specifically targets certain pathogens – could potentially reduce our dependence on traditional antibiotics and help mitigate the drug-resistance problem we are now facing," Wu stated.

The study has been published online in the journal BMC Genomics.

Throat infections

Handling recurrent throat infections in children (The Tribune: 2.11.2011)

It is very common for a homoeopath to see a lot of anxious parents seeking treatment for their children who suffer from recurrent throat or upper respiratory infections. Believe me, these young anxious parents are tougher to handle than their young ones.

The children who have recurrent upper respiratory infections usually develop symptoms which start with cold and can very fast lead to bad chesty or dry cough, fever and even difficult breathing. The bigger problem is the kind of recurrence that is noticed in some cases. I have personally seen children developing infections every 15 days and seem to be perpetually living on antibiotics. This affects their quality of life and education in many ways. Now, the big question is whether homoeopathy has an effective remedy for preventing the recurrence. The answer is a big “yes”.

Before we get to the actual homoeopathic solution let us try to understand why these kids fall sick so frequently. We are born with an immune system (body's own defence system) which inherits some antibodies from the mother during gestation and with breast feed. Quite a bit of immunity is developed later in life. The cells that fight infection in our body are called antibodies. Our body has a very intelligent immune system and can recognise a micro-organism as new or one that it has previously encountered, and respond accordingly. The response in the previously encountered micro-organism is to send the already developed antibodies to fight that organism.

In the case of a new type of micro-organism, the body creates specific antibodies and once they are made, they are replicated in the body in great numbers and stay in there for long. They keep on providing cover against that specific kind of organism henceforth. This is one of the reasons why grown-up persons don't have infections that frequently.

The biggest reason for the recurrence of infections is that the young body within the immature immune system is not getting a chance to develop natural immunity. The reason is that these kids, at the slightest sign of infections, are being over-medicated by anxious parents and unscrupulous physicians.

As paediatricians would agree, quite a few of these infections are viral in nature, which means that they require very less treatment and are self-limiting in nature. Bacterial infections are not that common and are the ones that can require antibiotics.

It is very commonly seen in India that at the slightest sign of any infection (even viral infections) antibiotics are given to kids. This injudicious use of antibiotics is what leads to the body not getting a chance to develop its own antibodies. This leads to the recurrence of infections. No doubt, antibiotics are life-saving medicines, but parents have to realise that these should be given only when there is a bacterial infection and the body is showing no signs of fighting it.

If the overuse of antibiotics can lead to an impaired immune system, why would homoeopathic medicines help in restoring immunity? The answer lies in the basic principle around which homoeopathy works — “Like cures like”.

Homoeopathic medicines work by giving a similar impetus to the body (like that of the disease) causing the body’s immune system to get activated and fight infections. Timing is very important while taking homoeopathic treatment. Infections respond much faster when homoeopathy is started at the initial stages of infection — within 24- 36 hours. Gradual improvement in immunity occurs with homoeopathic treatment once a couple of infections are managed well with medicines.

The writer is a Chandigarh-based practising homoeopath. Email- vikas@drhomeo.com

Bacteria

Early encounter to bacteria prevents kids from allergy risk in later life (World Newspapers: 4.11.2011)

Infants who encounter a wide range of bacteria are at less risk of developing allergic disease later in life, according to a new study from the University of Copenhagen.

The figure over sensitivity diseases, or allergies, has been on the increase in recent decades.

Now researchers at the Dansk BørneAstma Center [COPSAC, Copenhagen Prospective Studies on Asthma in Childhood], University of Copenhagen, are at last able to partly explain the reasons.

“In our study of over 400 children we observed a direct link between the number of different bacteria in their rectums and the risk of development of allergic disease later in life,” said Professor Hans Bisgaard, consultant at Gentofte Hospital, head of the Copenhagen Prospective Studies on Asthma in Childhood.

“Reduced diversity of the intestinal microbiota during infancy was associated with increased risk of allergic disease at school age, he continues. But if there was

considerable diversity, the risk was reduced, and the greater the variation, the lower the risk.

“So it makes a difference if the baby is born vaginally, encountering the first bacteria from its mother’s rectum, or by caesarean section, which exposes the new-born baby to a completely different, reduced variety of bacteria. This may be why far more children born by caesarean section develop allergies,” Bisgaard explained. (

Legionnaires' Bacteria

How Legionnaires' Bacteria Proliferate, Cause Disease (Science Daily: 21.11.2011)

A University of Louisville scientist has determined for the first time how the bacterium that causes Legionnaires' disease manipulates our cells to generate the amino acids it needs to grow and cause infection and inflammation in the lungs.

The results are published online on Nov. 17 in Science.

Yousef Abu Kwaik, Ph.D., the Bumgardner Endowed Professor in Molecular Pathogenesis of Microbial Infections at UofL, and his team believe their work could help lead to development of new antibiotics and vaccines.

"It is possible that the process we have identified presents a great target for new research in antibiotic and vaccine candidates, not only for Legionnaires' disease but in other bacteria that cause illness," he said.

According to the Centers for Disease Control and Prevention, Legionnaires' disease is a lung infection caused by the bacterium called Legionella. The bacterium got its name in 1976, when many people who went to a Philadelphia convention of the American Legion suffered from an outbreak of pneumonia of unknown causes that was later determined to be caused by the bacterium. Each year, between 8,000 and 18,000 people are hospitalized with Legionnaires' disease in the U.S. There is no vaccine currently available for it.

For two years, the researchers examined Legionella which is an intracellular bacterium that exists in amoebae in the water systems; it is transmitted to humans through inhalation of water droplets. Cooling towers and whirlpools are the major sources of transmission. The bacterium uses the amoeba's cellular process to "tag" proteins, causing them to degrade into their basic elements of amino acids. These amino acids are used by the bacteria as the main source of energy to grow and cause disease.

"The bacteria live on an 'Atkins diet' of low carbs and high protein, and they trick the host cell to provide that specialized diet," Abu Kwaik said.

The same process occurs in a host -- animal or human -- who inhales the bacterium and is diagnosed with Legionnaires' disease. However, the bacteria do not tag the proteins, but rather trick the host into tagging the proteins for degradation to generate the amino acids.

In the laboratory, Abu Kwaik and his team saw that by inactivating the bacterial virulence factor responsible for tricking the cell into tagging proteins for degradation in mice models, the pulmonary disease was totally prevented. This was totally due to disabling the bacteria from generating amino acids, he said.

The process was then reversed, and the disease became evident when the mice, infected by the disabled bacteria, were injected with amino acids to compensate for the inability of the altered bacteria.

"Bacteria need to live on high protein and amino acids as sources of nutrition and energy in order to replicate in a host. This is what causes pulmonary disease," Abu Kwaik said. "No one has known how they generate sufficient sources of nutrients from the host to proliferate. Our work is the first to identify this process for any bacteria that cause disease."

He added that the type of host infected does not appear to affect the process. "Whether in a single-cell amoeba or a multi-cellular mammal, Legionella seems to know what to do; the process is the same, and is highly conserved through evolution. By interfering with the bacterium's sources of nutrients, we can stop it from thriving and causing disease."

Examining nutrient sources for organisms with the goal of stopping them from acquiring nutrients is a relatively new arena of basic research that deserves further study, he said. "We went after the basics -- the food and energy source -- which are prerequisite for the bacteria to grow and cause disease. It is not a process that is well understood yet, but by first discovering how an organism gets nutrients by tricking the host into degrading proteins, and then interfering with that process, we can, in effect, starve it to death and prevent or treat the disease."

Salmonella infection

Malaria raises salmonella infection risk in patients (The Times of India: 19.12.2011)

Malaria patients are vulnerable to infections especially by the deadly salmonella bacteria. Now, scientists have found that such fatal infections are a side effect of the body's attempts to protect itself from the damaging effects of mosquitoborne disease.

The finding of the link between malaria and salmonella infections could soon lead to more effective treatments, said the researchers at the London School of Hygiene & Tropical Medicine. According to them this defence mechanism as a trade-off, where the body fights one enemy but exposes itself to the other.

This was demonstrated in their study on mice exploring the link between malaria and non-typhoid salmonella.

Eleanor Riley, one of the lead authors of the study, said, “It’s believed that malaria is an immunosuppressive disease; that once the disease is contracted, the patient will be susceptible to several other infections.

“However, this study shows that increased susceptibility to salmonella infections is due to a very specific immunological effect which does not affect the immune system as a whole.” pti

Bacteria

Bacteria in large intestine may be behind obesity: Study (World Newspapers: 23.12.2011)

A new study has suggested that bacteria living in people’s large intestine may play a role in obesity.

Scientists behind the study revealed that these bacteria might slow down the activity of the “good” kind of fat tissue, a special fat that quickly burns calories and may help prevent obesity.

The discovery could shed light on ways to prevent obesity and promote weight loss, including possible microbial and pharmaceutical approaches, they said.

Sandrine P. Claus, Jeremy K. Nicholson and colleagues explained that trillions of bacteria live in the large intestine of healthy people, where they help digest food and make certain vitamins.

In recent years, however, scientists have realized that these bacteria do more — they interact with the rest of the body in ways that affect the use of energy and its storage as fat and finely tune the immune system.

Claus and Nicholson decided to see how intestinal bacteria might affect the activity of brown fat. The “good” fat that burns calories quickly before they can be stored as fat, brown fat exists in small deposits in the neck area and elsewhere — not like “white fat” in flab around the waist and buttocks.

No one had checked to see if those bacteria could have an effect on brown fat, the researchers noted.

In experiments that compared “germ-free” (GF) mice, which don’t have large-intestine bacteria, and regular mice, the scientists uncovered evidence suggesting that the bacteria do influence the activity of brown fat.

Brown fat in the GF mice seemed to be more active, burning calories faster than in regular mice.

Large-intestine bacteria also seemed to be linked with gender differences in weight. Normal male mice were heavier and fatter than females, but those differences vanished in the GF mice.

The research also uncovered major differences in the interactions between males and females and their intestinal bacteria that might help explain why the obesity epidemic is more serious and rapidly developing in women.

Those and other findings may point the way toward approaches that kick-up the activity of brown fat in humans to prevent or treat obesity.

The discovery has been published in ACS’ Journal of Proteome Research.

Bacteria

Bacteria in large intestine may be behind obesity: Study (World Newspapers: 27.12.2011)

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Dengue

Dengue

MCD downplaying dengue spread? (The Times of India: 19.10.2011)

New Delhi: If the numbers shared with TOI by six private hospitals (including a hospital chain) are any indicator, the dengue outbreak in the capital this season is far more serious than what MCD is willing to admit. These hospitals alone have reported 1,284 cases while the civic body's tally is 463 cases, including four deaths.

This when MCD admits that more than 500 out of the 600 registered nursing homes and hospitals in the capital are not reporting cases to it — indicating that the reporting system for dengue is totally dysfunctional. Proper reporting of dengue cases is crucial for initiating targeted fogging operations.

These numbers came to light after TOI sought information from select private hospitals about the number of dengue patients treated till Tuesday. MCD, meanwhile, reported 13 fresh cases on Tuesday.

‘Hospitals sit on dengue figures’

New Delhi: Just six private hospitals have reported 1,284 cases of dengue this season against MCD's claim of 463 cases for the city. “A total of 617 patients have been treated for dengue at all Max hospitals. This includes indoor patients and outdoor patients who were diagnosed positive through NS1 antigen Elisa test. We report to MCD on a regular basis,” said a senior official of Max hospitals.

Father Arthur Pinto, director, Holy Family Hospital said they had seen 219 dengue cases this season. “Sixteen dengue patients are still undergoing treatment,” he said, adding that dengue cases were fewer this year as compared to 2010. At Jaipur Golden hospital, officials said four patients confirmed positive for the disease had succumbed to the disease this year.

“We have seen 186 dengue cases so far. Seventeen patients are undergoing treatment,” said Dr D K Baluja, the medical director of the hospital. A senior AIIMS doctor alleged that MCD does not report all dengue cases for fear of exposing its ineffectiveness in tackling mosquito breeding. “It is important to report cases honestly to ensure targeted fogging operations and public awareness campaigns in the affected areas. We have been

seeing a lot of cases inside the hospital campus itself,” he said. V S Dahiya, who works at Lady Hardinge Medical College, said, “In our hospital campus, many people were diagnosed positive for dengue and we kept complaining to the civic authorities about mosquitobreeding but no action was taken till the wife of a senior official succumbed to the disease.” Dr V K Monga, chairman of the MCD health committee claimed that all dengue cases reported by hospitals are duly notified. “We do not hide any figures. Hospitals often do not report cases to us. Of the 600 registered hospitals and nursing homes, only 70-80 hospitals, which include the 34 sentinel surveillance hospitals, keep us updated about their confirmed cases,” he said.

Senior health officials complained that the process for reporting cases was tedious. Except for the sentinel hospitals – all government institutions – who report online, all others have to send a hard copy via fax everyday to MCD, giving the number of dengue and chikungunya cases being treated by them. This leads to underreporting of cases, they said.

Dengue

DEADLY BITE several more cases expected before winter begins (The Tribune: 19.10.2011)

With 13 fresh cases of dengue fever reported on Tuesday, the total number of people affected with the disease in the city has reached 463.

Four people have succumbed to dengue so far this season.

The city, on an average, has been reporting about 10 new dengue cases everyday the last one month.

“This is the peak time for dengue, as the weather this time of the year is ideal for the breeding of disease-causing mosquitoes. We expect a couple of hundred more cases before winters begin and the disease dies out,” said Dr VK Monga, chairman, public health committee, Municipal Corporation of Delhi (MCD).

According to MCD data, the central zone that has areas such as Greater Kailash-I, South Extension, Lajpat Nagar and Defence Colony, the south zone, with areas such as Vasant Kunj, Mehrauli and Saket, and Rohini zone have been reporting the maximum number of cases.

“We have started getting dengue cases in large numbers, but it is common in this weather as October and November are peak months for the spread of mosquito-borne diseases. I see about 10 suspected dengue cases every day,” said a senior doctor at the All India Institute of Medical Sciences, requesting not to be identified. The city has for the first

time also reported five cases of Japanese Encephalitis. The mosquito-borne disease affects the brain and can lead to death.

Samples have been tested of pigs -which play host to the disease virus -and human beings in the affected areas to check its spread. "The situation is not alarming. We are taking steps to check its spread," said Dr Monga.

Dengue fever

463 struggle with dengue fever in city (Hindustan Times: 19.10.2011)

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GM mosquito –Fight Dengue

GM mosquito fights dengue by killing its own (The Times of India: 1.11.2011)

This May Help Raise Tweaked Bugs To Fight Insect-Borne Diseases And Control Pests

These mosquitoes are genetically engineered to kill — their own children. Researchers on Sunday reported initial signs of success from the first release into the environment of mosquitoes engineered to pass a lethal gene to their offspring, killing them before they reach adulthood.

The results, and other work elsewhere, could herald an age in which genetically modified insects will be used to help control agricultural pests and insect-borne diseases like dengue fever and malaria. But the research is arousing concern about possible unintended effects on public health and environment, because once genetically modified insects are released, they cannot be recalled.

Authorities in the Florida Keys, which in 2009 experienced its first cases of dengue fever in decades, hope to conduct an open-air test of the modified mosquitoes as early as December, pending approval from the agriculture department.

“It’s a more ecologically friendly way to control mosquitoes than spraying insecticides,” said Coleen Fitzsimmons, a spokeswoman for the Florida Keys Mosquito Control District. The agriculture department, meanwhile, is looking at using genetic engineering to help control farm pests like the Mediterranean fruit fly, or medfly, and the cotton-munching pink bollworm, according to an environmental impact statement it published in 2008. Millions of genetically engineered bollworms have been released over cotton fields in Yuma County, Ariz. Yet even supporters of the research worry it could provoke a public reaction similar to the one that has limited the acceptance of genetically modified crops.

In particular, critics say that Oxitec, the British biotechnology company that developed the dengue-fighting mosquito, has rushed into field testing without sufficient review and public consultation, sometimes in countries with weak regulations.

“Even if harms don’t materialize, this will undermine the credibility and legitimacy of the research enterprise,” said Lawrence O Gostin, professor of international health law at Georgetown University. NYT NEWS SERVICE

Diabetes

Diabetes

How diabetes can be a hurdle in child bearing (The Tribune: 5.10.2011)

Neeta has been going to her gynaecologist for the last several years due to infertility. Despite the use of all the medicines prescribed to her, luck has not smiled on her. Why? While she is a good patient in getting advanced investigations like ultrasound, MRI, etc, done to reveal the cause, she has not cared to arrest her bulging waistline or put a stay on her blood sugar level despite the doctor's pleadings.

She feels diabetes and obesity can be managed after the conception! Her doctor feels otherwise; pregnancy may not occur until Neeta gives attention to her waistline and blood sugar level. Experts tell us that diabetes is a major menace. A recent report suggested that the number of diabetics has risen to 347m worldwide. Another report said that Chandigarh has about 13 per cent prevalence of diabetes, and it is rising.

The roadblock

The prevalence of reproductive malfunction in diabetic men approaches 50 per cent, whereas in diabetic women it seems to be only slightly lower. Diabetes is one of the most common causes of inability to conceive. Poor semen quality has been reported in diabetic men, including decreased sperm motility and concentration, abnormal morphology and increased seminal plasma abnormalities. In addition, diabetic men may have decreased serum testosterone.

Among diabetic women, neuropathy, vascular impairment and psychological complaints have been reported in the pathogenesis of decreased libido, low arousability, decreased vaginal lubrication, orgasmic dysfunction, and dyspareunia. An association between the production of excess radical oxygen species and disturbed embryogenesis in diabetic pregnancies has also been suggested. In fact, maternal diabetes during pregnancy is associated with an increased risk of complications in the offspring, such as altered foetal growth, polyhydramnios, foetal loss and congenital malformations.

The problems

A woman who has diabetes that is not well controlled has a higher chance of having a miscarriage or stillbirth. Also, the new-born may have birth defects. The organs of the baby form during the first two months of pregnancy, often before a woman knows that she is pregnant. Blood sugar that is not in control can affect those organs while they are being formed and cause serious birth defects in the developing baby, such as those of the brain, spine and heart.

The baby is “overfed” and grows extra large. Besides causing discomfort to the woman during the last few months of pregnancy, an extra-large baby can lead to problems during the delivery for both the mother and the baby. The mother might need a C-section to deliver the baby. The baby can be born with nerve damage due to pressure on the shoulder during the delivery.

When a pregnant woman has high blood pressure, she may have protein in her urine, and can often develop swelling in her fingers and toes that doesn't go away. She might have preeclampsia, a serious problem that needs to be watched closely and managed by her doctor. Women with type 1 or type 2 diabetes have high blood pressure more often than women without diabetes. Also women with diabetes are more likely to deliver early than women without diabetes.

Treatment

A good control of diabetes and supervision by your gynaecologist are required. For people with diabetes, the first step in treating infertility is to control their blood glucose levels. When diabetes is well-controlled, there is a decreased risk for many complications like heart attack, kidney failure, nerve damage, blindness and sex-related problems. The second step is achieving a healthy weight.

The writer is a Chandigarh-based Sr gynaecologist.

Some tips

1. Eat breakfast, but not too much or too dense in calories
2. Include vegetables or salad in your lunch and dinner
3. Choose fruit as a snack
4. Replace full-fat food and drinks with reduced-fat alternatives
5. Choose wholegrain foods instead of more refined foods
6. Eat smaller serving sizes by using smaller plates and cups
7. Eat slowly and stop when you are satisfied, not stuffed full

8. Eat when you genuinely feel hungry, rather than for emotional reasons
9. Swap sweetened drinks such as soft drink and juice with water
10. Eat your evening meals early and at a dinner table with the TV turned off.

Type 2 diabetes

Why saturated and unsaturated fats have opposite effects (The Tribune; 12.10.2011)

A new study shows that saturated fats activate a key metabolic pathway associated with the development of type 2 diabetes, while polyunsaturated fats like omega-3s shut this pathway down. The finding may explain why animal-derived saturated fats like lard and butter are strongly linked to adverse health effects, while unsaturated and polyunsaturated fats from plants and cold-water fish like salmon and mackerel are not. The research revealed that saturated fat blocks the cell membranes at the molecular level, causing abnormal cell signalling that ultimately throws basic metabolism out of whack. According to the research conducted at the University of California, San Diego, saturated fats tend to be solid at room temperature as they contain fatty acids that are saturated with hydrogen atoms and the carbon atoms are bonded to as many hydrogen atoms as possible, whereas unsaturated fats contain fatty acids with a lower ratio of carbon to hydrogen, Live Science reported.

Diabetes therapy

Stanford researchers identify new molecular target for diabetes therapy (New Kerala: 13.10.2011)

L Artificially activating a key molecular pathway responsible for the natural decrease in the proliferation of insulin-producing cells that occurs as a person ages could one day lead to a new way to combat diabetes, say researchers at the Stanford University School of Medicine.

The researchers found that, in mice and humans, the pathway is governed by the expression of a molecule called platelet-derived growth factor receptor.

PDGF-receptor expression declines over time in mice and humans in a pattern that parallels the decrease in the proliferation of pancreatic beta cells, which produce insulin to control blood sugar levels.

It's been known for some time that beta cell proliferation in the pancreas, which is robust in newborn and young animals, decreases dramatically with age.

The expression of one molecule known to be involved, Ezh2, declines over time in a similar manner. However, it was not known what controlled the changes in Ezh2 expression levels in beta cells.

The researchers found that the expression of PDGF receptors was also reduced in pancreatic islet cells from juvenile mice in a pattern similar to the reduction in beta cell proliferation.

When they blocked the expression of PDGF receptors in laboratory mice, they found that young animals (2 to 3 weeks old) made less Ezh2 and had significantly fewer beta cells than control animals. They also had slightly elevated blood sugar levels and were less effective than control animals in disposing of blood sugar when challenged with high glucose.

Adult animals lacking expression of the beta cell PDGF receptor were also less able than their peers to regenerate beta cells that were artificially damaged by a chemical compound, and they became severely diabetic after such treatment.

"We're hopeful that soon we might be able to manipulate this pathway in a therapeutic way in humans," said senior author and professor of developmental biology Seung Kim, MD, PhD.

"Perhaps by rekindling its expression and then activating it through a drug we could give in an injection or through some other route. This could be a kind of one-two punch against diabetes," he said.

The researchers said their study revealed that there were some pathways that have not been explored in human beta cells that underlie the age-related loss of beta cell proliferation.

"This gives us a handhold onto a vaster problem: how to control human beta cell proliferation in a therapeutic way," said Kim.

The finding appears online Oct. 12 in *Nature*.

Diabetics

Health food for heart patients, diabetics (New Kerala: 17.10.2011)

People suffering from heart diseases and diabetes should eat a lot of beans, soybean, tofu and lentils as these are rich in proteins and low on fat and cholesterol, an expert said Sunday.

With the number Indians suffering from diabetes and heart ailments on the rise, an interactive cooking session -- 'Healthy food for healthy heart' -- was conducted by nutritionist Ishi Khosla at the Max Super Speciality Hospital here.

“To eat is a necessity but to eat intelligently is an art. We want people to change their eating habits by choosing which foods to eat more and which to limit,” Khosla said.

The nutritionist conducted a cooking session where simple, quick and easy to make recipes for people suffering from heart diseases and diabetes were shared.

“The recipes shared today are not only healthy but appealing by experimenting with ingredients like beans, soybean, tofu and lentils, which are rich in protein and contain less fat and no cholesterol.”

According to Khosla, people do not opt for healthier substitutes till it is too late.

“People should opt for green tea, whole grains like brown rice and barley. The problem with us is that we never value health till sickness comes,” said Khosla.

Diabetes care

Women mainstay of diabetes care: NGO (World Newspapers: 2.11.2011)

Women are indispensable when it comes to management of lifestyle diseases like Type 2 diabetes in India. This is the conclusion of a study by The Heal Foundation, a Mumbai-based non-profit organisation.

Spurred by the finding, The Heal Foundation in association with the Ministry of Health, Family Welfare, WHO and Project Hope launched an initiative, Women 4 Diabetes, on Tuesday.

According to the study done on 500 Mumbai families with at least one member with long-standing diabetic problems, women in the roles of mothers, wives and daughters constitute 90% of caregivers of diabetic patients.

“People die of diabetic complications and not diabetes. Diabetes complications are caused by poor disease management. Therefore, the role of women in managing diabetes and even preventing it is huge,” said Ranjeeta Vinil, founder director of Saarathi Healthcare Pvt Ltd.

There are three main aspects of management of Type-2 diabetes, a healthy diet, exercise, and regular monitoring of the disease. “And women actively participate in the implementation of all three aspects,” said Dr Sonal Modi, chief nutritionist and diabetes educator at Dr Chandalia’s Diabetes Endocrine Nutrition Management Centre.

The aim of the Women 4 Diabetes initiative is to spread awareness and educate women about how they can help diabetics manage the disease better.

The biggest hindrance to successful diabetes management is lack of proper monitoring, said R Shankar, president of The Heal Foundation.

“We have found that 80% of the patients have modified their diets after regular hospital visits. However, only 14% regularly go to hospital to get glucose tests done. Also, 80% of the patients prefer going to the lab to get the test done as opposed to doing it at home. Patients generally tend to postpone their visits. It is women who drive their family members to get their blood sugar levels checked.”

Shankar said that sometimes women are reluctant to adopt a healthy diet plan because it can be restrictive and the cooking process can be cumbersome. “Nutritionists should modify existing diets giving consideration to historical, cultural and individual factors,” said Dr Modi.

Vinil said it was a bit unfair to put the responsibility of providing care on women. “But that’s how our society is organised. Men should begin participating in these matters. It will add tremendous value to the management of diseases like diabetes in India,” she added.

Diabetes, High Blood Pressure

Diabetes, High Blood Pressure Set to Explode in India, Doctors Warn (Med India: 9.11.2011)

Doctors have warned India is facing a twin epidemic of diabetes and high blood pressure, after the results of a countrywide study suggested that one in five people had both blood pressure and diabetes.

The two-year study of nearly 16,000 adults in eight states found that 21 percent of patients with family doctors and consultants had diabetes and hypertension.

Just over a third (35 percent) had diabetes, while nearly half (46 percent) had hypertension, according to the Screening India's Twin Epidemic or SITE research, which was published on Monday.

Shashank Joshi, a consultant endocrinologist at the private Lilavati Hospital in Mumbai, said in a statement that the results indicated that the conditions "are indeed becoming a twin epidemic across the country".

He added: "What is even more worrisome is that 70 percent of the patients surveyed have 'uncontrolled' diabetes, including diabetics who are currently undergoing treatment.

"This figure not only demands immediate attention but also the implementation of necessary measures."

The research, backed by Aventis Pharma, a unit of French healthcare group Sanofi, also found that seven percent of diabetics and 22 percent of people with high blood pressure were unaware they had the condition.

According to the World Health Organization (WHO), diabetes affects some 346 million across the globe.

Both diabetes and cardiovascular diseases are affecting a growing number of people across Asia because of a combination of genetic factors, plus changing diets and a more sedentary lifestyle as a result of increasingly urban living.

Insulin

Oral Substitute for Insulin (Med India: 9.11.2011)

Australian researchers claim that they have found a substitute for insulin to help treat diabetes orally. It is a small drug molecule that could help take the needle out of diabetes, they say, but no details are available.

Over 10 years, Professor Erik Helmerhorst and his colleagues at Curtin University looked at millions of compounds on pharmaceutical databases to try to emulate the molecular map of insulin.

“On a computer, in silico, we searched three million compound structures for their ability to fit that map,” explains Professor Helmerhorst.

“Our innovation is the development of a new chemical entity, a small drug molecule we have discovered and developed, that can be taken orally as a tablet to replace insulin per se,” said Professor Helmerhorst.

Professor Helmerhorst outlined his team’s quest at the Univation 2011 conference in Perth.

The annual conference showcases research from four universities in Western Australia, with the aim of getting further backing from investors and commercialisation experts.

The research, undertaken with Epichem, has the ability to revolutionise the treatment of diabetes, which is a growing worldwide problem.

Professor Helmerhorst said there was a niche market for their drug molecule to target Type 2 diabetics to help delay to the onset of insulin dependency.

He said 95 per cent of diabetics have Type 2 diabetes, who last year spend some \$10 billion a year on insulin.

“The reality is that nearly one-third of Type 2 diabetics will end up needing insulin therapy at some stage,” he said.

Diabetics

Diabetics — beware of low sugars (The Hindu: 14.11.2011)

Hypoglycaemia is a condition, in which blood sugar level falls below 70mg%. When blood sugar levels fall, there is an increase in counter-regulatory hormone levels to maintain the optimum blood glucose levels. In diabetics, hypoglycaemia is very common among the

- Elderly,
- Debilitated patients,

- Patients with infections,
- Patients with impaired kidney function,
- Patients on insulin therapy,
- After alcohol abuse (or) vigorous exercise
- Psychological illness.
- Diabetics who fast for religious reasons or those with continuous vomiting are prone to hypoglycaemia.

1) It is more common in insulin-dependent diabetes than maturity onset diabetes (type II diabetes). Hypoglycaemia is more common and pronounced if one aims for intense blood sugar control. Hypoglycaemia can result in ECG changes with or without any symptom (silent ischemia). It also can trigger angina, heart attacks, acute heart failure and/or cardiac rhythm disturbances. Some of the recent studies have shown that hypoglycaemic episodes increase cardiovascular events and mortality. Studies have also shown that adverse cardiovascular events are three times more common among those with intense glucose control compared with optimal control. Swings in blood sugar levels are equally hazardous.

Symptoms of hypoglycaemia

With the onset of hypoglycaemia, heart rate and systolic blood pressure increase with vigorous heart pumping activity owing to adrenaline release. This may result in such symptoms as sweating, palpitations, giddiness, restlessness and confusion. Some patients may experience intense hunger and lack of concentration. Rarely can hypoglycaemia be silent without any symptoms.

2) The exact incidence of hypoglycaemia is not known because these episodes may be mild, moderate or severe. Mild symptoms may even be undetected. Mild hypoglycaemic events are more common but less reported. Patients, who experience frequent hypoglycaemic episodes, may take corrective steps with the onset of premonitory symptoms. Dead in the bed syndrome due to nocturnal hypoglycaemia resulting in cardiac rhythm disturbances has been thought to be due to extreme hypoglycaemia, and fortunately this is very rare.

The challenge of physicians is to adjust blood glucose levels to near normal range and reduce complications of diabetes, while at the same time minimise or prevent hypoglycaemic events. One must particularly be more cautious in diabetics with underlying heart disease. Blood HbA1c level is a biochemical parameter to assess long-term glucose control. Hypoglycaemic episodes are more common if HbA1c level is < 7%. "Lower the better is no longer the rule."

(Dr. I. Sathyamurthy is an interventional cardiologist and director of the Department of Cardiology, Apollo Hospitals, Chennai. He is the recipient of the Padma Shri Award for 2000 and the Dr. B.C. Roy National Award for 2001).

Diabetes

Low-calorie diet for 4 months 'can cure diabetes' (New Kerala: 30.11.2011)

Consuming a low-calorie diet daily for four months can cure Type 2 diabetes, a new study has revealed.

People who cut down on their calories intake had a far more significant improvement in the condition and in their general health than the medication offered.

They no longer required life- saving insulin, the level of fat built up around their hearts was considerably reduced and their cardiac function improved.

"It is striking to see how a relatively simple intervention of a very low-calorie diet effectively cures Type 2 diabetes," the Daily Express quoted lead author of the study, Dr Sebastiaan Hammer as saying.

"Our results show that 16 weeks of caloric restriction improved heart function in these patients."

"More importantly, despite regain of weight, these beneficial cardiovascular effects were persistent over the long term."

"Lifestyle interventions may have more powerful beneficial cardiac effects than medication in these patients," Hammer added.

In the study, the researchers used scans and analysed heart function and pericardial fat in 15 patients—seven men and eight women—with Type 2 diabetes before and after four months of a diet consisting of 500 calories a day.

Changes in body mass index (BMI) were also measured. The results revealed that caloric restriction reduced BMI from 35.3 to 27.5 over a period of four months.

Pericardial fat also decreased by about a third and resting heart function improved distinctly.

The discovery important implications because diabetics and the obese are particularly more vulnerable to suffering a potentially fatal heart attack or being struck down by debilitating heart disease.

Diabetes or high blood pressure

Diabetes, high BP kills faster than HIV (Hindustan Times: 2 .12. 2011)

HIV has a much lower impact on survival and life expectancy than cancer, severe diabetes or nasty high blood pressure.

A person with HIV, the virus that causes AIDS, is likely to live longer than the one with severe diabetes or high blood pressure.

While AIDS virus cuts life by five years if contracted in 20s, when compared to, say, diabetes, which takes away 10-15 years, if developed when a person is in 40s.

India has 2.39 million people living with HIV, and 50.8 million with diabetes.

“New medicines have transformed HIV from a death sentence into a chronic disease that has a very, very small impact on your life expectancy if you start treatment early and do not smoke, drink or have diabetes,” says Dr Charles Gilks, UNAIDS country coordinator for India.

“HIV has a much lower impact on survival and life expectancy than cancer, severe diabetes or nasty high blood pressure.

This is borne out from survival data from North America and Europe, which, says Gilks, holds true even for less developed countries such as India, where malnutrition lowers immunity further and puts people with HIV at higher risk of infections such as tuberculosis and pneumonia.

HIV wrecks the body's immune system to the point where it cannot fight off common bacterial, viral and fungal infections, which eventually cause death. HIV drugs keep the virus levels down. India treats 4.48 lakh people free under a national programme.

The cost of antiretroviral therapy (ART) used to treat HIV is the cheapest in India, with first-line treatment costing the government R5,000/person/year, and secondline therapy - for people with immunity against the first-line drugs -priced at R29,000/person/year.

About 26,000 people are on second-line treatment.

“Currently, 4.48 lakh people get free ART under the national programme in 324 centres across India.

Everyone who needs treatment is being treated free under the government programme, there is no waiting,” said Dr BB Rewari, national programme officer, the National AIDS Control Organisation, India (NACO).

Estimates for people living with HIV were halved in India, from a peak of 5.7 million in 2006 to the current 2.39 million at the end of 2009, the latest year for which data is available.

The UN credits the downward trend to both improved data collection methods and an actual fall in new infections.

“With HIV data staying under 2.5 million for over 5 years in India, complacency should not set in, as it did in North America, where infection has shot up among vulnerable groups, such as injecting drug users and men who have sex with men,” says Dr Charles Gilks, UNAIDS Country Coordinator for India.

Investments in ART programmes benefits economic activity and labour-force productivity, with gains expected to reach up to \$34 billion and 18.5 million life years in low and middle-income countries by 2020, said the UNAIDS Report on Global HIV/AIDS Response 2011, which was released on Wednesday. This more than offsets the costs of free ART programmes.

Following the global financial crisis, international funding for HIV programmes fell in 2010.

Current annual funding is estimated to be \$16 billion, well below the \$22-24 billion needed annually by 2015.

Sugar

Sweet news: A sugar that helps protect hearts (The Times of India: 7.12.2011)

A spoonful of sugar is all you need to keep your heart healthy, according to scientists who claim to have come up with a new type of the sweetener which can prevent cardiac failure. An international team has, in fact, developed the new type of sugar — combination of sugar & seleno — that works by preventing reactive acids from damaging the heart, the ‘Chemical Communications’ journal reported.

“Our seleno-sugar compounds work by scavenging hypohalous acids, a group of highly reactive chemicals that can damage tissues when produced in the wrong place, at the wrong time or at excessive levels.

“One predictor of future heart disease in patients is the raised level of the enzyme that produces these hypohalous acids,” professor Carl Schiesser at University of Melbourne, who led the team. The team discovered their seleno-sugar compounds are able to prevent hypohalous acids from damaging the important amino acids in human plasma, a key step in stopping the development of disease.

The scientists are now working to optimize their compounds for future pharmaceutical use.

“We are hoping that in the future our new chemicals will keep matters of the heart sweet. Well, at least health-wise!” Dr Corin Storkey, a team member, said. PTI

Diabetes

Rotating shift work ups diabetes risk in women (World Newspapers: 8.12.2011)

Working women, who are subjected to rotating schedules, comprising of three or more night shifts per month are more vulnerable to type 2 diabetes risk compared to women who only work on day or evening shifts, a new study has revealed.

The study led by researchers at Harvard School of Public Health (HSPH), found that extended years of rotating night shift work was associated with weight gain, which causes increased risk of type 2 diabetes.

“Long-term rotating night shift work is an important risk factor for the development of type 2 diabetes and this risk increases with the numbers of years working rotating shifts,” said An Pan, research fellow in HSPH’s Department of Nutrition and the study’s lead author.

The researchers, led by Pan and senior author Frank Hu, professor of nutrition and epidemiology, analyzed data on more than 69,269 U.S. women, ages 42 to 67, in the Nurses’ Health Study I, tracked from 1988 to 2008, and 107,915 women, ages 25 to 42, in the Nurses’ Health Study II, tracked from 1989 to 2007.

About 60 percent of the nurses performed more than one year of rotating night shift work at baseline; about 11 percent in Nurses’ Health Study I had more than 10 years of rotating night shift work at baseline, and about 4 percent in Nurses’ Health Study II worked more than 10 years of rotating night shifts at baseline, and this proportion increased during the follow-up.

The researchers found that the longer women worked rotating night shifts, the greater their risk of developing type 2 diabetes.

Those women who worked rotating night shifts for three to nine years faced a 20 percent increased risk; women who worked nights for 10 to 19 years had a 40 percent rise in risk; and women who worked night shifts for over 20 years were 58 percent more at risk. In addition, women who worked rotating night shifts gained more weight and were more likely to become obese during the follow-up.

According to the U.S. Centers for Disease Control and Prevention (CDC), shift work has been shown to disrupt sleeping patterns and other body rhythms, and has been associated with obesity and metabolic syndrome, conditions associated with type 2 diabetes.

“This study raises the awareness of increased obesity and diabetes risk among night shift workers and underscores the importance of improving diet and lifestyle for primary prevention of type 2 diabetes in this high risk group,” said Hu.

The findings were published online December 6, 2011 in the open access journal PLoS Medicine.

Diabetes

Rotating night shifts up diabetes risk in women (The Times of India: 8.12.2011)

Here's a scientific finding that should interest youngsters working in India's call centres.

Women, who have a rotating (irregular) schedule that includes three or more night shifts per month apart from day and evening working hours in that month, may have an increased risk of developing Type 2 diabetes when compared with those who work only during day or evening.

According to a new study, led by researchers at Harvard School of Public Health (HSPH), extended years of rotating night shift work was associated with weight gain that may contribute to the increased risk of Type 2 diabetes. The findings were published in the journal PLoS Medicine on Tuesday. “Long-term rotating night shift work is an important risk factor for the development of Type 2 diabetes and this risk increases with the numbers of years working rotating shifts,” said An Pan, the study's lead author in HSPH.

Women who worked rotating night shifts for three to nine years faced a 20% risk; 10 to 19 years were 40% more prone; and over 20 years were 58% more at risk.

Diabetics

New insight into pancreatic development offers new hope to diabetics (New Kerala: 23.12.2011)

A rare genetic disorder has given scientists an insight into how pancreas develop and how it may be possible to “programme” stem cells to become pancreatic cells.

Pancreatic agenesis is a rare condition in which the body is unable to produce a pancreas. The pancreas plays an essential role in regulating levels of sugar in the blood, which it does by the release of the hormone insulin that is generated and released by cells known as pancreatic beta cells.

It also produces enzymes to help digest and absorb food.

An international team of researchers led by scientists from the Peninsula College of Medicine and Dentistry at the University of Exeter report a mutation in the gene GATA6 found in fifteen out of twenty-seven individuals with pancreatic agenesis.

The study, funded by organisations including the Wellcome Trust, Diabetes UK and the National Institute for Health Research, establishes a key role for GATA6 in the development of pancreatic cells.

The finding was particularly surprising as switching off the GATA6 gene in mouse models appeared to make no difference to the development of the pancreas.

“This rare genetic condition has provided us with a surprising insight into how the pancreas develops. What is it that programmes cells to become pancreatic beta cells? Our study suggests that GATA6 plays a very important role in this process and we hope this will help the crucial work to try and make beta-cells for patients with type 1 diabetes,” Andrew Hattersley from the Peninsula College of Medicine and Dentistry, said.

Whilst pancreatic agenesis is an extreme form of pancreatic dysfunction, far more common is diabetes. In type 1 diabetes, which generally develops in childhood, the immune system attacks and destroys pancreatic beta cells and the body is unable to regulate glucose levels, whilst in type 2 diabetes, the beta cells gradually decline until, usually during adulthood, they cease to function.

“This discovery was possible because new sequencing approaches meant we could test all the genetic information in one go and because with the help of doctors throughout the world we were able to study 27 patients with a very rare condition,” Sian Ellard from Peninsula College of Medicine and Dentistry, said.

The study has been recently published in Nature Genetics.

Diabetic mums

Diabetic mums-to-be put kids' long-term health in danger (The Tribune: 14.12.2011)

London: Women who develop diabetes while they are pregnant, or become pregnant while being overweight, put the long-term health of their children at risk, experts have warned. Babies are being born addicted to sugar because their mothers eat too much during pregnancy. The infants are being forced on to sugary drips just hours after birth to counter withdrawal symptoms. Patrick O'Brien, Royal College of Obstetricians and Gynaecologists spokesman, said that babies exposed to huge amounts of sugar in the womb continued to make large amounts of insulin after birth.

'Trial' drug associated with 70 pc response rate

Washington: A novel experimental agent for chronic lymphocytic leukemia (CLL) has been found to be highly active and well tolerated in patients who have relapsed and are resistant to other therapy, according to an interim study. The agent called PCI-32765 is the first drug designed to target Bruton's tyrosine kinase, a protein essential for CLL-cell survival and proliferation. CLL is the most common form of leukemia, with about 15,000 new cases annually in the U.S. About 4,400 Americans die of the disease each year

Blood sugar

Don't overlook low blood sugar (The Times of India: 19.12./2011)

Diabetics should keep tabs on their blood sugar levels to avoid hypoglycemia, says diabetes expert Ashok Jhingan

Hypoglycemia, or low blood sugar, can occur in insulin-dependent diabetics at some point in their lives. Hypoglycemia develops if the blood glucose level dips below the normal level of 70 mg/dl. Although this may be caused by insufficient intake of food, too much exercise or excessive alcohol intake, people with diabetes who inject insulin or those who consume oral pills are at greater risk of developing hypoglycemia. Usually the condition is manageable, though occasionally it can turn into something severe or even life-threatening. Mild symptoms usually include sweating, trembling, hunger and rapid heartbeat. However, severely low blood glucose levels can precipitate neurological symptoms such as confusion, weakness, disorientation and aggressiveness. In rare, worst-case scenarios, hypoglycemia can lead to coma, seizure and death. People with hypoglycemia may have trouble concentrating or seeing clearly behind the wheel and may not be able to react quickly to road hazards or to actions of other drivers.

Check blood glucose:

Hypoglycemia can appear without warning. So, check blood glucose level before starting out at work or on the road. During long road trips, check the blood glucose level frequently and eat snacks. Keep a few carbohydrate snacks, glucose tablets, candy, and fruit juice always handy. Managing diabetes effectively to increase insulin sensitivity can reduce the risk of hypoglycemia. It is essential to manage exercise and food intake. If you exercise long and hard, the body will use a lot of carbohydrates, so you may need to eat some carbs both before and during the activity. Follow a half-an-hour moderate exercise regimen. Your diet should include wholegrain, fibre and green vegetables at frequent intervals. Plan smaller meals and avoid alcohol. Insulin shots and oral medications in excess increase the risk of hypoglycemia. A new class of drugs such as GLP 1 can minimise the risk of hypoglycemia. These drugs enhance insulin secretion from the pancreas only in the presence of high sugar. Change insulin dosage if required after consultation.

Diabetes

Scientists Map Susceptibility to Type 2 Diabetes (Science daily: 30.12.2011)

Research carried out at the Hebrew University of Jerusalem has provided the first proof of molecular risk factors leading to type 2 diabetes, providing an "early warning" sign that could lead to new approaches to treating this and other human disease conditions. Despite extensive research on the molecular basis for the variance in susceptibility between individuals to common diseases, the subject is still poorly understood. A prime example of this is type 2 diabetes (T2D), a very widespread human disorder.

What is it that characterizes the susceptibility to this disease?

Epigenetic variations -- which are small molecular marks superimposed on the DNA structure -- have been frequently hypothesized to modify predisposition, but direct evidence was missing.

Now, a research team led by Dr. Asaf Hellman of the Hebrew University's Institute of Medical Research Israel Canada has developed a novel, multistep, study design involving the analysis of disease-contributing epigenetic variations among hundreds of patients and control individuals.

The research was presented in a scientific conference at the Cambridge University Genomic Center and was recently published in the scientific journal Human Molecular Genetic.

Taking an innovative research direction, the Hebrew University research team decided to map DNA methylation variations rather than DNA sequence variations, as was traditionally done. The team undertook a proof-of-concept study among 1,169 type 2 diabetes patients and non-diabetic controls. The results demonstrated the unique abilities of this novel research approach by revealing a clear-cut, disease-predisposing DNA methylation signature. This is a first report in the scientific literature of epigenetic risk factor for T2D.

DNA methylation is a naturally occurring mechanism used to regulate genes and protect DNA from some types of cleavage. It is one of the regulatory processes that are referred to as epigenetic, in which an alteration in gene expression occurs without a change in the nucleotide sequence of the DNA. Defects in this process cause several types of disease that afflict humans.

The method used by Hellman was developed during postdoctoral training at the Harvard University Medical School. Later, his research students at the Hebrew University, Gidon Tperoff and Dvir Aran, further developed it into an efficient, genome-wide mapping method.

The mapping was carried out on the methylation sites in cooperation with Prof. Benjamin Glaser, head of the Endocrinology and Metabolism Department at the Hebrew University-Hadassah Medical School and a leading researcher of T2D genetics, and with additional key researchers including Professors Jeremy Kark and Yechiel Friedlander from the Braun Hebrew University-Hadassah School of Public Health and Community Medicine, Prof. Julio Wainstein from the Wolfson Medical Center, and Prof. Ephrat Levy-Lahad from the Shaare Zedek Medical Center.

This analysis not only revealed, for the first time, a clear-cut epigenetic signature in T2D, telltale methylation signature marks were also shown to appear on the DNA of young individuals who later developed impaired glucose metabolism, even before the appearance of clinical diabetic manifestations.

These findings shed new light on the mechanism of individual predisposition to T2D and pave the way for the elucidating of similar mechanisms in a long list of common human diseases, including many metabolic, autoimmune and psychiatric disorders.

Given that epigenetic marks are sensitive to a wide range of environmental clues, including diets, chemical exposures, intrauterine environments, and also to therapeutic drugs, these finding may open the way for the development of new prevention and/or intervention epigenetic therapies.

Eczema

Eczema

Cure for eczema comes closer to reality (New Kerala: 25.11.2011)

An effective cure for inflammatory skin conditions like eczema is a step closer to reality, researchers say.

Scientists have found that a strain of yeast implicated in skin conditions like eczema, can be killed by certain peptides and could provide a new treatment for these debilitating skin conditions.

20 percent of children in the UK suffer from atopic eczema and whilst this usually clears up in adolescence, 7 percent of adults will continue to suffer throughout their lifetime.

Furthermore, this type of eczema, characterized by dry, itchy, flaking skin, is increasing in prevalence. Whilst the cause of eczema remains unknown, one known trigger factor is the yeast *Malassezia sympodialis*.

This strain of yeast is one of the most common skin yeasts in both healthy individuals and those suffering from eczema. The skin barrier is more fragile and often broken in those suffering from such skin conditions, and this allows the yeast to cause infection, which then further exacerbates the condition.

Scientists at Karolinska Institute in Sweden looked for a way to kill *Malassezia sympodialis* without harming healthy human cells.

The researchers looked at the effect on the yeast of 21 peptides that had either; cell-penetrating or antimicrobial properties.

Cell-penetrating peptides are often investigated as drug delivery vectors and are able to cross the cell membrane, although the exact mechanism for this is unknown.

Antimicrobial peptides, on the other hand, are natural antibiotics and kill many different types of microbe including some bacteria, fungi and viruses.

Tina Holm and her colleagues added these different peptides types to separate yeast colonies and assessed the toxicity of each peptide type to the yeast.

They found that six of the 21 peptides they tested, successfully killed the yeast without damaging the membrane of keratinocytes, human skin cells.

“Many questions remain to be solved before these peptides can be used in humans,” Holm said.

“However, the appealing combination of being toxic to the yeast at low concentrations whilst sparing human cells makes them very promising as antifungal agents.”

“We hope that these peptides in the future can be used to ease the symptoms of patients suffering from atopic eczema and significantly increase their quality of life,” she added.

The study was recently published in the Society for Applied Microbiology’s journal, Letters in Applied Microbiology.

Eye Disease

Glaucoma

Detecting Glaucoma before It Blinds (Science daily: 10.10.2011)

Early detection and diagnosis of open angle glaucoma important so that treatment can be used in the early stages of the disease developing to prevent or avoid further vision loss. Writing in a forthcoming issue of the International Journal of Medical Engineering and Informatics, researchers in the US have analyzed and ranked the various risk factors for open angle glaucoma so that patients can be screened at an earlier stage if they are more likely to develop the condition.

Glaucoma is one of the main leading causes of blindness; it is a progressive and irreversible disease. Of the various forms of glaucoma, open angle glaucoma (OAG) is the most common and can cause the most damage. Unfortunately, unless a patient is undergoing regular screening from about the age of 40 years because of a family history, it is otherwise difficult to detect until substantial and irreversible vision loss has occurred. Glaucoma is the third leading cause of blindness worldwide and the second leading cause of blindness in the USA.

Now, Duo Zhou and colleagues at the University of Medicine and Dentistry of New Jersey, Newark, have used statistical collinearity analysis to evaluate risk factors for OAG, and logistic regression models to identify a minimum set of such risk factors for prognosis and diagnosis of the disease. Their study was based on more than 400 patients with subtle or severe vision problems who attended hospital. It reveals the relative risk of being a smoker, age, visual "field test" results, presence of a localized notch or thinning of the neuroretinal rim identified during standard eye examination, cup to disk ratio (a measure of restriction of the optic nerve at the back of the eye) and other factors.

The data are complex and separating out predictors from diagnostic factors was difficult, the team admits. However, they suggest that family history, medical history, current medications, geographic location, visual field test and ocular examination must all be considered in diagnosis and prognosis for OAG. They have excluded certain factors from the OAG prognosis: gender, race, family history of glaucoma, diabetes mellitus, hypercholesterolemia, thyroid disease, migraine, Reynaud's disease and myopia as these have no direct effect on OAG development.

As revealed in the analyses, the odds of developing OAG will be increased by 91% with an increase in the Cup-to-Disk ratio of 0.1. Risk increases by 3% annually by age but

decreases by 31% for every dB increase of mean deviation of Humphrey visual field. The odds of developing OAG will be 4.36 higher for patients with abnormal Humphrey visual field overall test, 7.19 higher in patients with localized notch or thinning of the neuroretinal rim. Interestingly, patients with a smoking history seem to be less likely to develop OAG as compared to those with no smoking history; although there are many smokers with OAG. Oddly, because of the location of the study, the team can also say that patients living in Atlantic/Quebec will be 73% less likely to develop OAG compared to their fellow Canadians in Ontario.

Glaucoma Assessment

Glaucoma Assessment and Treatment may be improved by Findings from British Study (Med India; 31.10.2011)

Glaucoma Assessment and Treatment may be improved by Findings from British Study

The way healthcare professionals measure eye pressure may be changed following results from a recent scientific study in the U.K. The latter may also allow them to assess the risk of glaucoma, which is the second most common cause of irreversible loss of vision worldwide, with greater accuracy.

The study, published in the Investigative Ophthalmology & Visual Science journal (Intraocular Pressure and Corneal Biomechanics in an Adult British Population -- The EPIC-Norfolk Eye Study), reports the distribution and causes of eye pressure -- medically termed intraocular pressure (IOP).

According to the authors, researchers have long recognized that the clinical methods of assessing eye pressure have suffered from some inaccuracies, specifically as a consequence of the physical properties of the cornea. The EPIC-Norfolk study presents the first large-scale population-based measures of corneal biomechanics.

"Previously, a rather crude measure -- central corneal thickness -- was used as an index of corneal biomechanics," said author Paul J. Foster, MD, PhD, FRCS(Ed), of the University College London Institute of Ophthalmology, "We used a device which generates measures of corneal biomechanics in conjunction with IOP and attempts to 'correct' IOP for corneal physical properties."

Recruited between 1993 and 1997, the EPIC-Norfolk cohort was made up of approximately 25,000 predominantly Caucasian men and women aged 40 to 79 living in eastern England. From 2006 to 2010, a health examination was conducted to objectively assess various physical, cognitive and ocular characteristics of participants. The research

team used a non-contact tonometer, the Ocular Response Analyzer, to obtain eye pressure and corneal biomechanical data from 4,184 study participants, now aged 48 to 91 years.

Eye care

Centre turns blind eye to eye care (World Newspapers: 21.11.2011)

The poor state of eye care in the country is not only a health concern, but also a major economic concern.

There are 13 crore visually challenged people in India because of uncorrected refractive error, revealed a WHO report published in 2008. The same report also found that the loss of productivity caused by eye problems costs the country \$23 billion dollars (approximately Rs1,17,750 crore) annually.

The problem stems from lack of qualified optometrists.

"In India, the eye care market is potentially worth \$30 billion (approximately Rs 1,53,586 crore). Private eye care providers have to realise that they have to invest in the training of quality optometrists to tap the full potential of the market," said Professor Brien Holden, one of the authors of the report.

"And, if there are enough quality optometrists, it will not only will it help the millions of people suffering from eye problems, but also benefit the economy," added Holden, who was recently in the country to help set up India Vision Institute to train quality optometrists.

According to a study conducted by Country Family Health and Development Research Service Foundation, there were only 11,000 optometrists in the country in 2007. The figure has now increased to 21,000, but the ratio of optometrists to population is still poor.

Optometry is fast gaining popularity as a profession in the country, observed Dr Harshvardhan Golpade, a consultant anterior segment surgeon at Fortis Hospital.

"It's a relatively comfortable profession as there are not many emergency surgeries. As the surgeries are not time consuming, you can end up doing several in one day," he said. But, there is another hurdle: Most optometrists prefer to practise in cities.

The ratio of optometrists to population is 1:25,000 (1 optometrist for every 25,000 people) in urban areas, which is significantly better than the ratio in rural areas - 1:2,50,000. Compare this to the ratio of optometrists to population in first world countries

such as Australia and the US (1:6000) and the magnitude of the problem begins to emerge.

"The Indian government has to step in and provide incentives to optometrists to work in rural areas," suggested Holden.

Dr TP Lahane, dean of Grant Medical College at JJ Hospital, observed that lack of personnel is not the only problem in rural areas. "The technology and infrastructure in government hospitals and NGO-run centres in rural areas are not very advanced. Most of the NGOs that get funding from the government to perform eye surgeries are concentrated in the urban centres. The government should ensure that they fund NGOs established in rural areas," he said.

Besides lack of infrastructure, there is also a lack of awareness about eye problems, said Elizabeth Kurien, director of India region of Sightsavers, an international eye care organisation).

"Most people think that blindness, low vision and cataract affect mostly the elderly and it cannot be reversed. This leads to the public health centres largely lacking an eye care professional, be it an ophthalmologist, an optometrist or a mid-level personnel." But, the ground reality is almost opposite.

According to a study published in The Indian Journal of Ophthalmology, there are around 2 lakh visually challenged children in India and most of these cases could have been avoided if there was adequate eye health services.

Another study revealed that 60,000 children lose sight every year due to Vitamin A deficiency. "The government needs to develop sustainable eye health services as part of general healthcare within the public healthcare system," said Kurien.

Eye Care

How not to damage your eyes with steroids, antibiotics (The Tribune: 30.11. 2011)

Shikha (28), a doctor by profession, went to an eye clinic for the assessment of her vision for a medical examination at the time of entry into service. It was found for the first time that her left eye was not functioning. 'I cannot believe it, I can see everything with both eyes open. Are you sure, doctor? How did it occur, when did it occur, can you cure it with glasses?'

On eliciting past history, she revealed that she was diagnosed as a case of spring catarrh/vernal conjunctivitis in a medical college hospital at the age of 10 and was prescribed steroid and antibiotic drops for two weeks. The treatment helped but

symptoms returned after stopping the drops. After that she went to several other doctors who repeated the same treatment. She got the impression that these are the only drops to treat or prevent the condition and that she may have to use the same for a long time.

She continued with the treatment till date to contain the 'nuisance of persistent itching' at her own and was happy that she could prevent the symptoms with the regular use of drops. The eye-doctor pronounced, "You have lost all your vision in the left eye because you have developed glaucoma-related optic atrophy due to the misuse of steroids. We cannot reverse it now." Shikha was crestfallen and asked if she could sue the doctor who prescribed her the treatment 18 years ago?

The warning

Antibiotics and steroids are very important drugs to treat many illnesses. While antibiotics terminate bacterial growth, steroids are used in treating allergic conditions. Misused, antibiotic eye-drops can be quite irritating to the eye and may cause prolonged redness. Prolonged use can also cause dry eye symptoms. Similarly, the abuse of steroid drops may cause cataract and/or glaucoma in the eye. When taken orally for a long time, steroids may cause problems like muscle weakness, high blood pressure, weight gain, inhibited growth in children, thinning of bones, skin problems like bruising, acne, liver damage and, worst of all, the immune system failure.

Steroid abuse

They give the appearance of an instant miracle cure which matches the expectation level of the client. So, many doctors turn to steroids as the first, rather than the last, line of attack for their anti-allergic effects. Chemists also join in the party to give instant cure by selling expensive drops. The ethical doctors who avoid the use of steroids to save the ill-effects may lose the race.

What is allergic conjunctivitis?

Itching is the most typical symptom of eye allergy in these cases and more than 75 per cent of patients report this symptom when seeking treatment. Symptoms are usually worse for patients when the weather is warm and dry, whereas cooler temperatures and rain tend to assuage symptoms.

The number of such patients increases with the change of seasons. Besides the physical discomfort, it also limits activities such as going outdoors, reading, sleeping and driving.

What are common allergens?

Most cases of seasonal conjunctivitis are due to pollen and occur in the hay fever season. Grass pollens in early summer and various other pollens and moulds may cause symptoms later in the summer. Perennial conjunctivitis is commonly due to an allergy to house dust mite, a tiny insect-like creature that lives in every home. Other sources of allergens are animal skin and secretions such as saliva, perfumes, cosmetics, skin medicines, air pollution, smoke, antibiotics and other chemicals.

The message

If the symptoms are mild, a cold compress can be used to provide relief. It is a quick and easy solution without using any medication. Mast cell stabilisers can help patients with allergic conjunctivitis when cold compress is no longer effective. They tend to have delayed results, but they have fewer side-effects than the other treatments and last much longer than those of antihistamines. A common mast cell stabiliser that is used for treating allergic conjunctivitis is sodium cromoglycate eye-drops. Doctors may prescribe steroid drops for a short time to handle a problem.

The message is: Do not over-treat, do not self-treat and avoid miracle cures.

Eye Care

The sneak thief of sight (The Tribune: 1.12.2011)

Glaucoma is a disease that affects the optic nerve of the eye and is characterised by shrinkage of the field of vision. In India, around 11.2 million people are affected, with 1.1 million rendered blind. It is treatable if diagnosed in time

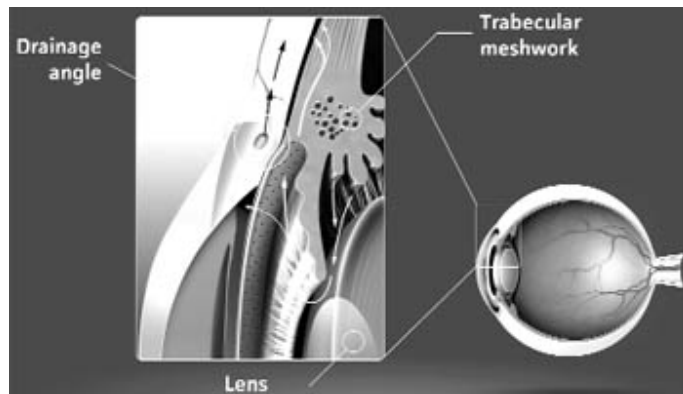
Eye is a complex and sensitive organ that allows us to receive, process and understand images with the help of special sensors in the brain. The signals that reach the eye travel through the focusing elements in the front of the eye, the image is formed on the sensitive nerve layer on the back of the eye called the retina, and are carried to the brain by the optic nerve. Damage to any part of the eye can decrease the vision.

Glaucoma is a disease that affects the optic nerve of the eye and is characterised by shrinkage of the field of vision. In India, 11.2 million people are estimated to be affected by the disease, with 1.1 million rendered blind. Worryingly, almost 90 per cent of glaucoma in the community is undetected, because in most cases, there are no symptoms until the person experiences loss of vision. That is why glaucoma is also referred to as the sneak thief of sight. When we are looking at an object, the expanse of vision that we are able to see all around the object without turning your head is called the field of vision. Over time, glaucoma can lead to partial loss of vision or even complete vision loss, if not treated appropriately. Damage to the optic nerve cannot be reversed, so vision once lost because of glaucoma cannot be regained. In Telugu, glaucoma is known as neetikaasulu and in Hindi glaucoma is referred to as kaalaa moti. Though glaucoma can affect people of all ages, it is more common in people above 40.

Case studies

Shivaraj was a 66-year-old man, who had blurriness of the vision for five to six years. He, however, was postponing visiting an eye doctor thinking that this was due to the cataracts developing in his eyes. When he eventually consulted his eye doctor, his IOPs were 32 mm Hg in both eyes and the doctor also noted that his optic nerves had been severely damaged in both eyes because of glaucoma. His visual fields showed more than 90 per cent damage in both eyes. His doctor immediately started him on medications to reduce his eye pressures. Though his eye pressures were controlled well with the

treatment, the damage that had occurred to his optic nerves and his vision were not recoverable.



Sharadamma was a 50-year-old woman, who went to an eye specialist after she had difficulty in reading. During the course of the check-up, the specialist found that her IOPs were 45 mm Hg in the right eye and 15 mm Hg in the left eye. Optic nerve in the right eye was severely damaged but was healthy in the left eye. The drainage channel for the fluid within the eye was completely closed in her right eye and was partially closed in her left eye. She had the closed-angle type of glaucoma. Her doctor immediately performed the laser treatment to make an alternate channel to release the accumulated fluid. After the treatment, the IOP reduced to 24 mm Hg in her right eye and it was further reduced to 14 mm Hg with the help of medications. After treatment, the drainage channel in her left eye never got closed.

Glaucoma can occur due to a variety of reasons ranging from use of steroids to eye injury to complications after an eye surgery. Glaucoma can also be hereditary and be passed on from parents to children. The resulting damage to the optic nerve may be sudden, or may occur over time, gradually. As discussed, in most cases, there are no symptoms until the person experiences loss of vision. Though there are various risk factors for the development of glaucoma, the most important treatable risk factor is the increased pressure inside the eyeball, which is called intraocular pressure (IOP). A normal IOP in healthy humans ranges between 10 and 21 mm of mercury. Glaucoma, though synonymous with high IOP, can develop at normal levels of IOP, too.

Glaucoma can only be detected when a complete eye examination is done by the doctor. The complete eye examination includes a slit-lamp biomicroscopic evaluation to examine all structures of the eye, IOP measurement using an instrument called tonometer and an examination of the status of the drainage channels of the eye, using an instrument called gonioscope. Glaucoma is classified into open-angle variety and closed angle variety depending on the status of the drainage channels of the eye. This is important because the treatment and the future course of the disease might be different depending on the type of glaucoma. Field of vision is assessed using an instrument called Humphrey's Visual Fields analyser.

Glaucoma is usually treated by drops, which help to control the IOP. Sometimes, laser treatment may be administered to decrease the IOP, which is particularly so in cases of

closed angle variety. Many glaucoma patients achieve good control of disease with the regular use of eye drops. If the drops are not successful in maintaining the eye pressure, then trabeculectomy surgery will be required for its control. Trabeculectomy surgery involves making an alternate pathway for the fluid to go out of the eye. Surgery is not a cure to glaucoma and it is extremely important to undergo checkups regularly even after the surgery.

If glaucoma is detected early, then vision loss can be avoided, or delayed. It is extremely important to have complete eye examinations regularly, particularly so if somebody has a family history of glaucoma, high blood pressure, diabetes or has injured the eye. Remember, glaucoma is an eye disease that can make you go blind. If you are diagnosed with glaucoma, it is important for you to undergo lifelong treatment. Regular treatment helps to prevent progression of glaucoma damage and thus protects your vision. One should always ask the eye doctor all the questions and doubts one may have. Staying informed can help one tackle glaucoma, the 'sneak thief of sight'!

Glaucoma

Childhood glaucoma (The Tribune: 1.12. 2011)

Childhood glaucoma refers to the presence of glaucoma in a child. Congenital glaucoma is the common term used for a glaucoma diagnosed in infancy or early childhood. It is also called infantile glaucoma.

Childhood glaucoma is associated with physical changes in the eye, which are caused by the high pressure. The increased fluid pressure can push on the optic nerve and cause cupping (an abnormal enlargement in the optic disc area). If the pressure remains too high for too long, the optic nerve fibres are damaged. Enlargement of the eye, cloudiness of the cornea and injury to the optic nerve are examples of changes that can occur as a result of glaucoma.

Facts and Figures

Childhood glaucoma occurs in one out of every 10,000 births in the US. In other parts of the world, even higher rates have been reported. For example in Saudi Arabia, the incidence has been noted to be as high as one out of 2,500 births. According to APEDS, it occurs in the 3,300 live births.

Isolated or primary congenital glaucoma accounts for approximately 50 per cent to 70 per cent of all cases of congenital glaucoma. Most cases of paediatric glaucoma are diagnosed by the age of six months, with 80 per cent diagnosed by the first year of life.

In diagnosed cases, about two-third of the patients are male. In about three-fourth of all cases, the glaucoma affects both (bilateral).

It has been estimated that approximately 300,000 children have been afflicted with developmental glaucoma the world over.

Blindness

‘80% of blindness can be avoided’ (World Newspapers: 5.12.2011)

According to the World Health Organisation, 39 million people are blind worldwide. It is estimated that there are between 15 million and 18.6 million people suffering from blindness in India. The Sightsavers Partners Meet was held in the city on Friday to spread awareness about blindness and how it can be prevented.

Sightsavers is working to eliminate avoidable blindness and promote equality of opportunity for disabled people in 33 countries.

Elizabeth Kurian, regional director (India), Sightsavers, said: “A person who is born blind accepts the condition more easily than a person who becomes blind subsequently. A person who becomes blind at a later stage has the tendency to compare life before and after the blindness. This person has a better understanding of visual concepts such as shapes and sizes. This makes it more difficult for him or her to cope with the condition.” However, the solution lies in the fact that 80% of the cases is avoidable.

“People continue to remain blind due to lack of awareness, access to cure and affordability. If we are able to tackle these three issues, a majority of the blindness could be avoided,” she said.

This, however, is easier said than done. “We are working with a backlog and elimination of avoidable blindness is indeed a mammoth task. Unless we have like-minded entities pitching in to touch people at the grass roots, the battle can never be won,” she added.

When it comes to rehabilitation of the blind, corporates can support rehabilitation in a big way. “With more organisations proactively coming forward to find ways of including the disabled in the workforce, more people with disabilities can become self-dependent,” said Kurian.

It is mostly a question of will. “The education system can make a huge difference to help the blind. We know of several people with visual disabilities equipping themselves with degrees that let them assume roles in mainstream workplaces,” she said. While hospitals and organisations that work towards the cause of the visually challenged are more receptive to employing them, the spectrum definitely needs to broaden, she added.

Prosthetic ‘eye’

A prosthetic ‘eye’ may help blind see (The Times of India: 27.12.2011)

Device Takes Info From Outside, Decodes It And Sends It To Brain As An ‘Image’

London: Scientists have developed a new prosthetic device that sends images directly to the brain, a technology they say could be used to help blind humans in less than a decade.

The device, which was developed by a team at the Weill Medical College of Cornell University and tested on animals, takes information from the outside world and decodes it into a pattern that the brain can “read” as an image.

Neuroscientist Sheila Nirenberg, who led the research, explained that the key was converting the data into patterns of electrical activity for the brain to process.

Patterns of pulses coming out of the eye tell the brain what is seen. With the blind person, the brain no longer gets the necessary visual information from the eye. Her prosthetic, with its encoder and transducer, can send out signals that the brain can understand.

What’s more, Nirenberg said, it could be used to help blind humans in less than a decade, the ‘Daily Mail’ reported. She said: “I study how the brain uses patterns of electrical activity to see, to hear, to reach for an object.

“I’ve been starting to use what we’ve learned about these patterns of electricity to develop prosthetic devices.”

Fundamentally, Nirenberg is stirring up interest in the very idea that her image encoder transducer can bypass a damaged retina to send these codes to the brain.

Prof Nirenberg explained that if a person has a retinal disease, there’s very little that can be done for them, with drug treatments only effective on a small number of sufferers. There are prosthetic devices, but they only allow patients to see simple images, mainly just outlines. But the new device is something “that could make a difference”, Prof Nirenberg explained at a seminar in San Diego recently. She told the audience that the retina contains circuits that process images, but that these circuits can die from disease.

The device she’s pioneered “mimics the action of the front end circuitry of the retina”, enabling images to be fired to the brain once more.

So far it’s only been tested on mice, but when asked if it could be adapted for humans in 10 years, she replied: “I’m hoping less”. AGENCIES

Heart Disease

Heart patients

How technology offers heart patients a better quality of life (The ribune: 16.11.2011)

While it is true that heart disease is spreading fast in India, our management has also improved with the help of revolutionary new technologies and improved skills. The availability of finer imaging facilities, refined hardware and techniques have led to better patient care.

BETTER IMAGING MODALITIES

The first step is early diagnosis - the sooner a disease is identified, the better it can be controlled. Newer imaging techniques are a boon to the cardiac scientist.

Multi-slice CT scanner: This firstly identifies patients at risk by a method known as calcium scoring - the higher the score, the more the risk of heart disease. The newer 64-slice and above CT can give a very accurate 3D anatomical image of the heart (coronary) arteries . The details and spatial orientation given are unmatched by the previous imaging modalities. A new addition to CT - the Fractional Flow Reserve (FFR) — gives valuable information about the significance of a block on the heart function.

Cardiac Magnetic Resonance Imaging (CMRI): This gives an excellent view of the anatomy of the heart and is especially useful in understanding the complex anatomy in complicated cases

Positron Emission Tomography (PET) and Nuclear Heart Scan or Cardiac Viability Study): This has an excellent predictive value — it tells the cardiac scientist whether there are any areas in the heart which are at risk for developing a heart attack and if recovery is possible after an intervention.

Genetic testing and evaluation of bio-markers will help in identifying people at the risk of developing heart disease.

By these predictive tests a person at risk could be targeted with aggressive lifestyle modifications and other therapies so that he is saved from an avoidable heart attack.

New technology may predict heart attack in waiting.

A new imaging technology may hold the key to not only stopping heart attacks in their tracks but also preventing them from ever occurring. For the first time, researchers at Mount Sinai School of Medicine have shown the use of multi-detector computed tomography (CT) imaging along with a novel contrast agent that can detect dangerous, high-risk plaque which may cause heart attack and stroke.

VALVULAR HEART DISEASE

Repair of valves is now possible by a skilled cardiac surgeon. Such valves have an edge over artificial valves as they will not need any blood thinner and would hopefully last longer. A new technique called TAVI (Transcatheter Aortic Valve Implantation) has now crossed the research stage and is being used successfully on humans. In this technique a heart valve is implanted without putting the patient on a heart-lung machine or making any cut. This should be especially useful in old and high-risk patients.

For patients requiring conventional surgery, better quality valves are being developed. These need less or no anti-coagulation (blood thinners), are safe during pregnancy and last longer than before.

CORONARY ARTERY DISEASE

Bypass surgery has undergone a sea change with the advent of beating heart surgery. Patient mortality, morbidity, hospital stay and use of blood products have markedly got reduced.

Another new technology that has been developed is Minimally Invasive Cardiac Surgery (MICS). Here special instruments and cameras are used to do almost any kind of open-heart surgery, including valve and congenital heart surgery (in children) through a tiny incision.

NEWER CATHETER INTERVENTIONS

Here are some very interesting techniques:

- 1 Intentionally scarring a part of the heart to stop a rhythm disturbance
- 1 Routing a tiny umbrella-shaped device to patch a hole in the heart
- 1 Cutting away excess calcium in arteries with a diamond-coated burr, a cutting instrument that rotates at 150,000 rpm (or about 15 times faster than a race car engine)
- 1 Opening tough blockages using a cutting balloon with sharp blades
- 1 Removing a blood clot within the heart arteries, using a suction catheter or a special jet catheter

1 Using a catheter with an ultrasound probe (IVUS or intra-vascular ultrasound) at its tip to look at the inside of the heart arteries. This is done after an angiogram or a heart catheterisation study. It is done when we do not get a good enough picture of the calcium or plaque, and how bad the narrowing is. This gives us a circumferential view of the inside of the artery, like going through a tunnel.

1 ICE or intra-cardiac echo to look at the chambers of the heart from inside

1 Bio-degradable stents which will disappear after doing their job — reducing the incidence of restenosis

STEM CELL THERAPY

This is a novel approach and holds promise for patients with end-stage heart disease. The basis is the use of the stem cell from the patient's own body. This miracle cell has the potential to develop into a heart tissue to replace the dead muscle. This concept has come a long way from the bench to the operating room and carries a lot of hope for the patients who otherwise would have needed a heart transplant.

GENE THERAPY

The unlocking of the human genome has thrown open vast possibilities in the total eradication of disease from the root. Thus, it may be possible to actually repair the 'defective' gene responsible for the higher incidence of heart disease in Indians.

Home-monitoring system of pacemakers, ICDs

This technology helps in continuous and automatic monitoring of congestive heart failure patients in their homes, resulting in fewer re-admissions to the hospital and lower healthcare costs. The home monitoring system observes any fluctuations or inconsistencies in the signals being received by heart-monitoring devices like the pacemaker and implantable cardioverter defibrillator (ICD) and sends the signals to the patient's physician via email, SMS or fax. This system allows physicians to remotely monitor their patients' clinical and device status any time and from anywhere in the world.

Self-testing of blood coagulation profile

PT/INR self-testing kit allows patients to measure their blood's anti-coagulation levels — how long it takes their blood to 'clot' - at their places of residence.

BLOODLESS VASCULAR TRAUMA SURGERY

An interesting recent development has been the approval of a gel called LeGoo. This is a temperature-sensitive gel that is liquid at room temperature and solid at higher temperatures. When injected into a blood vessel, LeGoo forms a gel plug that molds to

the shape of the blood vessel and stops blood flow for up to 15 minutes. This can give vital time in emergency cases to control blood loss.

Use of mobile phones

The iPhone ECG is a device that turns the iPhone 4 into a heart monitor. Oklahoma physician David Albert invented a slim case that fits over the iPhone, featuring low-power electrodes. When pressed against the chest or fingers, it displays the electrical activity of a person's heart. The device can be used to detect heart blockage and unstable heartbeat, and can monitor heart rate at rest and during exercise. A simple, yet ingenious kit has recently been developed in Africa that turns a low-cost mobile phone — not a smartphone — into a sophisticated stethoscope.

All good gyms have treadmills which monitor the heart rate continuously just by holding on to the handle bars. Small belt -worn devices tell you how much you walked in a day and how many calories you burnt.

NANOTECHNOLOGY

This is indeed a revolutionary concept in medicine. Microscopic implantable drug delivery systems and slow release capsules are changing the way drugs are being given. Bio-feedback mechanisms attempt to mimic the human body's methods of keeping vital molecules — electrolytes, blood sugar etc — under tight control.

All these new technology-driven advances are patient-friendly and effective. They reduce mortality, morbidity and hospital stay. A better quality of life for the patient is the final aim. A word of caution: One should never forget the need for good history taking and a proper physical examination of the patient.

The writer, Head of Cardio-Vascular, Endovascular & Thoracic Surgery at Christian Medical College & Hospital, Ludhiana, and was earlier at the St Vincents Hospital, Sydney.

Heart Attack

How Heart Attack Can Lead to Heart Rupture (Science Science daily: 21.11.2011)

For people who initially survive a heart attack, a significant cause of death in the next few days is cardiac rupture -- literally, bursting of the heart wall.

A new study by University of Iowa researchers pinpoints a single protein as the key player in the biochemical cascade that leads to cardiac rupture. The findings, published Nov. 13 as an Advance Online Publication (AOP) of the journal *Nature Medicine*, suggest that blocking the action of this protein, known as CaM kinase, may help prevent cardiac rupture and reduce the risk of death.

After a heart attack, the body produces a range of chemicals that trigger biological processes involved in healing and repair. Unfortunately, many of these chemical signals can become "too much of a good thing" and end up causing further damage often leading to heart failure and sudden death.

"Two of the medicines that are most effective for heart failure are beta-blockers, which block the action of adrenaline, and drugs that block the angiotensin receptor," explains Mark E. Anderson, M.D., Ph.D., UI professor and head of internal medicine and senior study author. "The third tier of therapy is medication that blocks the action of aldosterone."

Aldosterone levels increase in patients following a heart attack, and higher levels of the hormone are clearly associated with greater risk of death in the days immediately following a heart attack.

Increased aldosterone levels also are associated with a burst of oxidation in heart muscle, and in 2008, Anderson's team showed that oxidation activates CaM kinase. Anderson's research has also shown that CaM kinase is a lynchpin in the beta-blocker and angiotensin pathways.

"We wondered if aldosterone might somehow work through CaM kinase and, if it did, could some of the benefits of aldosterone blockers be attributed to effects on CaM kinase?" Anderson says.

Anderson's team, including co-first authors Julie He, a student in the UI Medical Scientist Training Program; Mei-Ling Joiner, Ph.D.; Madhu Singh, Ph.D.; Elizabeth Luczak, Ph.D.; and Paari Swaminathan, M.D., devised a series of experiments in mice to investigate how elevated levels of aldosterone damage heart muscle after a heart attack and how Cam kinase is involved.

The experiments confirmed that aldosterone increases the amount of oxidized, and therefore, activated CaM kinase in heart muscle. Mice given excess aldosterone, mimicking levels seen in human patients, were twice as likely to die after a heart attack as mice that were not given extra aldosterone (70 percent vs. 35 percent), and the cause of death was heart rupture.

Importantly, any treatment that reduced the amount of oxidized CaM kinase or otherwise inhibited CaM kinase activity lowered the risk of cardiac rupture and death in the mice.

Interestingly, the researchers found that activated CaM kinase prompted heart muscle cells to produce an enzyme called MMP9 that is implicated in heart rupture.

"Although there are many sources of this enzyme, our study showed that heart muscle itself is actually making this protein too and is acting against its own self-interest in doing so," Anderson says. "We don't know why it happens, but inhibiting CaM kinase can prevent it."

The MMP9 enzyme is involved in remodeling the "matrix" that surrounds heart cells. This matrix, which acts like mortar between cells, is constantly being broken down and rebuilt. In hearts that rupture after heart attack this remodeling process becomes excessive, weakening the matrix to the point that it ruptures.

Because matrix remodeling plays a role in other diseases, including cancer, Anderson notes that the CaM kinase findings may have clinical implications beyond heart disease.

Overall, the UI study suggests that blocking the biochemical processes triggered by aldosterone might help prevent cardiac rupture following a heart attack.

Anderson notes that a multi-center study currently underway in France is poised to determine if patients would benefit from getting aldosterone blockers right away rather than waiting several weeks.

"We think our study provides experimental evidence for why that should work," he says.

"We have now identified CaM kinase as a critical component for the disease effects of the three core therapeutic pathways in heart, and we are closer to understanding fundamental elements of these signaling pathways," Anderson says. "The findings enhance excitement that CaM kinase might be an important therapeutic target in heart disease, and developing Cam kinase inhibitors is a major goal for us so that we can move this from experimental findings to clinical testing."

The research was funded in part by grants from the National Institutes of Health, the American Heart Association, UI Research Foundation and the Fondation Leducq Award to the Alliance for Calmodulin Kinase Signaling in Heart Disease.

The interdisciplinary research team included scientists from four departments in the UI Carver College of Medicine; the Iowa City Veterans Affairs Medical Center; Maastricht University in the Netherlands; University of Leuven in Belgium; and Ohio State University.

Heart disease

Today's teens likely to die younger of heart disease (World Newspapers: 21.11.2011)

A new study has revealed that teens of today are more likely to die of heart disease at a younger age than adults.

The Northwestern Medicine research took a complete snapshot of adolescent cardiovascular health in the United States.

“We are all born with ideal cardiovascular health, but right now we are looking at the loss of that health in youth. Their future is bleak,” said Donald Lloyd-Jones, M.D., chair and associate professor of preventive medicine at Northwestern University Feinberg School of Medicine and senior investigator of the study.

The effect of this worsening teen health is already being seen in young adults. For the first time, there is an increase in cardiovascular mortality rates in younger adults ages 35 to 44, particularly in women, noted Lloyd-Jones.

The alarming health profiles of 5,547 children and adolescents, ages 12 to 19, reveal many have high blood sugar levels, are obese or overweight, have a lousy diet, don't get enough physical activity and even smoke, according to study reports.

“What was most alarming about the findings of this study is that zero children or adolescents surveyed met the criteria for ideal cardiovascular health,” said lead study author Christina Shay.

“These data indicate ideal cardiovascular health is being lost as early as, if not earlier than the teenage years,” she added.

The study was presented at the American Heart Association Scientific Sessions in Orlando.

Strokes

A safe treatment for strokes (The Times: 25.11.2011)

Cardiologist Atul Mathur outlines safe treatment options for advanced carotid artery disease. In the initial stages, it can be managed with lifestyle changes and medication

Carotid arteries in the neck supply most of the blood to the brain. These arteries can be affected by atherosclerosis that leads to progressive narrowing (stenosis) and, in some cases, complete blockage (occlusion). In occlusion, attempting to reopen the blocked artery isn't beneficial, so treatment focuses on the arteries that are only partially blocked.

Atherosclerosis of the carotid arteries develops when fatty deposits or plaque clogs them. The build-up blocks the blood supply to the brain and increases risk of stroke.

In its early stages, carotid artery disease has no symptoms. As it progresses, it deprives the brain of blood and leads to a transient ischemic attack (TIA). The symptoms of TIA include sudden numbness or weakness on the face, arm or leg, typically on one side of the body; slurred, garbled speech or difficulty understanding others; or sudden blindness in one eye. Although a TIA produces symptoms similar to stroke, it usually lasts a few minutes and causes no permanent damage, but is a warning of an impending stroke.

Lifestyle changes:

In moderate cases, carotid artery disease improves with quitting smoking, losing weight, eating healthy food and exercising regularly with medication. But in severe cases, where the carotid artery is blocked 70 per cent, the blockage must be removed and the artery opened. Carotid artery stenting is a safe, effective option. A tiny balloon is threaded by catheter to the area where the artery is clogged. The balloon is inflated to widen the artery and a small wire-mesh stent inserted to keep the artery from narrowing again. It's low risk in most healthy people, and prevents strokes.

Circle of Willis:

But if a carotid artery is completely blocked, risk of stenting usually outweighs the benefit. Fortunately, the brain can use alternative routes to supply blood to the area of the brain affected by the blocked artery. A network of blood vessels at the base of the brain, called the circle of Willis, can supply the necessary blood flow.

Many people function normally with one completely blocked carotid artery, provided they haven't had a disabling stroke.

Heart Disease

Critical Window for Heart Attack Transfer Patients is missed by Most Hospitals, Says Study (MedIndia: 30 Nov. 2011)

Yale School of medicine researchers report that most heart attack patients transferred between hospitals for the emergency artery-opening procedure called angioplasty are not transported as quickly as they should be. This is the first national study of "door-in door-out" time for transfer patients.

Fewer than 10 percent of heart attack patients transferred from their initial hospital to one offering the life-saving procedure are transferred within the recommended 30 minutes, according to the researchers, who published their findings in the November 28 issue of Archives of Internal Medicine.

For ST-segment elevation myocardial infarction (STEMI) patients, quick response is critical because this type of heart attack is caused by a complete blockage of blood supply to the heart. Angioplasty should be performed as quickly as possible, but many smaller hospitals do not have the staff or facilities to perform the procedure around the clock. Experts agree that the hospitals should send those patients on to a hospital that offers the procedure. The guidelines recommend that the time from arrival at the first hospital until the patient leaves should be no more than 30 minutes.

"This represents a large and avoidable increase in risk of death for these patients," said lead author Jeph Herrin, assistant adjunct professor of cardiology at Yale School of Medicine. "Numerous studies have shown that even a few minutes delay in receiving angioplasty increases the risk of death for STEMI patients. Among this group are thousands of patients that are delayed more than an hour from what is recommended."

Herrin and co-authors analyzed nationwide data collected by the Centers for Medicare & Medicaid Services on all heart attack patients with STEMI who were transferred explicitly for angioplasty during 2009. This included patients who were not covered by Medicare, though patients were not included if the hospital did not transfer at least five patients.

In 2009, nearly 14,000 heart attack patients were transferred from smaller hospitals to hospitals that offer angioplasty, but fewer than 10 percent of them were sent onto the second hospital within the recommended time. Nearly one third of the heart attack patients were sent more than 90 minutes after arriving at the emergency room.

"We have made such great strides in reducing the time to treatment for those patients who are admitted to hospitals with angioplasty facilities; our next big challenge is to be sure that we reduce delays for patients who are transferred," said senior author Harlan Krumholz, M.D., the Harold H. Hines Jr. Professor of Medicine (Cardiology) at Yale School of Medicine.

Heart attack

What to do in case of heart attack (The Times of India 9.12.2011)

Acidity, muscle pain and spondylitis can cause chest pain, but if it is severe and is accompanied by vomiting and sweating, it could be a heart attack, says physician Geeta Sundar

Pain in the chest region could be due to acidity, muscle pain, bone-cage pain, a tear in a major blood vessel or a sudden block in a vessel in the lungs or spondylitis. If there is pain on pressing the chest, it is more likely to be a muscular or bone pain, and if it is behind the breast bone and burning in nature, it could be hyperacidity.

The first thing to do is to give antacids that act fast. If pain persists, give a painkiller. Cardiac pain is normally very severe and is accompanied by sweating and vomiting and can radiate to the left upper limb, upper abdomen or even lower part of the face. If antacids and painkillers don't work, call an ambulance and rush the patient to hospital. Don't call your doctor home as there's little he can do on his own.

While waiting for the ambulance, give an aspirin (300 mg) if he is conscious. If you can't feel the pulse in the neck, give a firm thump to the middle of the chest with closed fists and start cardiopulmonary resuscitation (CPR) till help arrives. Ensure that the airways are clear of dentures and foreign objects. If the patient can be moved, shift him from the bed to the floor.

Cardiac massage:

- Place palm on lower part of breast bone
- Place heel of the other hand on the first bone
- Keep both the hands straight, and press downwards about 3-5cm and release abruptly
- Continue this about 60 times a minute

Mouth-to-mouth breathing:

Following every fifth chest compression, the operator should place his mouth on that of the patient after taking a deep and full breath. Keeping the patient's nostrils pinched, he should breathe in fully into the latter's mouth.

Cardiac massage and mouth-to-mouth breathing can be done by two persons for better results.

When alone:

If you have a heart attack when alone, don't panic. Take an aspirin. Take a deep breath and follow it by a deep cough (as if you are clearing phlegm from the chest). Repeat deep breathing followed by coughing every two seconds till help arrives.

Heart diseases

Heart diseases set to fall in India: Doctor (New Kerala: 26.12.2011)

There is good news on the health front. A leading cardiologist says incidents of heart disease in India are set to plateau in seven to eight years and then fall due to greater awareness about a healthy lifestyle and more effective drugs.

"People are cutting down on salt intake, a development that is sure to bring down now rampant cases of high blood pressure," Vinay Sanghi, who is from the Fortis Escorts Hospital, told IANS.

"More patient friendly medication with few side effects is also now available," he said. "People also understand the necessity of exercising every day.

"All these three factors should cut down the number of those who face the risk of heart ailment," said Sanghi, who returned to India after serving in the US from 1995 to 2010.

Heart disease is considered a sign of prosperity, mostly accruing to those who lead a sedentary lifestyle, devoid of even giving minimal exercise to their body.

Heart diseases have now become the number one killer in India, replacing communicable diseases from that slot. A quarter of those who get heart attacks are in the 25-69 age group.

Increasingly, heart ailments are killing Indians both in urban and rural areas, although the fatalities are more in cities and towns.

"The cycle of heart disease has started. The number should plateau in seven to eight years, from which point it will start to decline. All of us will see a definite change in a decade," Sanghi said.

For now, the number of heart diseases was "rising alarmingly". The total number of cases was more than in the developed world, he said.

"Heart diseases occur mostly in Tier I and II cities. New cases are very high -- for now.

"The good news is people are realising the need to maintain healthy lifestyle, keep away from salty snacks and fast food, go for more physical activity, and take a morning walk. There is increasing awareness.

"More than anything else, it is this self-realization that will help India in the long run."
(IANS)

Human Heart

It will be Possible to Heal a Broken Human Heart (26.12.2011)

A way for the human heart to repair itself that may pave the way towards new therapeutic approaches for cardiac regeneration and repair.

To search for new molecules involved in heart development, Tao P. Zhong and his colleagues from Fudan University in Shanghai, China, developed a robust small molecule screen using a zebrafish system.

The zebrafish is an excellent model organism to study heart growth and development because there are established genetic approaches that permit visualization of fluorescent beating hearts within transparent embryos.

After screening nearly 4,000 compounds, the researchers discovered three structurally related molecules that could selectively enlarge the size of the embryonic heart. The compounds, cardionogen-1, -2, and -3, could promote or inhibit heart formation, depending on when they were administered during development.

Cardionogen treatment enlarged the zebrafish heart by stimulating production of new cardiac muscle cells from stem cells.

They went on to show that cardionogen could stimulate mouse embryonic stem cells to differentiation into beating cardiac muscle cells. The effects of cardionogen were linked to Wnt signaling, a pathway best known for its role in embryonic and heart development.

Cardionogen opposes Wnt signaling to induce cardiac muscle cell formation. Importantly, the interaction of cardionogen with Wnt seemed to be restricted to specific cell types.

Taken together, the results identify the cardionogen family members as important modulators of cardiac muscle cell development.

"Evaluating the potential of cardionogen on human adult and embryonic stem cells is the next logical step," Zhong, senior author of the study, said.

"This may ultimately aid in design of therapeutic approaches to enhance repopulation of damaged heart muscle and restore function in diseased hearts," he added.

The study has been published in the journal Chemistry and Biology.

Heart diseases

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High BP

High BP

Ways to reduce high BP (The Times of India: 10.10.2011)

Physician R S K Sinha says hypertension is a silent killer. He lists tips for exercise and diet that will help you naturally lower your blood pressure

High blood pressure kills silently as it presents no symptoms. It is only after an organ is irritated or damaged that the consequences of high BP are realized. A blood pressure reading of 120/80mm of Hg is considered normal. High BP is a risk factor for diseases of the heart, stroke, kidney and blindness. Hypertension requires lifelong attention and control. Diet, exercise, quitting smoking and medication are prescribed.

Exercise:

Aim for 30 minutes most days of the week. Housework, gardening, washing windows, using stairs, etc benefit the heart. Swimming for 30 minutes lowers your pulse rate and BP. Resistance exercise training helps reduce body fat, increases muscle mass, and boosts your metabolic rate. Losing even 4kg can reduce or help prevent high BP. Moderate aerobic activity such as brisk walking 30 minutes a day may be enough to keep you off medication or make medicines more effective. Exercise can reduce your BP reading by as much as 5-15mm. Work out before or after work, or during your lunch break. If not exercising outdoors, get a stationary bike or treadmill. Or fit in 10-minute mini workouts thrice a day. Jog in place or actively vacuum your house for 10 minutes.

Warm up, cool down:

Do stretching exercises for warming up and cooling down before and after exercise. These let your heart rate increase and decrease gradually and benefit people with high BP. If you feel dizzy or have discomfort in your chest, arms, or throat while exercising, stop. Go slow or exercise indoors on hot and humid days or on excessively cold days. Switch to the DASH (Dietary Approaches to Stop Hypertension) diet, rich in fruits, vegetables, and low-fat dairy products and low in saturated fat, cholesterol, and total fat. This can reduce systolic BP by 8-14mm. Limit salt to one teaspoon a day. With a sodium-restricted diet, your BP drops 2 to 8mm.

Alcohol intake:

Restrict to no more than two drinks per day for men and no more than one drink per day for women. A drink is 350ml beer, 150ml wine, or 45ml of 80-proof liquor.

High BP?

‘Restless legs’ sign of high BP? (The Times of India: 12.10.2011)

Middle-aged women with restless legs syndrome (RLS) are at greater risk of developing high blood pressure (BP), a new study has found. The new research found that women who reported five to 14 incidences of RLS in a month had a 26% prevalence of high BP. And those with more than 15 incidences of RLS had a 33% prevalence of high blood pressure.

NOAH’S ARK: Cosmo Power president Shoji Tanaka shows in Tokya a personal flotation device called ‘Noah’, which could survive both an earthquake and the tsunami that might follow. It is designed to travel on top of water, not under it

High BP

Mums-to-be with history of high BP at depression risk (New Kerala: 21.11.2011)

Women who have a history of high blood pressure before getting pregnant are more likely to experience depression than women who develop pregnancy-related hypertension, according to a new study.

"Depression during pregnancy is associated with postpartum depression, problems bonding with the baby, and overall, has a large and detrimental impact on both mom and baby," said lead author Wayne Katon, M.D., of the Department of Psychiatry and Behavioural Sciences at the University of Washington.

The study looked at 2,398 women receiving prenatal care at an obstetrics clinic in Seattle, Washington, evaluating them for depressive symptoms and evidence of pre-existing hypertension or pregnancy-induced hypertension.

Previous research had suggested there might be a link between depression and pregnancy-induced hypertension and preeclampsia. However, Katon's research found no link.

Instead, they found that women with hypertension before pregnancy, with or without developing preeclampsia, were 55 to 65 percent more likely to meet the criteria for significant depressive symptoms or to be taking antidepressants.

Many women who have high blood pressure prior to pregnancy also have other risk factors, including health conditions such as diabetes and obesity, noted Katon.

"Depression can make adherence to interventions, such as diet, exercise and medication, for these conditions low, further putting the mother's health at risk," he stated.

The study appeared in General Health Psychiatry.

High Blood Pressure

Non-Invasive Test Spots Most Common Curable Cause Of High Blood Pressure (Medical News Today: 30 Nov. 2011)

A simple non-invasive scan may be able to spot a common curable cause of high blood pressure just as well as the current method, which relies on a difficult and invasive blood test. Researchers from the University of Cambridge in the UK write about how they showed PET-CT scans may be an effective, non-invasive way to diagnose Conn's syndrome in the 23 November online issue of the Journal of Clinical Endocrinology & Metabolism.

Conn's syndrome is a disease of the adrenal glands (located just above the kidneys) that is characterized by small benign tumors or adenomas that pump out excessive amounts of aldosterone, a hormone that raises blood pressure, which in turn raises the risk of heart attack.

The disease, which is also known as hyperaldosteronism, can be treated either by surgically removing the adenomas or with drugs that counter the effect of raised aldosterone.

Currently, the "gold standard" way to diagnose the syndrome is through a technically difficult and invasive procedure that samples the blood from a vein located near the adrenal glands.

Now, with this latest study, the University of Cambridge researchers have demonstrated a new non-invasive scan that could one day be an effective alternative to adrenal vein

sampling (AVS). An important part of the study was identifying a radiotracer that accumulates in Conn's adenomas and nowhere else.

A radiotracer is a radioactive compound that is safe to inject into patients and shows up clearly on a scan. In this case, the positron emission tomography (PET) radiotracer the researchers identified is ^{11}C -metomidate, which they describe as "a potent inhibitor of adrenal steroidogenic enzymes".

For the study, the researchers recruited 39 patients with primary hyperaldosteronism (PHA) and 5 with nonfunctioning adenomas (often called "incidentalomas").

They found that the 45-minute PET-CT scan accurately identified PHA adenomas in 76% of the participants, and overall, 80% of participants who had the scan were either accurately found to have adenomas or had them accurately ruled out.

The researchers concluded that: " ^{11}C -metomidate PET-CT is a sensitive and specific noninvasive alternative to AVS in the management of PHA."

About 5% of people with high blood pressure are thought to have Conn's syndrome. In the UK this means around 600,000 people may have the condition.

The leader of the study was Dr Morris Brown, a professor of clinical pharmacology at the University of Cambridge.

He said they were excited to see their technique work so well. The scan avoids delays and discomforts associated with the AVS test.

"In the future, PET-CT could be a quick way to reassure a lot of patients without the need for detailed investigations," he told the media.

Brown also works at Addenbrookes Hospital in Cambridge. According to a report by BBC News, he said he and his colleagues were already using PET-CT on their patients. However, they are also planning to do a much larger study to establish which patients are most likely to benefit the most from the procedure.

For example, it could be ideal for older patients. Brown said routine CT scans can often reveal adrenal growths, and they often turn out not to be Conn's adenomas. But because of the current diagnostic method, it is not easy to rule them out and in the meantime patients and their doctors can become unnecessarily anxious.

Leprosy

Leprosy challenge

Low on count yet high on share, India faces leprosy challenge (The Indian Express: 9.11.2011)

India goes into the next phase of the National Leprosy Elimination Programme with two apparently conflicting records. By 2005, it had met the target of under 10 cases per 100,000 population and was identified as having “eliminated” leprosy. Yet, with months to go for the launch of the NLEP’s new phase under the 12th Five Year Plan, WHO’s India office has pointed out that India last year reported more than half the new cases worldwide — over 1.26 lakh out of 2.28 lakh.

Medical researchers, however, say this is a sign of better vigilance. “Socioeconomic actors like poverty, overcrowding in India contributed to the high detection rate earlier. In the last two years, under the NLEP, the government identified certain endemic pockets in some states, where leprosy still persists, and scaled up surveillance efforts there,” says Dr V M Katoch, director general of the ICMR, who has worked extensively on leprosy research for the last two years. “Thus, improved vigilance is the main contributing factor to the apparent rise in new case detection.”

Health Ministry sources feel the international standard for leprosy elimination is not suited to the size of the Indian population, and say the programme has been going on with reduced funds. “After we achieved this globally accepted target, international funds were withdrawn since 2005,” a source said. “The budget for NLEP was close to Rs 250 crore till 2005, while the allocation is only Rs 44 crore in 2011-2012.”

“The problem in India lies in the sheer numbers,” says Yohei Sasaki, the WHO goodwill ambassador for leprosy. “Less than 1 per 10,000 still translates into more than half the total new cases detected in the world — and that cannot be ignored. The social aspects, the disability, all these problems need to be countered still.”

The target is now to eradicate the disease. “We have come a long way in the programme since its launch in 1983, with private partners and then as a 100 per cent Central scheme since 2005,” Dr Katoch says. “From leprosy elimination, we want to ensure leprosy eradication in India, that is zero incidence.”

One challenge lies in 14 states where the number of new cases has increased since 2009-10. In 209 districts short of the target, the focus is on early detection before the onset of disabilities, adequate availability of prescribed drugs, and regular follow-ups.

“NLEP officials meet here (in Maharashtra) in May and in Delhi in August, where programme managers from high-risk districts were invited. There is a general consensus to follow a more focused effort now in the endemic areas,” says Dr P Y Gaikwad, joint director for Maharashtra’s leprosy programme.

As per the planning document for the 12th Plan’s NLEP, the Health Ministry plans to take up with other ministries the issue of amending or repealing laws framed when leprosy was considered incurable.

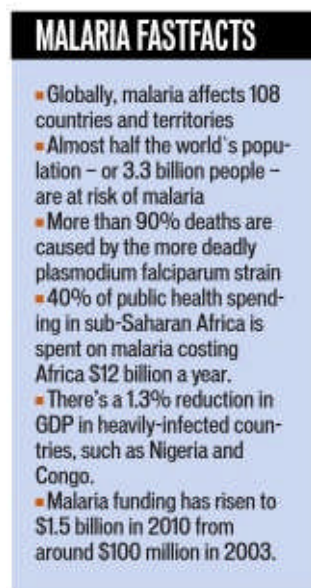
The Hindu Marriage Act, the Dissolution of Muslim Marriage Act and the India Divorce Act, for example, validate the right to seek divorce on grounds of a partner suffering from “incurable” leprosy, though leprosy is now curable. The Indian Railways Act validates refusal of a seat to patients suffering from virulent diseases, including leprosy. The Life Insurance Corporation Act also puts a higher premium on those with leprosy, and experts say this spreads a fear of leprosy. Again the Motor Vehicles Act identifies leprosy patients as ineligible for seeking a licence.

The programme emphasises early detection of leprosy before the onset of disability. An incentive of Rs 5,000 is already being provided to leprosy-affected persons from BPL families who have been disabled, so that they can undergo major reconstructive surgeries in government institutions.

Malaria

Malaria Fast facts

Malarial deaths see a global drop (Hindustan Times: 19.10.2011)



MALARIA FASTFACTS

- Globally, malaria affects 108 countries and territories
- Almost half the world's population – or 3.3 billion people – are at risk of malaria
- More than 90% deaths are caused by the more deadly plasmodium falciparum strain
- 40% of public health spending in sub-Saharan Africa is spent on malaria costing Africa \$12 billion a year.
- There's a 1.3% reduction in GDP in heavily-infected countries, such as Nigeria and Congo.
- Malaria funding has risen to \$1.5 billion in 2010 from around \$100 million in 2003.

IN INDIA MALARIAL DEATHS STAGNATED AT AROUND 1,100 SINCE 2006, CONFIRMED CASES FELL 23%

Malaria deaths haven't fallen by 20% worldwide over the past decade, says the World Health Organisation (WHO)'s World Malaria Report 2010.

Worldwide, the parasitic infection made 225 million sick and killed 7,81,000 people in 2009, compared to the 233 million cases and 985,000 deaths in 2000. Of these, 85% deaths occurred in sub-Saharan Africa.

Globally, malaria affects 108 countries, infecting one in 10 people in tropical countries in South Asia, south-east Asia, central America, south Pacific islands, and most parts of Africa.

In India, annual malarial deaths have stagnated at around 1,100 -it was 1,133 in 2009 - since 2006, the year when deaths peaked to the highest recorded ever 1,708. Confirmed cases in India, however, fell 23% from 2,031,790 in 2000 to 1,563,344 in 2009.

Orissa, Madhya Pradesh, Chattisgarh, Jharkhand, West Bengal, North-eastern states account for 66% of the country's confirmed cases. Symptoms include fever, headache, vomiting and chills.

If untreated, malaria kills by disrupting blood supply to the vital organs.

In April this year, the Union Cabinet gave its nod to the Ministry of Health's five-year Rs 417.22-crore (\$ 87.88 million) Intensified Malaria Control Project-II for seven north-eastern states (except Sikkim) with support from Global Fund for AIDS, TB and Malaria.

The project will fund early detection of the more deadly *P. falciparum* strain through rapid diagnostic tests, treatment using the more effective artemisinin-based combination therapy, and distribution of long-lasting insecticidal nets.

Globally, only three countries -Rwanda, Sao Tome and Principe, and Zambia -reported an increase in the number of cases.

GM mosquitoes

GM mosquitoes can kill offspring (The Asian Age: 1.11.2011)

These mosquitoes are genetically engineered to kill — their own children.

Researchers on Sunday reported initial signs of success from the first release into the environment of mosquitoes engineered to pass a lethal gene to their offspring, killing them before they reach adulthood. The results, and other work elsewhere, could herald an age in which genetically modified insects will be used to help control agricultural pests and insect-borne diseases like dengue fever and malaria.

But the research is arousing concern about possible unintended effects on public health and the environment, because once genetically modified insects are released, they cannot be recalled.

Authorities in the Florida Keys, which in 2009 experienced its first cases of dengue fever in decades, hope to conduct an open-air test of the modified mosquitoes as early as December,

pending approval from the agriculture department.

“It’s a more ecologically friendly way to control mosquitoes than spraying insecticides,” said Coleen Fitzsimmons, a spokeswoman for the Florida Keys Mosquito Control District.

The agriculture department, meanwhile, is looking at using genetic engineering to help control farm pests like the Mediterranean fruit fly, or medfly, and the cottonmunching pink bollworm, according to an environmental impact statement it published in 2008.

Millions of genetically engineered bollworms have been released over cotton fields in Yuma county, Arizona.

Malaria

Protection from Severe Malaria Explained (Science Science daily: 21.11.2011)

Why do people with a hereditary mutation of the red blood pigment hemoglobin (as is the case with sickle-cell anemia prevalent in Africa) not contract severe malaria? Scientists in the group headed by Prof. Michael Lanzer of the Department of Infectious Diseases at Heidelberg University Hospital have now solved this mystery.

A degradation product of the altered hemoglobin provides protection from severe malaria. Within the red blood cells infected by the malaria parasite, it blocks the establishment of a trafficking system used by the parasite's special adhesive proteins -- adhesins -- to access the exterior of the blood cells. As a result, the infected blood cells do not adhere to the vessel walls, as is usually the case for this type of malaria. This means that no dangerous circulatory disorders or neurological complications occur.

The research study has been published in the journal Science, appearing initially online.

In the 1940s, researchers already discovered that sickle-cell anemia with its characteristic blood mutation was particularly prevalent in certain population groups in Africa. They also survived malaria tropica, whose course is usually especially virulent. With malaria tropica, the malaria parasites (Plasmodia) enter the person after a bite of an infected Anopheles mosquito. The mosquito first multiplies in the person's liver cells and then infects the red blood cells (erythrocytes). Once inside the erythrocytes, they divide again

and ultimately destroy them. The nearly simultaneous bursting of all infected blood cells causes the characteristic symptoms, which include bouts of fever and anemia.

Adhesins on red blood cells cause circulatory disorders

In patients with malaria tropica, neurological complications such as paralysis, seizures, coma and severe brain damage also frequently occur. This is caused by an anomaly of the parasite *Plasmodium falciparum*. It forms special adhesins that reach the cell surface of the infected blood cell. Once there, it causes the erythrocytes to adhere to the vessel walls, preventing them from being recognized in the spleen as damaged and removed from circulation. The parasite's protective mechanism results in smaller vessels closing, becoming inflamed and for example, prevents parts of the nervous system from being adequately supplied with oxygen.

In humans with mutated hemoglobin, these complications occur in a weakened form or not at all. "At the cell surface of infected erythrocytes with mutated hemoglobin, there are significantly fewer adhesins of the parasite than in normal red blood cells," explained Prof. Lanzer, Director of the Dept. of Infectious Diseases, Parasitology. "For this reason, we had a closer look at the trafficking system within the host cell." To this end, the team compared the blood cells with normal hemoglobin and two hemoglobin variants (hemoglobin S and hemoglobin C), which occur in around one-fifth of the African population in malaria-infected areas.

Trafficking system of the malaria parasite visualized for the first time

In so doing, the scientists used high-resolution microscopy techniques such as cryoelectron tomography to discover a new transport mechanism. The parasite uses a certain protein (actin) from the cytoskeleton (cellular skeleton) of the erythrocytes for its own trafficking network. "It forms a completely new structure that has nothing in common with the rest of the cytoskeleton," explained Dr. Marek Cyrklaff, group leader at the Dept. of Infectious Diseases, Parasitology and first author of the article. "The vesicles with the adhesins reach the cell surface of the red blood cells directly via these actin filaments."

In contrast to erythrocytes with the two hemoglobin variants, here only short pieces of actin filaments are found. Targeted transport to the surface is not possible. "The entire transport system of the malaria parasite is degenerated in these blood cells," Cyrklaff added. Laboratory tests showed that the hemoglobins themselves were not responsible for this, but rather a degradation product, ferryl hemoglobin. This is an irreversibly damaged, chemically altered hemoglobin that is no longer able to bind oxygen. The hemoglobins S and C are considerably more unstable than normal hemoglobin. As a result, blood cells with these variants contain ten times more ferryl hemoglobin than other erythrocytes. This high concentration destabilizes the binding of the actin structure and it disintegrates.

"With these results, we have now described a molecular mechanism for the first time that explains this hemoglobin variant's protective effect against malaria," Lanzer said.

Malaria

Fight against Malaria Breakthrough (Medical News Today: 30 Nov.2011)

Malaria currently infects over 225 million people globally, accounting for almost 800,000 deaths per year according to the World Health Organization. An international team of scientists has now achieved a breakthrough in the fight against malaria. The findings, published in the prestigious scientific journal *Nature Communications*, open the doors for the development of new drugs against the deadly disease.

Every 45 seconds a child dies of malaria in Africa, a country with the highest mortality rate amongst children, with malaria accounting for about 20% of all childhood deaths. The disease is caused by the malaria parasite *Plasmodium*, which is transmitted through bites of the female *Anopheles* mosquito.

In a study, funded by The Wellcome Trust, the European Commission, Inserm and EPFL, a collaboration of international researchers have discovered new ways in which the malarial parasite survives in the bloodstream of its victims.

The breakthrough has been achieved thanks to a collaboration between medical scientists at the University of Leicester in the UK and a team from the French Institut National de la Santé et de la Recherche Médicale (Inserm) working at the Wellcome Trust Centre for Molecular Parasitology in Glasgow and the Ecole Polytechnique Fédérale de Lausanne (EPFL, Switzerland), now relocating to Monash University in Melbourne (Australia).

Study leader Professor Andrew Tobin, of the Department of Cell Physiology and Pharmacology, at the University of Leicester and Professor Christian Doerig, now at Monash University declared:

"I am proud to be involved in a collaboration that has made such an impact on malaria research. Our study opens new avenues for researchers to look for new drugs that treat malaria.

We have shown that a crucial element that is required by malaria parasites to survive in the human blood stream is a group of enzymes called protein kinases. If we stop these proteins kinases from working then we kill the malaria parasites. We are now looking for drugs that do exactly that - stop the protein kinases from working. If we find these drugs then we will have a new way of killing the malaria parasite."

Professor Tobin declared: "It seems perfectly realistic to us that we can now develop novel anti-malaria drugs based on the findings that we have made - it certainly is a big moment in our fight against this terrible disease that mainly affects the world's poorest people."

However, Tobin and Doerig also issue a warning, explaining: "The parasite is very clever at adapting to drug treatments and in so doing becoming resistant to drugs. In fact, there is already evidence that the parasite is developing resistance to the most recent front line

treatment for malaria. To avoid the catastrophic effects of widespread resistance to anti-malarial treatments we need a continued pipeline of new anti-malaria drugs. Our discovery provides one avenue towards populating such a pipeline."

Malaria

Malaria increases risk of miscarriage (The Asian Age: 14.12.2011)

Malaria in early pregnancy significantly increases the risk of miscarriage, a recent study published in the Lancet has revealed.

Aimed to assess the outcome of malaria — exposed and malaria-unexposed first trimester pregnancies of women, the study was conducted on the women from the Thai-Burmese border

and the outcomes were compared after chloroquine based, quinine based and artemisinin based treatments.

The researchers analysed antenatal records of the women in first trimester of pregnancy from 1986 to October 2010. "Women without malaria in pregnancy were compared with those who had a single episode of malaria in the first trimester," said the

study led by Oxford University researchers at the Shoklo Malaria Research Unit in Thailand.

The outcomes for 16,668 women who did not contract malaria during pregnancy were compared with 945 women who had a single episode of malaria in the first trimester of their pregnancy.

The researchers found that malaria increased the risks of miscarriage from

one in five pregnancies (in women without malaria) to one in two pregnancies.

Where women were infected with malaria but had no noticeable symptoms (asymptomatic malaria), the risk of miscarriage was found to be one in three pregnancies.

Even as the Artemisinin-based combination therapy (ACT) is not recommended in the first trimester of pregnancy as the treatment

for all malaria caused by the *P. falciparum* species of malaria parasite.

The researchers found that after first-trimester malaria treatment, the likelihood of miscarriage was similar in women treated with chloroquine (26 per cent), quinine (27 per cent), and artemisinin (31 per cent).

And there were no differences between the treatments in other outcomes such as stillbirth.

Malaria

Malaria patients at high risk of fatal bacterial infections: Study (World Newspapers: 20.12.2011)

Scientists have for the first time revealed why malaria patients are at high risk of developing fatal bacterial infections, especially salmonella infections.

The finding opens the way to more effective treatments.

The vulnerability to salmonella infections is commonly believed to be due to generalised immunosuppression by malaria, whereby the entire immune system is weakened and compromised.

However, researchers at the London School of Hygiene and Tropical Medicine have discovered that the increased vulnerability to salmonella infections is a side effect of the body's attempts to protect itself from the damaging effects of the malaria infection.

The researchers describe this defence mechanism as a trade-off, where the body fights one enemy but exposes itself to the other. This was demonstrated in their study exploring the connection between malaria and non-typhoid salmonella (NTS)- an infection that is particularly dangerous for children.

“It is a widespread belief that malaria is an immunosuppressive disease; that once the disease is contracted, the patient will be susceptible to several other infections because of a compromised immune system,” said Professor Eleanor Riley, one of the lead authors of the study.

“However, this study shows that increased susceptibility to salmonella infections is due to a very specific immunological effect which does not affect the immune system as a whole,” Riley explained.

The Medical Research Council (MRC) funded study found that in malaria-infected mice (which show exactly the same susceptibility to salmonella as is seen in humans) the body's natural response to defend itself from the dangers of heme, an enzyme that degrades it (heme oxygenase-1 or HO-1), very selectively affects the immune system, crippling the production of white blood-cells (neutrophils) that are essential to fight NTS.

These crippled cells are unable to kill the bacteria, allowing them to spread freely.

The team identified Tin Protoporphyrin (SnPP) as a candidate for the prevention of salmonella infection. SnPP inhibits the activity of the heme oxygenase enzyme, reversing the susceptibility to salmonellosis in malaria infections.

But the authors say that careful testing will be needed before considering SnPP use in humans, as blocking the action of HO-1 may leave the heme free to cause tissue damage.

The Medical Research Council (MRC) funded study was published in Nature Medicine.

Parkinson's disease

Parkinson's disease

Parkinson's disease - New Finding (Med India: 10.10.2011)

by Sheela Philomena on October 10, 2011 at 10:47 AM Research News Tweet Print Email Share Comments Text Small amounts of diseased brain proteins can be taken by healthy neurons and propagated within them to cause neurodegeneration, says study. This finding sheds light on the mechanism associated with Parkinson's disease (PD) and provides a model for discovering early intervention therapeutics that can prevent or slow the devastating loss of neurons that underlies PD.

Alpha-synuclein (α -syn) is a brain protein that forms abnormal, neuron-damaging intracellular clumps called "Lewy bodies." These clumps are the hallmark lesions of PD and other neurodegenerative disorders known as α -synucleinopathies. Strikingly, even healthy fetal nerve cells transplanted into the brains of PD patients for therapeutic purposes can develop Lewy bodies, suggesting that α -syn pathology spreads through the nervous system. However, it is not clear whether these Lewy bodies are formed by the spread of abnormal α -syn between cells or if the neighboring diseased neurons exert a toxic influence that causes the normal grafted neurons to produce Lewy bodies.

"We examined whether exposure of neurons to α -syn fibrils recruited normal α -syn in these neurons to form Lewy bodies," explains senior author, Dr. Virginia M.-Y. Lee, from the Perelman School of Medicine at the University of Pennsylvania. "We performed our experiments using synthetic α -syn fibrils and normal neurons, similar to the physiological conditions seen in the majority of sporadic PD patients."

Dr. Lee and colleagues found that the α -syn fibrils were taken up by the neurons and acted as "seeds" that induced normal α -syn to aggregate into PD-like Lewy bodies. The fibrils were taken up by a nerve cell process and then spread to the cell body where the PD-like Lewy bodies formed and impaired neuronal function, ultimately leading to death of the neuron. This suggests that abnormal extracellular α -syn can amplify and propagate PD-like Lewy bodies throughout the nervous system.

Parkinson's disease

Neurons to Die in Parkinson's disease Caused by Genetic Mutations (Med India: 14.11.2011)

Genetic mutations ruined mitochondria, the energy-producing organelles inside cells, inducing neurons in the brain's substantia nigra to perish or get impaired in Parkinson's disease, new study shows. The study from Children's Hospital Boston found that genetic mutations causing a hereditary form of Parkinson's disease cause mitochondria to run amok inside the cell, leaving the cell without a brake to stop them.

Mitochondrial movement is often a good thing, especially in neurons, which need to get mitochondria to cells' periphery in order to fuel the axons and dendrites that send and receive signals.

However, arresting this movement is equally important since it allows mitochondria to be quarantined and destroyed when they go bad, said senior investigator Thomas Schwarz, PhD, of Children's F.M. Kirby Neurobiology Centre.

"Mitochondria, when damaged, produce reactive oxygen species that are highly destructive, and can fuse with healthy mitochondria and contaminate them, too. It's the equivalent of an environmental disaster in the cell," Schwarz explained.

Studying neurons from fruit flies, rats and mice, as well as cultured human cells, Schwarz and colleagues provided the most detailed understanding to date of the effects of the gene mutations, which encode the proteins Parkin and PINK1. They demonstrated how these proteins interact with proteins responsible for mitochondrial movement—in particular Miro, which literally hitches a molecular motor onto the organelle.

Normally, when mitochondria go bad, PINK1 tags Miro to be destroyed by Parkin and enzymes in the cell, the researchers showed.

When Miro is destroyed, the motor detaches from the mitochondrion. The organelle, unable to move, can then be disposed of: The cell literally digests it.

But when either PINK1 or Parkin is mutated, this containment system fails, leaving the damaged mitochondria free to move about the cell, spewing toxic compounds and fusing to otherwise healthy mitochondria and introducing damaged components.

Parkinson's

New hope for Parkinson's patients (New Kerala: 22.11.2011)

A multi-speciality hospital in the city successfully treated a 59 year-old man, who was suffering from Parkinson's disease for 15 years through the latest procedure of providing a pacemaker to stimulate the brain, recently.

Addressing a press conference here today, Kovai Medical Centre Hospital (KMCH) neurologist Dr Arul Selvan said he was approached by the patient M Sundaram (59) for the treatment of the disease, from Dindigul in Tamil Nadu. He was suffering from the Shaking Palsy disease for the last 15 years.

He said the patient was put through a 14-hour surgery involving deep brain stimulation procedure in which an electrode was placed in the Sub Thalamic Nucleus (STN), adjacent to the thalamus.

The electrode sends continuous electronic pulses through a battery which is attached to the chest wall. It can be controlled externally with a remote control device.

The complex surgery was successfully done for the first time. The surgery was done with local anaesthesia. The patient walked without any shake in his body. He was also able to write with his hand, just two days after the surgery.

Answering a question, the neurologist said the electrode was imported from United States. It can work for more than 15 years, after which the battery must be changed.

To a question, he said more than one-and-a-half crore people are afflicted with this disease. The new procedure will help the patients to recover. The cost of the imported electrode with battery was Rs 5.5 lakh. The price may come down in future, he noted.

Parkinson's disease

Blood Test Detects Parkinson's Long Before Symptoms (Medical News Today: 1.12. 2011)

A study led by the School of Health and Medicine at the University of Lancaster in the UK suggests it may be possible to detect Parkinson's disease in the early stages, long before external symptoms emerge, with a simple blood test that looks for a marker called phosphorylated alpha-synuclein. A report on the study appears in the December issue of the FASEB Journal.

Lead investigator Dr David Allsop, told the press:

"A blood test for Parkinson's disease would mean you could find out if a person was in danger of getting the disease, before the symptoms started."

Allsop and colleagues first showed phosphorylated alpha-synuclein is common in people with Parkinson's disease, and then developed a way to detect it in a blood sample.

Allsop said a diagnostic tool that helps detect Parkinson's disease at a very early stage "would help the development of medicines that could protect the brain, which would be better for the quality of life and future health of older people."

For their study, the researchers examined blood samples from a group of 32 people diagnosed with Parkinson's disease and a group of 30 healthy people of the same age who did not have the disease (the controls). They took four samples from the participants with Parkinson's disease, one every month for four months.

When they analyzed the samples they found: "The levels of [alpha-synuclein] in plasma varied greatly between individuals, but were remarkably consistent over time within the same individual with PD [Parkinson's disease]."

They measured levels of three different forms of alpha-synuclein, including phosphorylated alpha-synuclein.

Their analysis showed that participants with Parkinson's disease had significantly higher levels of phosphorylated alpha-synuclein compared to the controls. This was not the case for the other forms (oligo-alpha-synuclein, and oligo-phospho-alpha-synuclein), nor for the total of all three.

Based on these findings, Allsop and colleagues then went on to develop a simple test that detects phosphorylated alpha-synuclein in the blood that would allow Parkinson's disease to be diagnosed at the stage where brain damage has started to occur, which is long before external symptoms emerge.

They write: "Immunoblots of plasma revealed bands (at 21, 24, and 50-60 kDa) corresponding to phosphorylated [alpha-synuclein]. Thus, phosphorylated [alpha-synuclein] can be detected in blood plasma and shows more promise as a diagnostic marker than the nonphosphorylated protein."

Dr Gerald Weissmann is Editor-in-Chief of the FASEB Journal. He said most people think of Parkinson's as the outward symptoms, the involuntary movements, but "many people with Parkinson's also develop neurological problems that may be more difficult to detect right away".

"Having a blood test not only helps doctors rule out other possible causes of the outward symptoms, but it also allows for early detection which can help patients and their caregivers prepare for the possibility of the mental, emotional, and behavioral problems that the disease can cause," he added.

The researchers also noted that: "Longitudinal studies undertaken over a more extended time period will be required to determine whether [alpha-synuclein] can act as a marker of disease progression."

Parkinson's disease

New Blood Test to Predict Onset of Parkinson's disease (MedIndia: 2.12.2011)

Researchers from University of Lancaster in England have come out with a new blood test which they claim can detect Parkinson's disease a long time before the symptoms begin to appear.



The test was developed by David Allsop and his colleagues who identified a substance known as phosphorylated alpha-synuclein which is present in the blood.

The researchers have developed a way of identifying the presence of this substance and said that it is common among Parkinson's patients.

"A blood test for Parkinson's disease would mean you could find out if a person was in danger of getting the disease, before the symptoms started. This would help the development of medicines that could protect the brain, which would be better for the quality of life and future health of older people", Allsop said in his report which will be published in the Journal of the Federation of American Societies for Experimental Biology.

Thyroid

Thyroid surgery

Thyroid surgery may reduce sleep apnea symptoms like snoring (New Kerala: 31.10.2011)

Surgical removal or reduction of an enlarged thyroid gland could help reduce sleep apnea symptoms like snoring, a new study has suggested.

Obstructive Sleep Apnea (OSA) affects about 20 percent of the population and is caused by narrowing or blockage of the airways when a person is asleep.

If not treated, OSA can even increase the chances of person's death.

To evaluate the impact of enlarged thyroid gland, known as goitre, on OSA, Alexandra Reiher, MD, and colleagues from the University of Wisconsin, Madison, assessed OSA symptoms such as snoring before and after thyroidectomy to remove all or part of an enlarged thyroid gland, Newswise reported.

Patients who reported symptoms of OSA included snoring were asked to fill up a questionnaire before and 8 weeks after undergoing thyroidectomy.

The study showed that a significantly fewer patients (51 percent versus 71 percent) were considered to be at high risk for OSA following surgical reduction or removal of the thyroid gland.

Symptom scores improved substantially after thyroidectomy, including a significant decrease in snoring frequency and lower scores on the question of whether the snoring bothered others.

"Obstructive sleep apnea is obviously a complex problem with numerous causes, but we find it encouraging that thyroidectomy alone can provide significant improvements in nearly a third of patients, regardless of gland size," said study author Rebecca Sippel, MD, Assistant Professor, Division of General Surgery, and Chief, Section of Endocrine Surgery, at the University of Wisconsin School of Medicine and Public Health.

The data was recently presented at the 81st Annual Meeting of the American Thyroid Association.

Thyroid surgery

Thyroid surgery may reduce sleep apnea symptoms (The Tribune: 2.11.2011)

WASHINGTON: Surgical removal or reduction of an enlarged thyroid gland could help reduce sleep apnoea symptoms like snoring, a new study has suggested. Obstructive Sleep Apnoea (OSA) affects about 20 per cent of the population and is caused by narrowing or blockage of the airways when a person is asleep. If not treated, OSA can even increase the chances of a person's death. To evaluate the impact of an enlarged thyroid gland, known as goitre, on OSA, Alexandra Reiher and colleagues from the University of Wisconsin, Madison, assessed OSA symptoms such as snoring before and after thyroidectomy to remove all or part of an enlarged thyroid gland, Newswise reported. The patients who reported symptoms of OSA, including snoring, were asked to fill up a questionnaire before and eight weeks after undergoing thyroidectomy.

Thyroid

Master gland of metabolism (The Tribune: 23.12.2011)

The thyroid gland is the primary regulator of metabolism. Both an over-active and under-active thyroid can interfere in some functions of the body. Various types of thyroid problems are more common in women than in men

DR K. P. Singh

THE thyroid gland, a butterfly-shaped gland, sits low in the throat area and spreads its "wings" on either side of your windpipe. It is the primary regulator of metabolism, and any malfunction in it will produce symptoms in other systems of the human body. For this reason, if you encounter any of the problems associated with the malfunctioning of the thyroid gland, it is always best to consult a doctor.

The thyroid gland, which is located below the voice box, is the largest endocrine gland. It primarily secretes two hormones, thyroxine and triiodothyronine, commonly known as T4 and T3. Secretion of these hormones by the thyroid gland is controlled by Thyroid Stimulating Hormone (TSH), which is secreted by the pituitary.

The net result of thyroid hormones is a generalised increase in functional activity throughout the body. So, it increases the metabolism of carbohydrates, fat and protein and decreases the body weight. It also increases the heart rate and blood pressure.

Disorders of the thyroid gland can result in either production of too much (overactive thyroid disease or hyperthyroidism), too little thyroid hormone (under-active thyroid disease or hypothyroidism) thyroid nodules, and/or goitre, cretinism (a usually congenital abnormal condition marked by physical stunting and mental retardation and caused by severe hypothyroidism), myxedema (a condition associated with severe hypothyroidism and lack of thyroid hormone in adults), thyroid cancer and rarely thyroid storm (also referred to as thyrotoxic crisis, it is an acute, life-threatening, hypermetabolic state induced by excessive release of thyroid hormones (THs) in individuals with thyrotoxicosis (hyperthyroidism). Various types of thyroid problems are more common in women than in men.

Diagnostic tests and treatment: Sometime a transient thyroid problem can occur due to viral illness or any other illness, which is self-limiting. A blood test for thyroid hormones (like free T4 and free T3 which are high with a suppressed TSH) are usually sufficient for diagnosis.

Sometimes a nuclear scan (Tc99thyroid scan) is needed. Tests in hypothyroidism give opposite results that is - elevated TSH with normal or low thyroid hormone levels. To find out the cause of thyroid illness - thyroid antibodies (antibodies destroying the thyroid gland) are estimated. These are usually high in both hypo and hyperthyroidism and confirm the autoimmune nature of the disease.

Treatment of hypothyroidism is to simply replace the thyroxin hormone slowly in doses as prescribed by the doctor and taken empty stomach in the morning. Growing children and pregnant women should always be treated with target levels of TSH in the essentially normal range. Treatment of hyperthyroidism includes oral anti-thyroid drugs (carbimazole, methimazole, PTU) or radioiodine ablation of thyroid gland and sometimes surgery is also required.

Risk factors for thyroid disorders

Gender/age: Women face a greater risk of developing thyroid disease than men. While experts vary in estimates, many studies say that women are six to times times more likely than men to develop a thyroid condition. Being 50 and above increases the risk of thyroid disease in both men and women.

Personal history: A personal history of thyroid disease increases your current risk for developing thyroid disease. For example, in women, if after a pregnancy she had postpartum thyroiditis that resolved itself, she is at increased risk of developing a thyroid problem again after pregnancy or later in life. A personal history of any autoimmune disease slightly increases your risk of developing an autoimmune thyroid disease such as Hashimoto's disease or Graves' disease.

Family history: A family history increases a person's risk for developing thyroid disease. The risk is slightly greater if you have a first-degree female relative (mother, sister, daughter) with the disease.

Thyroid emergencies

Thyroid disease may present emergencies due to thyrocardiac disease (heart disease resulting from hyperthyroidism), which includes thyroid storm and cardiac arrhythmias for e.g. (atrial fibrillation) and sometimes as severe pericardial effusion (cardiac tamponade). The patient needs immediate hospitalisation in case of thyroid storm and thyrocardiac disease, as it needs very prompt treatment, otherwise delay in treatment could lead to high rate of mortality.

Myxedema coma

Myxedema coma is a loss of brain function as a result of severe, longstanding low level of thyroid hormone in the blood (hypothyroidism). Myxedema coma is considered a life-threatening complication of hypothyroidism, and represents the far more serious side of the spectrum of thyroid disease.

It is seen more frequently in elderly patients and in women. It usually occurs in winters, the body temperatures falls abnormally low as 26.6°C and the patient requires immediate hospitalisation and may require ventilator support. Myxedema coma carries a very high rate of mortality.

Thyroid cancer

Growths on the thyroid are usually called nodules. Thyroid nodules can be benign (non-cancerous) or malignant (cancerous). It is more common in women than men. It can occur due to exposure to radiation, family history or any other unknown cause. The malignant cancer spreads from thyroid to other parts of the body and can lead to death if not diagnosed and treated at right time.

Types of thyroid cancer

1 Papillary and follicular thyroid cancers
(common)

1 Medullary thyroid cancer (usually family
history is positive)

1 Anaplastic thyroid cancer (rare and one of the most aggressive cancer of the human
body)

1 Treatment includes surgery, radiodine ablation and rarely chemotherapy

Symptoms of Hypothyroidism and Hyperthyroidism

The following are some of the things you can do to prevent thyroid problems

1 Eat salads rich in iodine at least two times a week, including raw asparagus tips, cabbage, avocado, leaf lettuce (not head lettuce), green onions, sweet green peppers, and whipped and goat cheese. Pack in more iodine by adding salmon, if you eat fish.

1 Have your other endocrine glands checked for hormonal balance. The endocrine glands should be working together to maintain balance.

1 Avoid excessive exposure to radiation of all kinds.

1 Limit or avoid distilled water consumption, as this can leach minerals from your body.

1 Look for a chelated supplement that contains minerals targeted to address your thyroid problems.

The writer is senior consultant, endocrinology, Fortis Hospital, Mohali

Preventing thyroid problems

Both an over-active and under-active thyroid can interfere in some functions of your body. Some of the diseases that cause the thyroid to become over-, or under-active are Hashimoto's disease (hypothyroidism), which appears as a nodule or a lump in the thyroid gland, and Graves' disease (hyperthyroidism), an auto-immune condition characterised by a smooth goitre, protruding eyes and swelling over the front of the lower leg.

Thyroid problems, especially over-activity, may cause symptoms like weight loss, insomnia, heartbeat palpitations, hand tremors, intolerance to heat, and disturbances in the digestive system. Over-active thyroid problems are less common than under-activity, and hyperthyroidism usually receives conventional treatment using drugs and surgery.

People with under-active thyroid problems, on the other hand, have difficulty maintaining stable weight. Women suffering hypothyroidism may experience heavy periods and deep-seated weakness or 'feeling tired'. They may appear puffy, and suffer swelling and constipation.

You can try a common method to check for thyroid problems. Place a basal thermometer in your armpit for ten minutes after waking up in the morning. The thermometer must be calibrated to the tenths of a degree. The normal body temperature range for this test lies between 97.8 and 98.2 degrees Fahrenheit. A reading below the range could indicate low thyroid activity (hypothyroidism), whilst a reading above could mean excess activity (hyperthyroidism).

Factors that can cause thyroid problems and reduce the body rate of burning calories include malnourishment because of nutrient deficiencies, especially of iodine and selenium. Thyroid and/or pituitary exhaustion can occur from excess stimulation by environmental and thyroid toxins like thiocyanate and perchlorate found in cigarettes, caffeine, sugar, or other stimulants; and the presence of substances that inhibit the proper functioning of the thyroid, such as hard liquor. Toxins disrupting thyroid can be found in containers made of plastic, preserved and canned goods, plastic toys, non-stick cookware.

Tuberculosis

TB

Adequate vitamin D levels critical to body's fight against TB (New Kerala 13.10.2011)

Vitamin D is not just important for building strong bones, but also plays an essential role in the body's fight against infections such as tuberculosis, according to scientists.

People with darker skin traditionally have had a higher susceptibility to tuberculosis, and areas of Africa lead the world with the highest infection rates.

And scientists believe this may be partly due to the skin pigment melanin, which is more abundant in darker skin that shields the body from absorbing ultraviolet rays, but also reduces vitamin D production.

The international team of researchers examined the mechanisms that govern the immune system's ability to kill or inhibit the growth of pathogens such as *M. tuberculosis*, the bacteria causing tuberculosis.

The team found that T-cells, which are white blood cells that play a central role in immunity, release a protein called interferon- γ that triggers communication between cells and directs the infected immune cells to attack the invading tuberculosis bacteria.

However, this activation requires sufficient levels of vitamin D to be effective.

The team next tested serum taken from blood samples in healthy humans with and without sufficient vitamin D and found that the immune response was not triggered in serum with lower vitamin D levels, such as those found in African Americans.

But, when adequate vitamin D was added to deficient serum, the immune response was effectively activated.

The team notes that vitamin D may help both innate and adaptive immunity, two systems that work synergistically together to fight infections.

“Our findings suggest that increasing vitamin D levels through supplementation may improve the immune response to infections such as tuberculosis,” said first study author Dr. Mario Fabri, who conducted the research at UCLA.

The study has been published online Oct. 12 in the peer-reviewed journal, Science Translational Medicine.

TB

Scientists plan to unveil hand-held e-nose to detect TB (The Times of India: 16.11.2011)

New Delhi: Breathalyzers, hitherto used to test your breath for alcohol, will soon help detect tuberculosis, one of the most infectious airborne diseases.

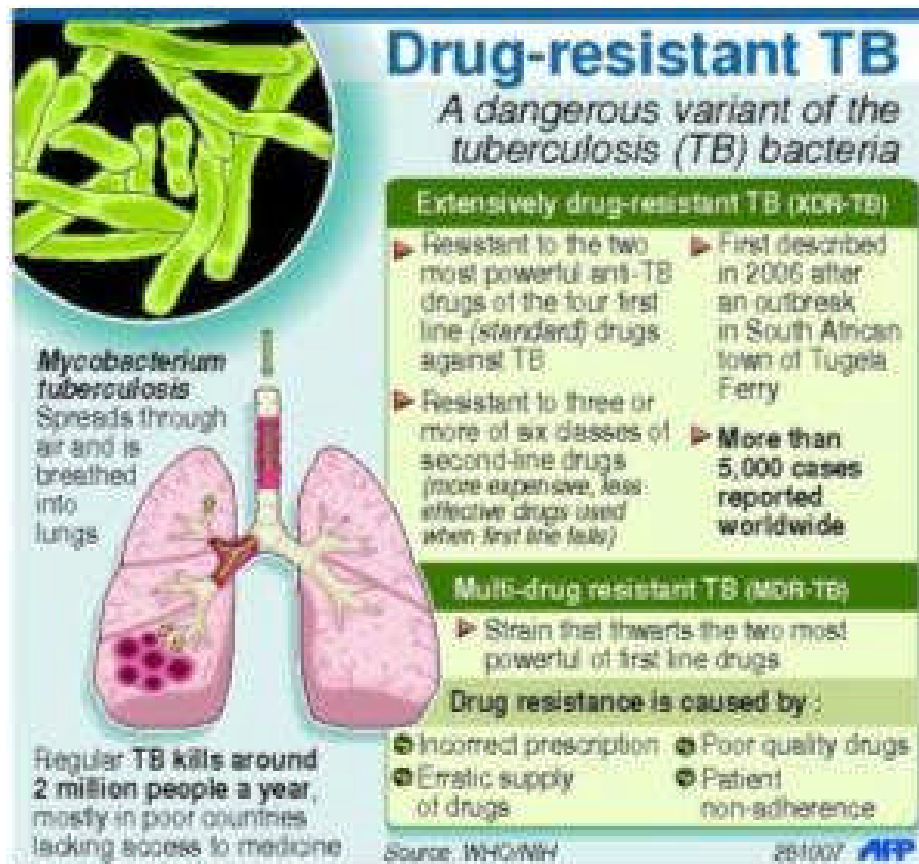
By 2013, Indian scientists plan to unveil an electronic nose — a hand-held battery-powered device — much like a personal breathalyzer, which is being developed to diagnose TB by detecting changes, typical in the breath of those suffering from the ailment. A normal human breath is believed to have over 3,500 molecules. The scientists from Delhi's International Centre for Genetic Engineering and Biotechnology (ICGEB) have discovered seven molecules, which are typical to the breath of TB patients, known as biomarkers.

From January 2012, five institutes — two in Delhi and one each in Kolkata, Chennai and Mumbai — will carry out a multi-centre study to validate the biomarkers. The study that will involve 500 subjects — 250 with TB, and 250 with symptoms of the disease — is likely to be accomplished by December 2012, after which the technology will be transferred to a firm in California to develop a prototype by October, 2013. The project received a grant of \$9,50,000 from the Bill and Melinda Gates Foundation Grand Challenges Programme last week. Dr Ranjan Nanda and Dr Virander Chauhan from the ICGEB will gather breath samples from TB patients and use gas chromatography-mass spectrometry to identify and track molecules that would serve as biomarkers to diagnose TB.

Tuberculosis

Tuberculosis Research Movement Need of the Hour (MedIndia: 2.12.2011)

In this week's PLoS Medicine, Christian Lienhardt from the WHO in Geneva, Switzerland and colleagues announce that the Stop TB Partnership and the WHO Stop TB Department have launched the TB Research Movement.



In the article the authors describe the development of the Research Movement strategic plan, highlighting progress in its two key components: (1) the analysis of the global funding landscape for TB research, and (2) the development of a global TB research agenda.

The problem remains vast. The authors say that "With 9.4 million new cases of tuberculosis (TB) and 1.7 million TB deaths worldwide in 2009, TB constitutes an unacceptable burden of human suffering and loss. The tools available for TB control are old, lack effectiveness, and are not readily accessible in many settings: the diagnosis of pulmonary TB still relies in most high-burden countries on sputum microscopy, a century old technology; treatment of tuberculosis is based on drugs that are over 40 years old and requires direct supervision to ensure full treatment adherence and prevent drug resistance; and the only TB vaccine (BCG), first used in 1922, has a variable protective efficacy in adults. Novel tools are needed for better TB care and control worldwide."

The authors go on: "Through this strategic plan, the TB research movement is creating a framework for concrete actions to harmonize and synergize TB research efforts globally, so that the poor and vulnerable populations burdened by TB will reap the dividend of less TB through more research and innovation."

T B

40% Delhiites infected with TB: Mayor (The Tribune: 1.12.2011)

Around 40 per cent people in Delhi are infected with tuberculosis (TB), said Mayor Rajni Abbi and called for spreading awareness about the disease. Abbi said that TB is a curable disease and there is a need to spread awareness among the patients that it is curable. She was speaking at Municipal Corporation of Delhi's (MCD) Chest Clinic.

"Fighting the disease and making society aware on the issue is a key to tackling it," Abbi said.

The Mayor also distributed blankets and other material among 100 TB patients, cured or about to complete the course of treatment under DOT.

While stressing cleanliness, she said anybody can contract TB and it is not only the poor who fall victim to the disease.

She urged the people to get their treatment complete and take the advice of doctors.

Health Committee chairman Dr V.K.Monga appreciated the DOT system of treatment as it has the maximum cure rate.

"It is absolutely curable. Patients should reveal and not conceal their symptoms so that they can get the treatment at the right time. Delhi has about 600 DOT centres to cater to TB patients. Smoking or drinking is one of the major causes of the disease," said Monga.

He urged the need for food supplements to the affected persons, adding that one-third of the country's population is afflicted with TB.

MCD's Chest Clinic has initiated a number of steps, including putting up hoardings across the city to spread public awareness.

Drugs and Medicine

Anaesthesia

Anaesthesia exposure before age 2 linked to learning disabilities in kids (The Tribune: 5.10.2011)

Washington: Researchers at Mayo Clinic in Rochester have found an association among children undergoing multiple surgeries requiring general anaesthesia before age 2 and learning disabilities later in childhood. Every year millions of babies and toddlers receive general anaesthesia for procedures ranging from hernia repair to ear surgery. The study was conducted with the existing data of 5,357 children from the Rochester Epidemiology Project and examined the medical and educational records of 1,050 children born between 1976 and 1982 in a single school district in Rochester.

Herbal Supplements

Herbal Supplements May Cause Dangerous Drug Interactions in Orthopaedic Surgery Patients, Study Suggests (Science daily: 12.10.2011)

Complementary and alternative medical (CAM) treatments such as herbal supplements have become increasingly popular in the United States, especially among older patients and those with chronic pain. However, many of these products can have serious and potentially harmful side effects when combined with medications prescribed during and after surgery, according to a review article in the Journal of the American Academy of Orthopaedic Surgeons (JAAOS).

About 20 percent of prescription users also take an herbal supplement, and those rates are higher -- studies suggest between 35 and 70 percent -- among orthopaedic patients who are candidates for surgery.

"Herbal remedies are classified as dietary supplements, meaning they are exempt from the safety and efficacy regulations that the U.S. Food and Drug Administration (FDA) requires for prescription and over-the-counter medications," said David T. Rispler, MD, director of the Grand Rapids/Michigan State University Orthopedic Residency Program. "As a result, individual herbal remedies have not been thoroughly evaluated in large

clinical trials, and little information is available on the interactions between drugs and herbs."

In addition, many herbal products are marketed as "natural" or "homeopathic," which may lead consumers to assume the products are safe, even when taken with prescription medicines, Dr. Rispler noted. "Herbal supplements can have a negative impact on patients both before and following surgery, and may interact with conventional medicines used to manage chronic conditions."

"Traditional physician-patient communications, like intake interviews, often do not include the subject of alternative medical products. As a result, patients may fail to report that they are using them and continue to take them along with any prescribed medicines and before surgery, thinking the herbal products pose no risk," said Dr. Rispler.

Many of the most popular herbal supplements used today can have serious side effects when combined with prescription medicines. For example:

- Feverfew (used for migraine prevention), ginger, cranberry, St. John's Wort and ginseng can interact with the anti-clotting drug warfarin;
- Feverfew, ginger, and ginkgo can interact with aspirin;
- Garlic can interfere with anti-clotting medications and the immunosuppressant drug cyclosporine (prevents transplant rejection);
- Valerian (used as a sedative) can intensify anesthetics; and
- St. John's Wort can interact with immunosuppressive drugs and potentially lead to transplant rejection.

Herbal products marketed for osteoarthritis also can pose serious risks when combined with prescription medications. For example:

- Glucosamine, chondroitin and flavocoxid can affect clotting agents;
- Black cohosh can interact with the cancer drug tamoxifen; and
- Cat's claw can interact with clotting agents, blood pressure medications and cyclosporine.

Most surgery-related side effects can be avoided by stopping the CAM product at least one to two weeks prior to surgery and during the postoperative period while prescription medications such as blood thinners or antibiotics are being used. The problem arises when physicians do not know that a patient is using a CAM product, Dr. Rispler said.

"One of the main reasons that patients do not disclose the use of a CAM product is that they may not believe it is important information to convey to the physician because they feel they are safe to use and all-natural," he said. "Patients may also decide not to report CAM product use if they are worried their physician may be prejudiced against the supplement's use, or believe their physician will not have an understanding of the supplement."

Although the use of herbal medicines should be monitored by patients' primary care physicians, Dr. Rispler said orthopaedic surgeons should have an understanding of the

potential side effects of some of the most common CAM products used by their patients, and be able to guide them in suspending use prior to surgery.

To help ensure physicians are aware of the products their patients may be using, Dr. Rispler also recommends including CAM product-use questions on health/medical assessment forms to encourage patient disclosure.

"Physician-patient communication often does not include the use of CAM therapies, which results in underreporting of their use," he said. "To help avoid potential side effects, orthopaedists should develop questionnaires that can be used prior to surgery to help determine if their patients are using CAM products." Alternatively, patients should also report usage of any herbal products or other supplements they may be taking to all their physicians.

"By opening up a conversation on the use of herbal medications around the time of surgery and compiling a complete list of all prescribed and self-prescribed medications and supplements, patients and physicians may be able to work together to decrease the risk of complications that can occur during and following surgery," Dr. Rispler said.

Vitamin E Supplements

Vitamin E Supplements Increase Prostate Cancer Risk: Study (Med India: 12.10.2011)

An alarming link between vitamin E supplements and a 17 percent increased risk of prostate cancer was revealed by US researchers who warned this was an "important public health concern."

Ten years after the start of a randomized trial of more than 35,000 men, researchers discovered the spike in prostate cancer among those assigned to take vitamin E rather than selenium or a placebo.

"Dietary supplementation with vitamin E significantly increased the risk of prostate cancer among healthy men," said the study in the Journal of the American Medical Association.

Selenium, a trace mineral found in foods like Brazil nuts, tuna and beef, is often deficient in areas such as China and Russia where it is lacking in the soil.

The study was launched based on previous research that had suggested that selenium or vitamin E might reduce the risk of developing prostate cancer.

The latest data emerged three years after a preliminary study of the findings, published in 2008, showed a slightly higher but statistically insignificant risk of prostate cancer among those taking vitamin E.

However, since the risk was approaching statistical significance, a safety committee called for a halt to the randomized Selenium and Vitamin E Cancer Prevention Trial (SELECT) in the United States, Canada and Puerto Rico in 2008.

A longer-term follow up, concluded in July of this year, has revealed the higher cancer incidence in men assigned to the vitamin E portion of the trial.

Pill

Pill Influences a Woman's Choice of Partner (Med India: 12.10.2011)

In a recent study it was found that women on Pill tend to choose men who are less attractive and worse in bed

Probing the effect of contraceptive hormones on mating choice, researchers questioned 2,519 women in the United States, Czech Republic, Britain and Canada who had had at least one child.

The volunteers were asked to rate their relationship for general satisfaction and sexual pleasure and the attractiveness of their partner or, retrospectively, of their ex.

Oral contraception had been used by 1,005 women when they met their partner, while 1,514 had used no form of hormonal birth control at the first encounter.

"Our results show some positive and negative consequences of using the Pill when a woman meets her partner," said Craig Roberts of Stirling University, Scotland, who led the investigation.

"Such women may, on average, be less satisfied with the sexual aspects of their relationship but more so with non-sexual aspects. Overall, women who met their partner on the Pill had longer relationships -- by two years on average -- and were less likely to separate."

Roberts suspects the Pill skews the sub-conscious "chemistry" by which a woman makes a mating choice.

Previously, he found that using oral contraceptives altered women's preferences for men's body odour.

When they didn't take the Pill, women were subjected to the strong hormonal swings of the menstrual cycle.

During ovulation, they unwittingly preferred the smell of men who were genetically dissimilar.

Drug

Panel moots cheap drug vow from pharma firms (The Financial Drug: 12.10.2011)

New Delhi: While deciding against imposing any limit on FDI in the pharma sector, the Arun Maira headed high-level committee has mooted an undertaking from pharma companies specifying that they would manufacture affordable medicines in the interest of public health, as and when required by the government. A public health crisis has loosely been described as an event where there is a shortage of drugs in the domestic market or a time when prices of drugs cross 'reasonable limits'.

"The government should ask any company that intends to acquire or set up capacities in the country (as well as all companies already operating in the country) to give an undertaking that it will cooperate without hesitation should the government require it to manufacture under a compulsory licence, as a public commitment of its intention to make affordable medicines in the public interest," said Maira's final draft report on FDI policy in the...

Pharma sector.

Sector analysts and pharma firms feel that multinationals are usually wary of signing such legal bonds and may find it objectionable unless the framework is spelt out clearly with precise terms and conditions.

However, it has not been made clear whether the undertaking is meant to be signed only by the multinational pharma firms or domestic drugmakers would have to be taken on board as well.

"TRIPS (Trade Related Aspects of Intellectual Property Rights) also provides national governments with the instrument of 'compulsory licensing' to enable them to procure medicines if they are not available in sufficient quantities and at reasonable prices in their countries. In this too, there is some pressure on the Indian government not to exercise its rights (though it has not even done it so far). The Indian Government must retain this right granted to it, and use it if necessary. Thereby it can compel manufacturers in...

India, whether Indian-owned or foreign-owned, to compulsorily produce specified medicines when necessary, and thus make those medicines available in India at reasonable prices,” the report says.

“The government by opting for a competition commission scrutiny of pharma deal has brilliantly addressed the pricing escalation fears and apprehensions regarding cartelisation in a sensitive domestic market. Resorting to a cap in FDI in the sector would have been a retrograde move,” said Sujay Shetty, leader - pharmaceutical & life sciences, PwC India.

While it is difficult to offer specific comments on the ‘undertaking’ at this stage, if such a clause is introduced, it must take into account whether the companies involved in an acquisition deal have the power to disrupt the drug supply chain or take into consideration the therapeutic profile of drugs produced by the company getting acquired, Shetty said.

During the deliberations on the matter, the health ministry was concerned that priorities...

Vitamin pills

Vitamin pills not good for health (The Times of India: 12.10.2011)

People on Dietary Supplements Have Higher Death Rates, Says Study

Women taking multivitamins don’t live longer than those who get their nutrients from food alone, according to a US study that found they in fact appear to have slightly higher death rates.

About half of adult US residents take dietary supplements, and the industry now boasts of annual sales as high as \$20 billion. Yet research suggests that some of the largely unregulated substances, such as vitamins A and E, could be harmful in high doses. “There is very little evidence showing that common dietary supplements would be beneficial in prevention of major diseases,” said Jaakko Mursu of the University of Minnesota in Minneapolis. “Unless you are deficient, there is no reason to take them,” he said.

Mursu and his colleagues used data from nearly 39,000 older women who participated in the Iowa Women’s Health Study and filled out questionnaires starting in 1986. The survey asked about use of multivitamins, vitamins A, C, D and E as well as beta-

carotene, B vitamins and minerals such as calcium, copper, magnesium, selenium and zinc.

During the study, supplements became increasingly popular. Between 1986 and 2004, the proportion of women who said they took one or more jumped from 63% to 85%. Only calcium supplements were linked to a lower risk of death over 19 years of follow-up. That link held up even after considering that women taking supplements had a healthier lifestyle than the rest. By contrast, women taking other supplements did not live longer. REUTERS

Vitamin E

Vitamin E pills tied to prostate cancer' (The Times of India: 13.10.2011)

There is more evidence that taking vitamin E pills can be risky. A study that followed up on men who took high doses of the vitamin for about five years found they had a slightly increased risk of prostate cancer — even after they quit taking the pills. Doctors say it's another sign that people should be careful about using vitamins and other supplements.

“People tend to think of vitamins as innocuous substances, almost like chicken soup — take a little and it can't hurt,” said lead author Dr Eric Klein of the Cleveland Clinic. The study shows that is not true.

“If you have normal levels, the vitamin is probably of no benefit, and if you take too much, you can be harmed,” Klein said.

Men randomly assigned to take a 400-unit capsule of vitamin E every day for about five years were 17% more likely to get prostate cancer than those given dummy pills. That dose, commonly found in over-the-counter supplements, is almost 20 times higher than the recommended adult amount, which is about 23 units daily.

The results mean for every 1,000 men who took vitamin E, there were 11 additional cases of prostate cancer, compared with men taking dummy pills. AP
Advertisement

Veggies, fruits

Veggies, fruits cut genetic heart risk (The Times of India: 13.10.2011)

Eating plenty of raw vegetables and fruits can help lower the risk of heart disease in people who are genetically susceptible to it, says a study led by an Indian-origin researcher.

The Canadian study, published in Plos Medicine, found that five or more daily portions could be enough to counteract culprit versions of a gene on chromosome 9, thought to be possessed by a fifth of people of European ancestry.

“Our results support the public health recommendation to consume more than five servings of fruits or vegetables as a way to promote good health,” researcher Sonia Anand of McMaster University said.

Drugs

Ranbaxy recalls three drugs from UK market (The Financial Express: 14.10.2011)

The British arm of Ranbaxy Labs is in the process of recalling three drugs from the UK market. The drug firm has been asked by the UK drug regulator — Medicines and Healthcare products Regulatory Agency — to withdraw one batch each of antiviral drug Aciclovir, anti-fungal drug Fluconazole and analgesic Oldaram (Tramadol) from the market. The recall happened as the drugmaker violated stipulated safety warning requirements of the country. It goofed up while implementing the required changes to the patient information leaflets accompanying the concerned drugs and failed to include updated safety information on the leaflets, within the required timelines. Pharmacists in the country have been asked to quarantine all remaining stock of the above batches.

This is the second episode of recall that Ranbaxy is having to undertake this year and the fifth within last two years from the UK market. Only three months back, the... firm had to recall skin infection drug, Isotretinoin, from the UK.

The recall itself would have an insignificant financial impact on the drugmaker, but several recalls in quick succession could be a source of huge embarrassment for the company as these events are closely tracked by drug regulators across countries.

The batches of three drugs that Ranbaxy has been asked to remove from the market were scheduled to expire between May 2013 and January 2014. The concerned set of drugs were manufactured between October 2010 to February 2011

A company spokesperson confirmed the recall to FE. “Ranbaxy UK has recalled one batch each of Aciclovir 200mg Tablets, Fluconazole 150mg Capsules and Oldaram (Tramadol) 150mg PR tablets in consultation and agreement as the Patient Information Leaflets in these batches had not been updated to include approved safety warnings. There are no product quality concerns,” the spokesperson said.

the company has to start acting in the following 48 hours. In the hierarchy of recalls, class 1 is of the severest form, in which the firm has to initiate action immediately while the class 4 is the least critical advising ‘caution in use’. In between, a class-3 type recall prompts the erring firm to act within five days.

The Ranbaxy stock ended at R502 on Thursday on the Bombay Stock Exchange, down 2.75% since the previous close.

IVF drug

Govt ignores experts, bans IVF drug (The Indian Express: 18.10.2011)

Nearly five years after approving it for free use as a IVF drug, the Health Ministry Monday suspended the use of Letrozole with immediate effect, citing “likely risk”.

Letrozole — a Aromatase Inhibitor drug that blocks the action of estrogen — is used to prevent recurrence of breast cancer.

The ban — the drug is banned for IVF use in the US, Europe, Canada — has come as a “shock” to most experts on the committee that was constituted in February to review its side effects.

“The ban is very sudden. Earlier this year, the government as per recommendations of the committee decided to continue use of the drug, till concrete research on its adverse affects is published,” a member of the panel, who is a IVF expert said, requesting anonymity.

Research has indicated that Letrozole could cause genetic abnormalities in children conceived with its help. However, the expert panel had had decided against a ban as some

reports had suggested the risks of genetic abnormalities were similar for Letrozole's alternatives. The panel had instead recommended that the drug be included in Schedule HX, which would make a label warning compulsory, and also ban its over-the-counter sale.

At the panel's last meeting, the Drug Controller General of India had directed the Indian Council of Medical Research (ICMR) to conduct a two-year phase four clinical trial of the drug, to review its safety. "This ICMR trial has not even begun," said another member of the panel. "What was the reason for this sudden ban, without consultation with the government's own expert committee?"

The ministry's order banning the use of the drug did not cite a specific risk, but only a "likely risk". "The government has suspended manufacture for sale and distribution of Letrozole for induction of ovulation in anovulatory infertility with immediate effect... the use of Letrozole... is likely to involve risk to humans and safer alternatives are available."

Incidentally, the ministry's approval to the use of Letrozole for infertility treatment in 2007 too had kicked a controversy. "The drug was approved after a trial on a mere 55 women in 2004 from a single centre. The regulations necessitate a trial of over 100 persons across multiple centres," said Dr CM Gulati, editor of pharma magazine MIMS. "Moreover, this trial was done by the same pharmaceutical company which had been found guilty of illegally promoting the drug without proper trials in 2003."

Doctors, meanwhile, are divided on the issue. "The ban creates a monopoly of sorts for Clomiphene Citrate, the only other drug available in the market to induce ovulation," said a senior IVF expert at AIIMS. "...reports have shown that since Letrozole has a short half-life, it doesn't stay in the blood till the completion of pregnancy, while Clomiphene Citrate does. So effectively, the risk of genetic malformations is more by the alternative."

Dr Abha Majumdar, head of the IVF facility at Sir Gangaram Hospital, however, said the ban was justified.

"The drug is banned in all developed countries. When we have a safer alternative, there is no reason to continue it. Since it is an off label drug, I don't prescribe it," she said.

Dr Kaberi Banerjee, a consultant at Max Hospital, disagreed. "The ban is extremely premature and a bit disappointing for us gynecologists who have been using it and getting good results," she said. "In fact, I have found the problems of Clomiphene were done away with by Letrozol. The government shouldn't have suspended its sale without a proper study."

Calcium

Calcium might not help with weight loss in teens (New Kerala: 25.10.2011)

Contrary to popular beliefs, calcium does not seem to help teenagers lose weight, a new study has suggested.

In the study, more than 40 overweight teenagers were split into two groups and then randomly assigned to consume 1,300 or 650 milligrams of calcium a day.

It either came from calcium supplements or was hidden in foods like frozen chocolate desserts containing milk proteins, fats and minerals (as opposed to whole milk).

For three weeks, both groups were placed on the same restricted diet of three meals and two snacks a day. Both groups got normal foods with enough protein, carbohydrates, fat and calories to maintain their weight.

After a break, the groups resumed the experiment for another three weeks, with teens assigned to a different calcium intake level for the second stage.

In the end, researchers found no differences in body fat and weight between the two groups, suggesting calcium had little to no effect on weight loss among the teens.

"The last 10 years of research hinted that calcium would bind to fat and take some of the fat out so you wouldn't absorb it," Fox News quoted co-author Connie Weaver, a nutrition professor at Purdue University, as saying.

"We showed that didn't happen."

They also tested the amount of calcium and fats the teens excreted and found no indication that calcium might help with weight loss by binding to fat in the intestines and preventing it from being absorbed.

Zemel suggested the findings may have been different because teenagers have different dietary needs than adults.

The study has been published in the American Journal of Clinical Nutrition.

New Breast Cancer Drug

New Breast Cancer Drug (Med India: 25.10.2011)

Letrozole - a new breast cancer drug lowers estrogen levels far more effectively than the most popular current therapy, shows study.

US researchers compared letrozole with tamoxifen, using each on its own, reported the Daily Express

They found post-menopausal women on letrozole were 20 per cent less likely to suffer a return of breast cancer over an eight-year period and 21 per cent less likely to die.

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Vitamin D

Vitamin D Study Suggests No Mortality Benefit for Older Women (Science Daily: 2.11.2011)

A study of postmenopausal women found no significant mortality benefit from vitamin D after controlling for health risk factors such as abdominal obesity. The only exception was that thin-waisted women with low vitamin D levels might face some risk. The results agree with advice issued last year by the Institute of Medicine that cautioned against vitamin D having a benefit beyond bone health

Doctors agree that vitamin D promotes bone health, but a belief that it can also prevent cancer, cardiovascular disease and other causes of death has been a major health controversy. Consistent with advice issued last fall by the Institute of Medicine, a new study finds that vitamin D did not confer benefits against mortality in postmenopausal women after controlling for key health factors such as abdominal obesity.

"There's not enough evidence to do anything about vitamin D levels if it's not in regard to bone health." "What we have is clinical trial evidence that for the most part vitamin D doesn't seem to be helpful for conditions where people thought it might," said study lead author Charles Eaton, professor of family medicine and of epidemiology in the Warren Alpert Medical School of Brown University and a physician at Memorial Hospital in Pawtucket, R.I. "The best we can tell is that there isn't an association. Once we took into account these other factors, high levels didn't provide a benefit and low levels didn't put you at risk."

In the study, published online Oct. 26 in the American Journal of Clinical Nutrition, Eaton led an analysis of data from 2,429 postmenopausal women aged 50 to 79 who participated in the broad-based Women's Health Initiative study, in which Eaton and many co-authors were investigators. They tracked blood levels of vitamin D in the women and their mortality over a 10-year period. They not only looked at death from all causes but also focused on cancer and cardiovascular disease.

In all, 225 of the women died, including 79 from cardiovascular disease and 62 from cancer.

Eaton said he expected to find some protective effect against such mortality from vitamin D, and at first glance -- controlling only for age, ethnicity, and whether women took part in a calcium and vitamin D supplement trial -- that's what the data showed. But what was apparent in the data was that the women with the lowest levels of vitamin D also had a lot of other negative health indicators. The team therefore controlled for several more key health factors, such as smoking, history of cardiovascular disease, history of cancer, alcohol consumption, and waist circumference. The additional controls, especially waist circumference, which is a measure of abdominal obesity, eroded the statistical significance of vitamin D's seemingly protective effects down to nothing.

The one exception was that women with thinner waistlines (less than 35 inches) and with the lowest vitamin D levels seemed to have a greater risk of "all-cause" mortality within the 10-year analysis period. That result, however, was right on the borderline of statistical significance.

"If you are thin, this data suggest that maybe low vitamin D levels are potentially harmful and you should talk to your doctor about what to do about them," Eaton said.

Eaton said he and his co-authors can only speculate about why abdominal obesity was an especially important and powerful factor to control for in their analysis. In the study they note that abdominal obesity is associated with several negative health indicators that may overwhelm any modest benefit vitamin D might have. They also point out that fat tissue can store vitamin D, possibly meaning that women with larger waistlines are storing more of the vitamin than their blood serum levels alone would reveal.

More research into the connections between abdominal fat and the health effects of vitamin D could help resolve the question, Eaton said. He also said that a major new trial of vitamin D supplements and health called "VITAL" is getting underway and will likely inform the broader controversy about what vitamin D is good for.

For now, Eaton said, "there's not enough evidence to do anything about our vitamin D levels if it's not in regard to bone health."

The other authors on the paper are Anne McTiernan and Alicia Young of the Fred Hutchinson Cancer Research Center in Seattle; Matthew Allison of the University of

California-San Diego; Jennifer Robinson of the University of Iowa; Lisa Martin of the George Washington University Medical Center; Lewis Kuller of the University of Pittsburgh; Karen Johnson of the University of Tennessee; J. David Curb of the University of Hawaii; Linda Van Horn of Northwestern University; Simin Liu of the University of California-Los Angeles; and JoAnn Manson of Harvard Medical School.

The Women's Health Initiative was funded by the National Heart, Lung and Blood Institute.

Anti-Clotting Drugs

Anti-Clotting Drugs Do Not Increase Bleeding Risk: Study (Med India: 2.11.2011)

Aspirin, nonsteroidal anti-inflammatory drugs (NSAIDS) or anti-clotting drugs do not appear to increase risk of bleeding during or after removal of precancerous lesions in the digestive tract, reveals Mayo Clinic study. The findings, culled from a review of 1,382 procedures of patients treated at Mayo Clinic in Florida, are being presented at the annual meeting of the American College of Gastroenterology in Washington, D.C.

"Patients who have recently used these medications worry a lot about bleeding when lesions are removed from their esophagus, stomach, or colon. This study shows that such concerns may not be warranted," says the lead author Bashar Qumseya, M.D.

"In the past, we told patients to discontinue these agents, if possible, in order to prevent bleeding. But now we know that this may not be necessary," says Dr. Qumseya, a second year gastroenterology fellow at Mayo Clinic Florida.

"There has been a lot of discussion in the medical community about what to do with people on these medications, and we are pleased to find this early study suggests there may not be the risk of bleeding we once thought would occur," says senior author Timothy Woodward, M.D., at Mayo Clinic in Florida.

To conduct the study, Dr. Qumseya and his team examined Mayo Clinic's database of patients who received an endoscopic mucosal resection (EMR) from 1999 to 2010. An EMR is a minimally invasive procedure that can remove lesions from throughout the GI tract.

Potential drug therapy

Potential drug therapy for premature aging in kids identified (New Kerala: 3.11.2011)

Researchers led by Durham University have identified a potential drug therapy for a premature ageing disease that affects children causing them to age up to eight times faster than the usual rate.

Researchers looked at a group of inherited degenerative disorders called Laminopathies that are caused by mutations in the gene LMNA.

The most severe disorders linked to mutation in this gene include Hutchinson Gilford Progeria Syndrome (HGPS), a fatal disease that causes premature ageing in children.

The Durham University and University of Bologna team used in-vitro models and molecular imaging techniques to measure levels of oxidative stress and DNA damage in cells.

Oxidative stress relates to the dynamics of cells and the body's ability to detoxify and repair itself. When cells are stressed, levels of highly reactive molecules known as reactive oxygen species (ROS) can increase dramatically.

This can result in significant damage to cell structures and to DNA, which is one underlying cause of premature ageing and standard ageing.

The team monitored changes in thousands of 'crinkly', damaged cells after administering NAC, a widely used and well-tolerated drug.

They found that while this drug did not affect some aspects of cell stress that are effectively controlled by currently used drugs, it very effectively controlled ROS generation and DNA damage.

The results suggested that administration of NAC in combination with currently used drugs might improve the health of children with progeria.

"In children with progeria, we can see that double-strand breaks in the DNA architecture of cells increase which in turn adds to poor rates of cell growth. Our treatment of these cells with the drug N-acetyl cysteine (NAC) reversed both of these effects," said Professor Chris Hutchison, a member of the Biophysical Sciences Institute, Durham University.

The researchers said their findings were at an early stage and further studies and human clinical trials would be needed to develop effective drug treatments.

The first results of the study are published in the journal Human Molecular Genetics.

Vaginal gel

Vaginal gel: ICMR says a long way to go (The Indian Express: 3.11.2011)

A group of 30 senior scientists from the Indian Council of Medical Research (ICMR) on Wednesday met Quarraisha Abdool Karim, the South African expert behind the first vaginal gel that was shown to successfully prevent HIV by over 50 per cent in a South African trial last year. The ICMR authorities said the area opened up strong prospects of joint research between the two countries under the South-South HIV collaboration programme.

Karim is the Associate Scientific Director of the Centre for the AIDS Programme of Research in South Africa. He had presented the first successful use of Tenofovir — a drug for antiretroviral therapy (AIDS treatment) — as microbicide gel to prevent HIV at the International AIDS Conference in Vienna in July 2010. His research was published in Science magazine.

Karim's findings generated an excitement in the scientific world, resulting in WHO taking up the process of drawing guidelines for manufacturing, licensing and selling the product. Currently, the South African Government owns the licence for producing the gel.

“We have been working with India on the South-South collaboration to fight HIV since last year, which is a collaborative effort with ICMR and the South African Government for joint research on HIV. I was invited for a talk to ICMR to discuss our findings after a series e-mail exchanges, and I got a very positive response from the academicians,” Karim, who is in Delhi to attend the International Union Against Sexually Transmitted Infections (IUSTI) conference, told The Indian Express.

The ICMR, however, sounded a cautionary note. “This was the first such interaction with South African experts on the subject. We have been engaged in interactions in the South-South HIV collaboration, and we will work towards planning our own research after this. It is too early to say whether it can be implemented in India yet,” Dr K Satyanaryana, Head, Reproductive Health Research at ICMR, said.

Ranbaxy's malaria drug

Ranbaxy's malaria drug awaits international nod (Business Standard: 14.11.2011)

Even as India's largest drug maker, Ranbaxy, is confident of launching its first "new drug" by January 2012 to combat malaria in the country, the global euphoria the potential drug had generated in the initial stages of its research seems missing.

Health experts attribute this to the absence of international approval for the drug. About 90 per cent of malaria infections are reported from sub-Saharan Africa. Other tropical regions, including India, account for the rest.

DRUG HISTORY

2001 MMV initiates R&D with Roche as industry partner on malaria drug

2003 Roche hands over R&D baton to Ranbaxy

2007 MMV stops funding, Ranbaxy ropes in DST

2011 India approves new malaria drug

According to the World Malaria Report 2010, there were 225 million cases of the disease and an estimated 781,000 deaths in 2009. Ninety per cent of the global malaria burden resides in sub-Saharan Africa, the recipient of 80 per cent of external funding for malaria control.

While many countries, organisations, and companies provide these resources, a majority of these funds are channelled through the Global Fund to Fight AIDS, Tuberculosis and Malaria, the World Bank Booster Program for Malaria Control in Africa and the US President's Malaria Initiative (US-PMI). Nearly \$5-6 billion is estimated as the annual requirement to scale up and sustain the progress towards malaria elimination globally.

India has made a budgetary allocation (for 2011-12) of about Rs 500 crore towards the National Vector Borne Disease Control Programme for the prevention and treatment of diseases such as malaria, kala-azar, Japanese encephalitis, filaria and dengue.

Of the 17 medicines approved by the World Health Organisation for global treatment of malaria, more than half are supplied by Indian drug companies such as Cipla Ltd, IPCA Laboratories and Ajanta Pharma. Other players include multinationals such as Sanofi Aventis and Novartis. A WHO prequalification is essential for including malaria drugs under any global programme.

Ranbaxy also needs this international approval if it has to supply its medicine for the treatment of one of the most fatal forms of malaria, known as falciparum malaria infection.

Falciparum malaria accounts for 98 per cent infections reported from Africa and 40-50 per cent in India, public health experts say. The Ranbaxy drug, a combination of arterolane maleate and piperaquine phosphate, is expected to be more effective with fewer doses to combat this infection.

In an emailed response, Medicines for Malaria Venture (MMV), the Geneva-based not-for-profit foundation which initiated the research on this drug candidate 10 years ago and handed over the development and marketing rights to Ranbaxy in 2003, said it “applauds the development of new medicines against malaria”.

“We are keenly awaiting the chance to review the phase III (final clinical trial) data, so we can fully understand the potential benefits to patients,” David Reddy, CEO of MMV, stated. Ranbaxy got involved with the research project initiated by MMV in 2003 when Swiss drug multinational Roche, the original industry partner of MMV, decided to hand over its development and marketing rights (of the potential drug candidate).

Four years later, MMV stopped funding the project and transferred the rights for development and marketing of the medicine to Ranbaxy after it reviewed the progress of the clinical trials in November 2006. According to MMV’s annual report for 2006, the decision was taken after “the review of the preliminary data and other portfolio priorities”. Despite the apparent setback, Ranbaxy held on to the potential drug and roped in the Department of Science and Technology (DST) to part-fund the project. The DST-Ranbaxy agreement made it obligatory for Ranbaxy to supply drugs to meet domestic public health demands at a price just 10 per cent more than its actual cost of production. Any Central or state government agency can raise this demand. DST is also entitled to three per cent of the net profit Ranbaxy makes if the company exports the drug.

Ranbaxy declined to provide any details of its anti-malaria drug, though in a conference call with analysts on November 9, the company management informed the drug would be in the domestic market by December-end or early next year

Breast Cancer Drugs

Study Helps Eliminate Causes for Joint Pain Linked to Commonly Used Breast Cancer Drugs (Science daily: 16.11.2011)

Researchers exploring why some women who take a common breast cancer drug develop serious joint pain have eliminated two possible causes: inflammatory arthritis and autoimmune disease. Because of these findings, the Georgetown University Medical Center (GUMC) researchers say women should be encouraged to continue taking the medication to gain its full benefit.

The study is published online November 11 in the journal Breast Cancer Research and Treatment. Preliminary findings were presented in 2010 at the 74th Annual Scientific Meeting of the American College of Rheumatology.

For many post-menopausal women with breast cancer promoted by the hormone estrogen, aromatase inhibitors (AI) can dramatically reduce the risk of their cancer coming back. Doctors say the AIs must be taken for five years to gain the full benefit, however, the development of joint complaints in up to 35 percent of women forces many of them to stop early out of concern that the pain signals a more serious condition.

"It's not clear why joint symptoms occur with AI use, but we wondered if it could be related to inflammation or an autoimmune disease," says rheumatologist Victoria K Shanmugam, MBBS, MRCP, assistant professor of medicine at GUMC, and the study's lead author. "Our research ruled out both."

Forty-eight postmenopausal women with stage I, II or III breast cancer treated at Georgetown Lombardi Comprehensive Cancer Center were invited to take part in the study. All had hand pain and no known autoimmune disease. Of them, 25 women were taking AIs; 23 women were not taking AIs.

Subjects were evaluated after abstaining from non-steroidal anti-inflammatory drugs for 48 hours. Signs of inflammation from arthritis would reappear in that time frame, the researchers reasoned. All the women completed a health assessment questionnaire. The rheumatologist conducted a personal history and physical examination with each patient. Various blood tests were conducted and x-rays and ultrasounds of all participants' hands were performed. The rheumatologist and radiologist did not know which participants were taking AIs and which were not.

"We found that several patients in the control arm had a similar constellation of symptoms to those receiving AIs, but our team did not find any conclusive evidence that women taking AIs were more likely to have inflammatory arthritis or an autoimmune disease," Shanmugam says.

An autoimmune disease was discovered in four of the 48 women -- two in each group -- that had previously been undiagnosed. The cases were equally distributed among cases and controls.

"It would be prudent to refer those experiencing joint pain to a rheumatologist to rule out a previously undiagnosed autoimmune disease, and so that we can help address the symptoms," Shanmugam says.

"Although our study helps to rule out inflammatory arthritis or autoimmune disease as cause for joint pain associated with AIs, we still do not know why these women have musculoskeletal symptoms. Since the syndrome doesn't appear to be related to inflammatory arthritis or autoimmune disease, women should be encouraged to stay on their medication so they can gain the full benefit from it."

Antibiotic Tigecycline

Antibiotic Tigecycline Targets and Destroys Leukemia Stem Cells (Med India: 16.11.2011)

Antibiotic tigecycline targets and destroys leukemia stem cells by cutting off the cell's energy production, Canadian scientists say.

The findings of the researchers with the Princess Margaret Cancer Program are published today in Cancer Cell.

“If you think of all the cells in the body as a power grid, we’ve discovered that tigecycline can cause a power outage in leukemia stem cells, while still keeping the lights on in all the healthy cells,” says Dr. Aaron Schimmer, clinician-scientist at the Campbell Family Institute for Cancer Research in the Princess Margaret Cancer Program, University Health Network. He is also an associate professor in the departments of medicine, medical biophysics, and Institute of Medical Science at the University of Toronto (U of T).

To identify known drugs with previously unrecognized ability to kill leukemia cells and leukemia stem cells, the scientific team amassed a library of hundreds of known drugs to try, including tigecycline – an intravenous antibiotic normally used to treat skin and abdominal infections. A high-speed, pipette-handling robot tested varying doses of each drug to see if any affected leukemia cells.

“Technology made this discovery possible. In three days, we found which potential leukemia drugs might be hiding in plain sight,” says Dr. Schimmer. “Sifting through every combination by hand would have taken months.”

“We tested more than 500 existing drugs on leukemia. Of the handful that made an impact, tigecycline was the most potent and revealed novel insights into the biology of leukemia at a cellular level,” says lead author, Marko Škrtić, an MD/PhD student in the Faculty of Medicine at U of T, completing his PhD studies in Dr. Schimmer’s lab.

The Canadian team demonstrated that leukemia cells have unique energy requirements and it is possible to selectively shut down this energy production in leukemia cells by blocking protein synthesis in the mitochondria.

By looking for new treatments in approved drugs, cancer researchers may be able to rapidly test these new strategies in patients, says Dr. Schimmer, who is now beginning multi-centre clinical trials with tigecycline as a treatment for leukemia.

Common diabetes pill

Common diabetes pill can cut risk of ovarian cancer by 40 pc (The tribune: 16.11.2011)

London: A drug widely used to treat patients with type two diabetes could be a major breakthrough in the prevention of ovarian cancer, according to a new study. The study of more than 1,600 British women reveals taking metformin for long periods could slash their risk of ovarian cancer by around 40 per cent, the Daily Mail reported. The researchers at the University of Basel in Switzerland found that women who had been prescribed metformin, which comes in tablet form, at least 10 times for their diabetes were less likely to develop a tumour than women who never took the drug, or had been prescribed it fewer than 10 times. Metformin belongs to a class of medicines known as biguanides, which have been used for decades to treat type two diabetes - the form of the disease that normally affects the middle-aged or elderly.

Antibiotic

Antibiotic Overuse Pattern in Southeastern United States Worrisome (Med India: 18.11.2011)

A pattern of outpatient antibiotic overuse in parts of the United States, particularly in the Southeast is observed in new research. The problem could be accelerated, the rate at which these powerful drugs are rendered useless, according to Extending the Cure, a project of the Center for Disease Dynamics, Economics & Policy.

These findings come out just as the Centers for Disease Control and Prevention (CDC) kicked off an annual effort to reduce overuse of antibiotics called "Get Smart: Know When Antibiotics Work." The campaign, which lasts throughout the week, urges Americans to use antibiotics wisely. The CDC estimates that \$1.1 billion is spent annually on unnecessary antibiotic prescriptions for adult upper respiratory infections alone. These prescriptions also speed the development of resistance to important antibiotic therapies.

Also, on Monday of this week, Extending the Cure introduced a new tool that allows non-experts to track changes in antibiotic effectiveness over time. The new Drug Resistance Index (DRI) is similar in concept to the Consumer Price Index and is described in a paper in the British Medical Journal Open.

Trends in Antibiotic Use Paint a Troubling Picture

Interactive maps released by Extending the Cure track antibiotic use in the United States from 1999 to 2007 and show how overall antibiotic dispensing has decreased; consumption fell by about 12% over this time period. However, they also highlight alarmingly high antibiotic use across the Southeast compared to states in the Pacific Northwest. For example, residents of West Virginia and Kentucky, where antibiotic use rates are highest, take about twice as many antibiotics per capita as people living in Oregon and Alaska.

Additional key findings include:

The five states with the highest antibiotic use in the nation are West Virginia, Kentucky, Tennessee, Louisiana and Alabama. However, the maps show higher than average use of antibiotics in other regions of the country as well. Check your state's antibiotics use at ResistanceMap.

Prescribing rates for a powerful class of antibiotics known as fluoroquinolones shot up by 49 percent from 1999 to 2007. At the same time, antibiotic resistance is increasing: these drugs are now seven times less likely to work against *Escherichia coli*, the most frequent cause of bacterial infections, than they were in 1999.

Penicillins remain the most popular antibiotics -- accounting for nearly one out of three prescriptions filled in the United States. At the same time, the market share of these standard drugs has declined by 28 percent as physicians increasingly turn to more powerful antibiotics.

High per capita antibiotic use rates could reflect an environment in which consumers mistakenly demand antibiotics -- and physicians prescribe them -- when they have a cold or the flu, which are caused by viruses and cannot be treated with these drugs. However, additional research must be done to better understand the driving factors behind antibiotic use.

The data was released today as part of Extending the Cure's ResistanceMap, an interactive web-based tool that tracks drug resistance.

Novel Way to Track Resistance: Drug Resistance Index (DRI)

In a report published this week in the *British Medical Journal Open*, Ramanan Laxminarayan, Director of Extending the Cure, and Keith P. Klugman, Professor of Global Health at Emory University, describe a first-of-its-kind index for tracking resistance. Like a Consumer Price Index (CPI) for drug resistance, the tool aggregates information about resistance trends and antibiotic use into a single measure of antibiotic resistance over time.

Hospitals can use the DRI to track resistance levels in their facility and to measure the success of interventions including antibiotic stewardship and infection control programs. The tool also offers decision makers a convenient way of communicating progress and

pitfalls in the fight against resistance, according to the study authors. The index is designed to be applicable at any level, from local hospitals to national healthcare system surveillance.

In this paper, researchers explain how the index can be used by assessing trends in resistance associated with two disease-causing micro-organisms: *Escherichia coli* and *Acinetobacter baumannii*. The index can also illuminate how physicians adapt to trends in resistance. For example, in this analysis, the index showed how physicians were able to use other drugs to treat infections caused by resistant strains of *E. coli* but had very few options left for treating *Acinetobacter*, a superbug that increasingly is resistant to all available antibiotics.

"Mapping the geography of antibiotic use and summarizing their effectiveness with a Drug Resistance Index bring us one step closer to the solutions we urgently need in order to curtail this public health crisis," Laxminarayan said. "If we do nothing, resistance will continue to develop and our most valuable antibiotics ultimately will fail."

Extending the Cure research suggests that policymakers must address the broader problem of antibiotic resistance by putting comprehensive solutions in place, including better infection control and surveillance as well as stepping up efforts to curtail overuse of antibiotics, a solution that would help preserve the power of the drugs we have left on the shelf.

Banned drugs

Health ministry plans robust policy to recall faulty, banned drugs (Business Standard: 18.11.2011)

The health ministry is planning to develop a foolproof mechanism to ensure recall of all faulty and banned drugs from the Rs 60,000-crore domestic pharmaceutical market.

The move will strengthen the existing recall provisions under the Drugs and Cosmetic Rules. The current law, however, fails to prescribe time-bound recall formats.

ut as companies stopped production and retail

chemists exhausted their stocks over a period of time.

HIGH PROFILE GLOBAL DRUG RECALLS			
Company	Product	Therapeutic class	Year
Glaxo	Avandia	Anti-diabetic	2010
Pfizer	Bextra	Anti-inflammatory	2005

Merck	Vioxx	Aanti-inflammatory	2004
Bayer	Baycol	Anti-cholesterol	2001

The ministry's attempt has become significant as the Central Drugs Standard Control Organisation (CDSCO) confiscated several banned drugs from retail chemist shops in key metro cities a few months earlier. These seizures took place despite pharmaceutical companies claiming to have stopped the production of the medicines and instructed their field forces to take them off the shelves.

The companies had blamed retail chemists for stocking the medicines.

According to officials, an expert committee will be tasked to prepare the draft. The new system may draw much from the experience of developed nations, where drug recall systems are being followed for decades.

According to a senior health ministry official, "drug recall system" is one of the key agenda before the Drugs Consultative Committee (DCC), the expert group that includes drug controllers from every state.

A sub-committee of the DCC had recently recommended the introduction of a unique identification, similar to bar coding for all the pharma products, as a measure to track and check the presence of counterfeit products.

The authorities feel that a proper system to track the sale of medicines will prove helpful in effective recall of the products also.

Currently, there is no standard practice of setting deadlines for recall of faulty or banned medicines. Companies may be allowed to sell until the stock exhausts or they may be asked to withdraw the products immediately.

The practices followed by the European Union, the United States and others have specific deadlines set for different types of drug recalls. Thus, there can be a 24-hour deadline in case of a serious adverse effect or a firm initiated recall that may go on for several months as it does not concern the safety of the patient

Homeopathy Congress

Homeopathy Congress in Delhi next month (The Hindu: 18.11.2011)

Over 2,500 doctors from 70 countries would descend here next month to put their heads together to mull the latest developments in homeopathy and also draw plans to popularise the alternative medicine therapy. The 66th World Homeopathy Congress of LIGA Medicorum Homoeopathica Internationalis (LMHI) will be held in India for the fourth time December 1-4 with special sessions on homeopathic education, government policies,

clinical research and pharmaceutical industry demands. Dr R K Manchanda, organising secretary, LIGA Congress 2011, said the conference would promote interaction between homeopathy doctors from around the world and also the students. We are also aiming at bringing in uniformity in homeopathic education and practising policies through the world. More importantly, we want homeopathy to be a part of public health setting to deal with infections and lifestyle diseases, added Dr Manchanda. UNI RL AE 1943

Diabetes drug

Diabetes drug could help cut risk of cancer (New Kerala: 25.11.2011)

A new study has found that an inexpensive drug used to treat Type-2 diabetes can prevent a number of natural and man-made chemicals from stimulating the growth of breast cancer cells.

The research, led by pediatrics professor James Trosko and colleagues from South Korea's Seoul National University, provides biological evidence for previously reported epidemiological surveys that long-term use of the drug metformin for Type-2 diabetes reduces the risk of diabetes-associated cancers, such as breast cancers.

"People with Type-2 diabetes are known to be at high risk for several diabetes-associated cancers, such as breast, liver and pancreatic cancers," said Trosko, a professor in the College of Human Medicine's Department of Pediatrics and Human Development.

"While metformin has been shown in population studies to reduce the risk of these cancers, there was no evidence of how it worked," he stated.

Using culture dishes, Trosko and colleagues grew miniature human breast tumors, or mammospheres, that activated a certain stem cell gene (Oct4A).

Then the mammospheres were exposed to natural estrogen – a known growth factor and potential breast tumour promoter – and man-made chemicals that are known to promote tumours or disrupt the endocrine system.

The team found that estrogen and the chemicals caused the mammospheres to increase in numbers and size.

However, with metformin added, the numbers and size of the mammospheres were dramatically reduced.

While each of the chemicals enhanced growth by different means, metformin seemed to be able to inhibit their stimulated growth in all cases.

The research appears in the current edition of PLoS One.

Cancer medicine

Cancer medicine component could prevent heart attacks (New Kerala: 25.11.2011)

One of the components used in present day medication for illnesses like cancer and epilepsy could also prevent heart attacks, a new study has suggested.

Heart attacks are normally caused by the formation of a blood clot in one of the blood vessels that supply the heart with oxygen and nutrients.

The body has a natural defence system to prevent blood clots – the fibrinolytic system, which ‘sprays’ a special enzyme over the clots to break them down before they manage to obstruct the vessel.

However, in order to function properly, this system needs sufficient quantities of the enzyme to be stored in the vessel wall. Unfortunately these stores are often depleted because of hereditary and lifestyle factors, such as high blood pressure, smoking and overweight, which probably increases the risk of a heart attack.

Researchers at the University of Gothenburg’s Sahlgrenska Academy have been looking at a way to stimulate the clot-dissolving system. The results have been promising and have opened the door to new ways of preventing heart attacks.

“We’re trying to find a medicine that boosts the stores of the enzyme as this probably would help the body to prevent heart attacks,” said Pia Larsson at the Sahlgrenska Academy.

For the study, Sahlgrenska researchers used HDAC inhibitors, substances new to this particular context, and managed to stimulate production of the relevant enzyme.

“We found that treatment with HDAC inhibitors dramatically increased production of the clot-dissolving enzyme, and that this occurred at far lower concentrations than expected,” said Larsson.

The advantage of HDAC inhibitors is that they are already in use for treating illnesses such as epilepsy and cancer, which means that their pharmacological properties and side-effects are known.

However Larsson has said that more research is needed before a drug to prevent heart attacks can be launched.

“Our trials have been carried out on cultured cells from the vessel wall and we can’t guarantee that the cells, when present in the body, will behave in exactly the same way.”

“The results must therefore be tested on people before we can draw any firm conclusions,” Larsson added.

Antibiotic

Antibiotic Alternative may be found in Targeted Antibacterial Proteins (Med India: 25.11.2011)

Read more: Antibiotic Alternative may be Found in Targeted Antibacterial Proteins | MedIndia

New research has suggested that a novel antibacterial protein targeted against E. coli O157:H7 may offer a way to prevent or treat serious food-borne bacterial infections.

This concept is demonstrated in a study published in the December issue of Antimicrobial Agents and Chemotherapy. Results in an animal model of E. coli infection showed that the orally administered protein, developed by AvidBiotics, Inc., could prevent or treat E. coli O157:H7-induced diarrhea and intestinal inflammation when administered either on a preventative basis or after the onset of diarrhea. Moreover, animals treated with the protein also carried and shed fewer of the E. coli O157:H7 bacteria in their feces.

"E. coli O157:H7 contamination of foods like ground meats or produce is a well-publicized public health problem, with life-threatening infection outbreaks reported around the world in recent years," said Dean Scholl, Ph.D., lead author of the publication. "Antibiotics are contraindicated for patients infected with enterohemorrhagic E. coli (EHEC) strains like O157:H7, because many of those drugs induce the bacteria to produce and release harmful toxins. Anti-diarrheal medications also do not benefit infected patients, as they cause the bacteria to be retained in the intestines, leading to greater toxin exposure. Thus the successful development of treatments that can prevent infection or limit symptoms and disease duration and the possible further spread of harmful bacteria without increasing toxin release could benefit both individual patients and affected communities."

The study published by Dr. Scholl and his collaborators at AvidBiotics and Brigham and Women's Hospital/Harvard Medical School assessed AvidBiotics' anti-E. coli O157 protein, termed an Avidocin™ protein, in a rabbit model of infection and reported that:

The Avidocin protein remained active within the treated animals' intestinal tract for at least 24 hours post administration.

When given shortly after the animals were infected with *E. coli* O157:H7 but before they developed active disease, the Avidocin protein inhibited bacterial colonization and/or the symptoms of infection. Animals that received the highest dose of protein studied did not develop diarrhea at any time during the experiment. In contrast, animals given buffer alone developed typical diarrhea within 1-2 days after infection, which worsened by the 3rd day of the study.

Analyses of colon tissue showed less severe intestinal inflammation in Avidocin protein-treated animals compared to controls. Avidocin protein administration also greatly reduced the number of *E. coli* O157:H7 recovered from the intestine and the stool of treated animals.

When the anti-*E. coli* O157:H7 Avidocin protein was administered to infected animals already exhibiting disease symptoms, the existing diarrhea began to resolve in treated animals compared to animals treated with placebo. This reduction in diarrhea persisted until the experiment was terminated, 9 days post infection, at which time the feces of the treated animals appeared closer to feces from uninfected animals than the still largely liquid stool of the control animals. Thus, even after the onset of diarrhea in *E. coli* O157:H7-infected animals, administration of the anti-*E. coli* O157:H7 Avidocin protein could still mitigate the effects of infection.

"These findings suggest that an Avidocin protein targeted against *E. coli* O157:H7 offers promise for both the prevention and treatment of infection by this important enteric pathogen," concluded Dr. Scholl. "Moreover, this agent provides several significant advantages over conventional antibiotics, including a lack of drug-induced shiga toxin production and unintended collateral damage to normal intestinal bacterial populations. Additionally those rare variants of *E. coli* O157:H7 that emerge resistant to the anti-*E. coli* O157:H7 Avidocin protein are likely to have compromised virulence, or disease-causing properties."

About the Avidocin™ Protein Platform AvidBiotics genetically engineers Avidocin proteins from R-type pyocins, antibacterial proteins produced by some *Pseudomonas aeruginosa* strains. These proteins specifically kill bacteria by binding to the bacterial cell and punching a hole in the cell envelope, causing membrane depolarization and ultimately cell death. AvidBiotics has previously demonstrated that Avidocin proteins can be engineered to recognize and kill in a highly targeted and specific manner a variety of bacteria, including *E. coli*, *Salmonella*, *Shigella*, *Clostridium difficile*, and *Yersinia pestis* (the bacterium that causes plague), thus serving as a platform for the production of numerous highly specific antibacterial agents.

AvidBiotics is also currently developing Avidocin proteins against *Acinetobacter*, a bacterium associated with serious, often broadly antibiotic-resistant infections in Intensive Care Units and those incurred by U.S. military deployed in Iraq and Afghanistan. In addition to the human health care uses of the Avidocin™ technology, AvidBiotics is collaborating with food safety and hygiene company EcoLab to develop antibacterial proteins for use against *E. coli* O157:H7 in meat processing.

Drug News

Gene Exchange may be triggered by Antibiotics in Swine Feed (MedIndia: 30.11.2011)

Adding antibiotics to swine feed causes microorganisms in the guts of these animals to start sharing genes that could spread antibiotic resistance, says a study to be published in the online journal mBio® on November 29.

Livestock farms use antibiotic drugs regularly, and not just for curing sick animals. Antimicrobial drugs are used as feed additives to boost animal growth, a profitable but controversial practice that is now banned in the European Union and under scrutiny here in the United States. Using antibiotics in animal feed saves farms money, but opponents argue the practice encourages antimicrobial resistance among bacteria that could well be consumed by humans. Today, livestock producers in the U.S. use an estimated 24.6 million pounds of antimicrobials for nontherapeutic purposes every year. The U.S. Government Accountability Office recently urged the federal government to follow up on plans to evaluate the impacts of the use of antibiotics as growth promoters.

The study by Heather Allen and her colleagues at the USDA National Animal Disease Center (NaDC) in Ames, Iowa, adds to the sum of knowledge about what happens to the microorganisms that populate animal digestive tracts when they are exposed to low, persistent levels of antibiotics. The researchers studied how two in-feed antibiotic formulations affect prophages, segments of DNA found in bacteria that can encode antibiotic resistance genes and other genes that bacteria may use.

Prophages can cut themselves out of the larger chromosome of bacterial DNA in a process called induction, then replicate and package themselves as viruses. These viruses explode the cell from the inside then move on to infect other organisms and deliver their genes.

Allen, who is lead author on the study, says when pigs were fed antibiotics, the actual numbers of antibiotic resistance genes carried by the phages remained steady, but the microorganisms still reacted to the presence of antibiotics. Prophages underwent a significant increase in induction when exposed to antibiotics, indicating that medicating the animals led to increased movement of prophage genes among gut bacteria.

"Induction of the prophages is showing us that antibiotics are stimulating gene transfer," says Allen. "This is significant because phages have previously been shown to carry bacterial fitness genes such as antibiotic resistance genes."

Studies that explore the impacts of in-feed antibiotics most often focus on the bacterial residents of the gut, according to Allen, but phages and other viruses move a significant amount of genetic information around the community. This makes changes in prophage induction an important collateral effect of antibiotic treatment, she says. Resistance genes are the unit of currency among microbes experiencing the duress of an antibiotic, so following the movement of genes is arguably more important than following certain

changes in bacterial communities. And if bacteria in humans acquire resistance genes from animals, there can be serious health consequences.

"What's important is the transfer of a gene that could get into the wrong place at the wrong time," says Allen. "Increased gene transfer is a critical event in the evolution of gut bacteria."

Traditional Chinese Medicines

Traditional Chinese Medicines Can Cure AIDS (Med India: 5.12.2011)

Traditional Chinese medicine (TCM) has helped in the recovery of at least 17,000 HIV carriers and AIDS patients in China since 2004, claims experts.

Speaking on the eve of World AIDS Day, which is observed on December 1, Wang Jian, deputy director of the TCM Center for AIDS Prevention and Treatment with the State Administration of Traditional Chinese Medicine, said: "TCM performs as an effective supplement to Western therapy in terms of alleviating patients' symptoms, including fever, cough, asthenia and diarrhea, thus making life easier for them."

According to the China Daily, China started to give AIDS patients free TCM therapy in a pilot project carried out among 2,300 patients in five provinces in 2004.

By last October, the projects had expanded to 19 provinces.

The TCM therapy is usually applied to carriers whose immune system is not too weak to receive the Western medication that is largely known as antiretroviral therapy; or to patients who suffer side effects from the therapies.

A biological indicator for this is CD4, a type of cell in the immune system. When a carrier's CD4 count reaches 350 per cubic millimeter or below they will need western treatment.

According to Wang Jian, Chinese herbal medicines work differently from Western anti-HIV drugs. The Western therapies target blocking viral replication, but TCM therapy works towards increasing people's immunity.

Wang said that Chinese government has allocated 220 million Yuan (34.49 million dollars) for TCM therapy research, and further efforts will be made to develop better treatment based on a combination of TCM and Western medicine.

By the end of 2011, China is estimated to have 780,000 people living with HIV/AIDS, including 154,000 patients with full-blown afflictions, official statistics show.

Low Vitamin D

Low Vitamin D may up diabetes risk in kids (New Kerala: 7.12.2011)

Low level of Vitamin D, which is more rampant in obese children, may increase the risk of type 2 diabetes and insulin resistance in kids, a new study has suggested.

High rates of vitamin D deficiency have been found in obese populations and past studies have linked low vitamin D levels to cardiovascular disease and type 2 diabetes.

The mechanisms by which obesity and its comorbidities are related to vitamin D deficiency are not fully known. This new study examined associations between vitamin D levels and dietary habits in obese children, and tested whether there were correlations between vitamin D levels and markers of abnormal glucose metabolism and blood pressure.

“Our study found that obese children with lower vitamin D levels had higher degrees of insulin resistance,” said Micah Olson, MD, of The University of Texas Southwestern Medical Center in Dallas and lead author of the study.

“Although our study cannot prove causation, it does suggest that low vitamin D levels may play a role in the development of type 2 diabetes.”

In this study, researchers measured vitamin D levels, blood sugar levels, serum insulin, BMI and blood pressure in 411 obese subjects and 87 control non-overweight subjects. Study participants were also asked to provide dietary information including daily intake of soda, juice and milk, average daily fruit and vegetable intake, and whether or not they routinely skipped breakfast.

“Poor dietary habits such as skipping breakfast and increased soda and juice intake were associated with the lower vitamin D levels seen in obese children.”

“Future studies are needed to determine the clinical significance of lower vitamin D levels in obese children, the amount and duration of treatment necessary to replenish vitamin D levels in these children and whether treatment with vitamin D can improve primary clinical endpoints such as insulin resistance,” Olson added.

This study has been published in The Endocrine Society’s Journal of Clinical Endocrinology and Metabolism (JCEM).

Antibiotic

Sewage Treatment Plants May Contribute to Antibiotic Resistance Problem (8.12.2011)

Water discharged into lakes and rivers from municipal sewage treatment plants may contain significant concentrations of the genes that make bacteria antibiotic-resistant. That's the conclusion of a new study on a sewage treatment plant on Lake Superior in the Duluth, Minn., harbor that appears in ACS' journal Environmental Science & Technology.

Timothy M. LaPara and colleagues explain that antibiotic-resistant bacteria -- a major problem in medicine today -- are abundant in the sewage that enters municipal wastewater treatment plants. Treatment is intended to kill the bacteria, and it removes many of the bacterial genes that cause antibiotic resistance. However, genes or bacteria may be released in effluent from the plant. In an effort to determine the importance of municipal sewage treatment plants as sources of antibiotic resistance genes, the scientists studied releases of those genes at the Duluth facility.

Although the Duluth facility uses some of the most advanced technology for cleaning wastewater -- so-called tertiary treatment -- the study identified it as an important source of antibiotic resistance genes. Sampling of water at 13 locations detected three genes, for instance, that make bacteria resistant to the tetracycline group of antibiotics, which are used to treat conditions ranging from acne to sexually transmitted diseases to anthrax and bubonic plague. LaPara's team says their research demonstrates that even the most high-tech sewage treatment plants may be significant sources of antibiotic resistance genes in waterways.

The authors acknowledge funding from the National Science Foundation and the Minnesota Environment and Natural Resources Trust Fund.

Vitamin C

Vitamin C deficiency rampant in India's elderly population (World Newspaper: 8.12.2011)

Up to three quarters of older people in India have vitamin C deficiency due to poor dietary habits, smoking and consumption of tobacco, a new study has suggested.

The study, coordinated by Professor Astrid Fletcher of the London School of Hygiene and Tropical Medicine in collaboration with Aravind Eye Hospital Pondicherry and the All India Institute for Medical Sciences in Delhi, is the first-ever large screening of vitamin C blood levels in the elderly Indian population.

Vitamin C is an essential nutrient for human health, playing a role from maintenance and repair of tissues to antioxidant activities. This study Vitamin C deficiency is primarily due to a diet, which is low in fruit and vegetables.

Smoking or chewing tobacco and cooking with fuels such as wood crops or dung (used by 70 percent of the rural population) can cause depletion of Vitamin C blood levels. One of the effects of tobacco and inhaling fumes from home or cooking fires is oxidative stress (which can cause damage to cells) and the body uses vitamin C to combat this.

The research, funded by the Wellcome Trust, highlights marked differences between the study locations in the north and south of the country, although in both regions the percentages of vitamin C deficient people over 60 years of age were extremely high, with 74 percent in the north and 46 percent in the south.

Only 11 percent and 26 percent respectively, met the criteria for adequate levels. Vitamin C levels were also found to vary seasonally, in conjunction with the monsoon months, thought to reflect the lower intake of fruit and vegetables.

The large population-based study involved over 5000 people aged 60 years or over from rural villages and small towns and included interviews about their diet, blood analysis and malnutrition assessments.

“ While much attention has focused on increasing levels of obesity in India, the problem of poor nutrition in the older population has received much less attention even though India has one of the fastest growing older populations,” Dr Ravindran, principal author of the study said.

“In poor communities, such as in our study, consideration needs to be given to measures to improve the consumption of vitamin C rich foods, and to discourage the use of tobacco and biomass fuels,” he added.

Expired drugs

Expired drugs to take or not to take (The Tribune: 8.12.2011)

Expiry dates on the medications and vitamins are a conservative estimate by the manufacturers to ensure quality, say some studies. In many instances, medicines past their expiry date are safe but may not be as effective or potent

Should we discard all medicines from our home medicine kit that have passed their expiry date and replace them?

If someone is administered an expired medicine, is he/ she going to suffer a serious side effect?

If someone is having a sudden and severe neck or back pain during midnight, and the only painkiller available in the medicine kit is past its expiry date, should the patient take it or keep on suffering?

Most of us may have faced these dilemmas at one time or other. But the question is that what happens to the potency and safety of the drugs that have passed their expiry dates.

The website of Harvard Medical School (HMS) Family Health Guide says that the expiration dates on the medications and vitamins are a conservative estimate by the manufacturers to ensure quality. In most instances, expired medications are safe but may not be as effective or potent once past their expiry date.

FDA ruling

Before 1979, it was not mandatory for drug manufacturers to mention the expiration date on the products. For the first time in 1979, the Food and Drug Administration (FDA), US, made it necessary under the law for all drug manufacturers to mention the date up to which the full potency and safety of the drug was certified. This resulted into the start of a new era of discarding drugs that had passed the date of expiry mentioned on their packing. Thus it caused huge losses to the bulk purchasers of the drugs, especially in government health departments and the US Army, forcing them to replace the unused expired drugs with a fresh stock.

In 1985, this loss was noticed by the US Army authorities when they were faced with the task of destroying and replacing the stockpiled expired drugs worth more than a billion dollars. This triggered the process of testing the efficacy and safety of the expired drugs. The task of testing was assigned to the FDA by the US Army.

Accordingly, the FDA tested more than a hundred prescriptions and over-the-counter medications and observed that 90 per cent of the expired drugs were still safe and potent; the oldest drug tested had expired 15 years back at the time of testing. The study pointed out that the expiry date did not really indicate a point at which the medication was no longer effective or had become unsafe to use. This report was published in the Wall Street Journal (March 29, 2000), which was reported by Laurie P. Cohen. At present, there is a programme being run jointly by the Department of Defence and the FDA, US, known as “Shelf Life Extension Program” (SLEP) that is meant to defer drug replacement costs for date-sensitive stockpiles of pharmaceuticals by extending their useful life beyond the manufacturer's original date of expiry. The SLEP started in 1986 and has started providing online service since 2005.

Dos and Don'ts

Most outdated medications, whether prescription or over-the-counter, are usually not harmful. If the medications have been stored under good conditions, they usually retain much of their potency for at least one to two years following their expiry date, even after the container is opened.

One should not consume any pills that have become discoloured, turned powdery, or smell bad; any liquids that appear cloudy or filmy; or any tubes of cream that are solidified or cracked.

To help maintain potency, the medications should be stored in a closet or cabinet located in a cool and dry room.

The medicine kit should not be stored in the bathroom where the heat and humidity from hot water showers/ steam can cause medications to break down, lose potency and, occasionally, even become harmful.

Similarly, their storage in the kitchen next to the gas stove, washbasin or dishwasher is not advisable.

It should be ensured that the bottles are tightly sealed after use.

Also, the medications should not be mixed in one container because chemicals from different medications can interact to interfere with potency or cause toxic side effects. If two or more medications have been mixed, they should be discarded.

A few medications, like insulin and some liquid antibiotics, do degrade quickly and should never be used beyond the expiry date.

If there are any doubts about the safety or potency of a particular expired drug, it is wise to consult a pharmacist who does not have any conflict of interest.

Drug disposal

Disposal of the expired drugs properly is equally important to avoid the harmful environmental effects and prevent accidental use of discarded expired drugs by the children and animals. A 1996 report of how expired medications are being disposed of found that 1.4 per cent of respondents returned medications to a pharmacy, 54 per cent disposed of medications in the garbage, 35.4 per cent flushed medications down the toilet or sink, 7.2 per cent did not dispose of medications, and 2 per cent related that they used all medications before expiration.

Ideally, one should follow the advice and instructions for the disposal of the expired medications as rendered by the manufacturer, if they are provided with. However, if there are no such instructions, it is advisable to take out the medicines out of their containers and mix them with something like cat/ dog litter or dirty household waste to which the children and pets are not attracted to.

Finally they should be disposed off after sealing them in plastic bags. The expired medicines should not be flushed down the toilet unless specifically instructed to do so because of the earlier reported risk of the resistant bacteria in the aeration tanks of

sewage treatment plants by the antibiotic substances present. The exceptions to the rule are narcotics and controlled substances, which are often flushed to prevent unintentional use, overdose and illegal abuse.

Shelf life

Taylor and others in a paper titled “Stability profiles of drug products extended beyond labelled expiration dates” presented the data from the Department of Defence/US Food and Drug Administration (FDA) Shelf Life Extension Programme, which tests the stability of drug products past their expiration date. The paper presented in 2002, showed that 84 per cent of 1,122 lots of 96 different drug products, stored in the military facilities in their unopened original container, were expected to remain stable for an average of 57 months after their original expiration date. Some US Army studies on Valium, for example, show that the drug is stable and completely safe and effective for up to eight years after manufacture. Tablets of ciprofloxacin, an expensive antibiotic, were found completely safe and effective when tested nine and half years after the expiry.

An issue of The Medical Letter quoted not only the above study but also of others showing expensive medications like Amantadine and Rimantadine maintaining their stability after storage for 25 years under ambient conditions and retained full anti-viral activity after boiling and holding at 65-85° C for several days. Regenthal and coauthors in 2002 observed that the drug Theophylline, in tablet form, showed 90 per cent stability even after 30 years beyond the expiry date.

The Medical Letter also quoted that most drugs stored under controlled conditions retain 70 per cent to 80 per cent of their potency for one to two years after the expiration date, even after the container has been opened. But it must be noted that the current US Pharmacopoeia [USP] standard is generally 90 per cent potency. With new individual pill packaging techniques, however, it is highly likely that USP acceptable potency would be the norm over the same time period.

Although in certain cases, the effects of expiration of a drug has been observed to be in the form of some loss of potency of the drug over the period of time, which can range from as little as 5 per cent of loss of potency to 50 per cent loss of potency, but many drugs are likely to have a reasonably good potency even after five to 10 years of expiry. However, in the case of some antibiotics, the chemical has been reported to get transformed into a new form after the expiration date, which may be harmful. This was reported by Frimpter and others in the Journal of American Medical Association in 1963 (JAMA. 1963;184:111-113) in the case of expired tetracycline that resulted into side effect on the kidney although the observation and conclusions of the authors are being contested by some other medical scientists.

In a recent article, Richard Altschuler has quoted Francis Flaherty, a former director of the testing programme of FDA saying, “expiration dates put on by manufacturers, typically have no bearing on whether a drug is usable for longer. A drug maker is

required to prove only that a drug is still good on whatever expiration date the company chooses to set. The expiration date doesn't mean, or even suggest, that the drug will stop being effective after that, nor that it will become harmful. Manufacturers put expiration dates on for marketing, rather than scientific reasons. It's not profitable for them to have products on a shelf for 10 years. They want turnover." Mr Altschuler has also quoted Joel Davis, who has been former FDA expiration-date compliance chief as "with a handful of exceptions - notably nitroglycerin, insulin, and some liquid antibiotics - most drugs are probably as durable as those the agency has tested for the military. Most drugs degrade very slowly. In order to maintain the potency and safety of the drugs, however, it is mandatory that these are stored in a refrigerator and not exposed to direct sunlight, heat and humidity."

Thus, it is now an undisputed fact that in the case of liquid antibiotics, nitroglycerine, insulins and the drugs meant to save life-threatening situations, one should not take the risk of taking the drugs that have crossed the expiry dates. Administration of majority of other drugs, however, beyond the date of expiry is very unlikely to result into any serious side effects.

Safety strategies

In the light of the foregoing information, the question remains as to what should be done with the drugs that have passed the expiration dates mentioned by the drug manufacturer, especially in the case of bulk purchasers in the government sector. The US military has devised a programme of extension of shelf life of the expired drugs by getting them tested from the FDA.

It may be worthwhile for the developing countries also to explore the possibility of identifying/ developing such national organisations like FDA so that if the need arises, such shelf extension programmes can be undertaken.

Till the strategies of testing of such medications are developed, the individual users can check the advice rendered by the Harvard Medical School on its website:

<http://www.health.harvard.edu/fhg/updates/update1103a.shtml> and by Johns Hopkins on its website: http://www.johnshopkinshealthalerts.com/alerts/prescription_drugs/JohnsHopkinsPrescriptionDrugsHealthAlert_677-1.html

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Vitamin D

Vitamin D deficiency ups risk of urinary incontinence: Study (World Newspaper Today: 13.12.2011)

Vitamin D deficiency increases the risk of pelvic floor dysfunction, including clinical conditions like urinary incontinence, a new study has revealed.

The study compared vitamin D levels with incidence of various forms of pelvic floor disorder among 1,881 women, with an average age of 48. Those with low levels of vitamin D (characterized as less than 30 nanograms per milliliter, or ng/ml) had a 170 percent increased risk of urinary incontinence, compared to those with higher blood levels.

This is because as a hormone, vitamin D supports a myriad of bodily functions, including maintenance of muscle and bone. As a result, deficiency could undermine the muscular infrastructure of the pelvis needed for urinary control.

Related research suggests that losing weight could result in as much as a 47 percent decrease in episodes of incontinence, perhaps by reducing the pressure that excess adipose tissue places on the pelvis and by increasing levels of vitamin D.

Maintaining levels of vitamin D may lower your risk of other ailments as well, including fractures, tooth loss, depression, chronic pain, and even certain cancers.

The study has been published in Obstetrics and Gynecology.

Drug

India source for U.S. execution drug?(The Hindu: 13.12.2011)

Lack of export control may give room for exploitation

When Indian pharmaceutical company Kayem dispatched stocks of sodium thiopental to the U.S. early this year, they thought it was a golden chance to bring in good business and build a reputation. What came, instead, was, in the company's words, "a bouncer."

Little did Kayem know that the drug they so eagerly parcelled off to the U.S. was being injected into prisoners on death row for their execution in the prisons of Nebraska and South Dakota.

“We thought exporting to the U.S. will be good for us. We sold 500 vials of the drug to Nebraska and 500 to South Dakota, not knowing its end use. When we learnt it was being used for execution in U.S. prisons it was a total bouncer. We issued a public statement announcing that we have discontinued selling it to them,” Navneet Verma, managing director of Kayem told The Hindu on the phone on Monday.

The truth about the use of sodium thiopental for non-medicinal purposes was uncovered by Maya Foa, investigator from a U.K. legal NGO ‘Reprieve’.

“The medicine is being used in large parts of the world for medicinal purposes, but in the U.S. it is being diverted for executions,” Ms. Foa told a press conference recently in the city. This “misuse” of the drug, its shortage in the U.S. and attempts by the country to obtain the drug from various European nations has given rise to a body of controversy that soon threatens to engulf the Indian pharmaceutical industry, Ms. Foa pointed out.

But India seems to be unware of the repercussions of selling to the U.S. Lack of export controls provides an easy leeway to the U.S. to purchase from unsuspecting manufacturers like Kayem.

“Domestic shortages of execution drugs mean the U.S. is now seeking supplies abroad. Sodium thiopental is not used for medicinal purposes in the U.S. and the last remaining manufacturer pulled out of the market in January...Right now India is the source destination for the U.S.,” Ms. Foa said.

Representatives from Reprieve who met Indian officials said the authorities washed their hands of the issue. “They said the drug was not a controlled substance. It's a strange situation where the FDA [Food and Drug Administration] says they will not check the drugs,” advocate Vijay Hiremath from Centre for Access to Rights said.

Despite several attempts, the Drugs Controller General (India) was not available for comment. However, an FDA official from Maharashtra, who did not wish to be quoted, told The Hindu on the phone: “There is no export control on the drug. Companies are allowed to manufacture and sell. The drug is manufactured to be used in providing anaesthesia. If someone is abusing it, that's illegal. The FDA only checks drug quality. India cannot do anything about what happens [in the US] when the drug is exported.”

That has not been the case in Europe though. After Hospira, the sole U.S. manufacturer of sodium thiopental stopped production, the country turned to the U.K., Germany, Italy and Denmark.

In all these attempts, European companies were either dragged into lengthy and expensive litigations in the U.S. from defence lawyers or the U.S. authorities seized the drugs when they were found to be “illegally imported”.

The European Commission has drafted an amendment to a European regulation which will make it illegal to sell sodium thiopental and other potential execution drugs to the U.S. without a licence. In 2010, the U.K. government put an export control ending the business of Dream Pharma, a British wholesale company providing the drug to the U.S., Ms. Foa said.

In addition to seizure of European drugs, “the U.S. Drug Enforcement Agency (DEA) ordered the seizure and destruction of drugs imported from India to Nebraska and South Dakota”.

The U.S. made its second attempt to tap an Indian manufacturer ‘Ganpati Exim’. Its third attempt was to turn to Naari, a Swiss company manufacturing the drug in India.

A U.S. dealer obtained the drug from Naari under the pretext of supplying it to Africa, where it is sorely needed. However, once the company learnt of the end use, it cancelled all orders.

Ms. Foa, who met officials in Mumbai and New Delhi, said there was a “need for the pharma industry and Indian authorities to come forward and say no to the execution drug”.

Export of the drug does not even make good business sense. The drug is cheap and it takes only 5 gm per execution. “The entire market is worth not more than 7,000 rupees or \$130 per annum,” Ms. Foa said. “If the U. S. does not get the drug and India puts up a fight, it will change the landscape,” she said.

Keywords: Sodium thiopental, execution drug

Parma policy

Health ministry not for market-based drug pricing suggested in pharma policy (Business standard: 13.12.2011)

Wants to take control of medicine price regulator from the chemicals ministry.

The health ministry may oppose the market-based price fixing model suggested in the draft National Pharmaceutical Pricing Policy (NPPP).

In a separate move, the ministry has also written to the Planning Commission to consider shifting the medicine price regulator — the National Pharmaceutical Pricing Authority (NPPA) — from under the administrative purview of the ministry of chemicals and fertilisers to the health ministry. The suggestion, which forms part of the ministry's XII Plan recommendations, is meant to turn the NPPA function from a health or patient perspective rather than an industry friendly one.

The NPPA, which fixes the prices of medicines notified as scheduled drugs under the Drugs Price Control Order, is now part of the Department of Pharmaceuticals, a bureaucratic arm set up for the development of the pharmaceutical sector. Health ministry officials said they are in the process of formalising their opinion on the draft pharma pricing policy before conveying it to the Department of Pharmaceuticals.

“There is a conflict of interest in fixing pricing of medicines and prescribing the growth of pharmaceutical industry. We have made a recommendation to hand over NPPA's administrative control to the health ministry to enable us to take a holistic view of pricing of essential medicines,” a senior health ministry official said.

The policy was criticised severely by public health groups, who said the proposal to end the cost-based price control mechanism could result in high medicine prices. The industry had welcomed this shift by saying that it would bring in more transparency in fixing drug prices.

The pharma pricing policy was prepared after the Supreme Court wanted the Central Government to frame a drug policy that will bring all essential medicines under price control. While the drug policy has only 18 per cent of the Rs 62,000-crore drug market under price control, the proposed one will cover over 60 per cent of the domestic drug market. The new policy will see all medicines on the National List of Essential Medicines (NLEM)-2011 under price control.

According to industry estimates, the NPPP will result in a dip of up to Rs 3,000 crore in the industry's net profits.

A senior health ministry official said the ministry, which finalises the list of essential medicines, may also add some more drugs to the recently updated list to accommodate some high priced life-saving drugs.

The health ministry is also proposing to provide all NLEM medicines free through public health institutions.

The pricing policy will be final only after a Cabinet approval. The department of pharmaceuticals has not given any timeline for finalising the policy.

Pill

The pill that failed (The Tribune: 14.12.2011)

The story of modern contraception has remained irrelevant for millions of women in India. In the absence of accompanying advances in education, health-care and incomes, their subordinate and submerged position has remained unaltered.

Stuck in a time warp- The narrative of sex and contraception — Photo: Nitin Mittal

Contraception is the 'in thing' in today's young India. Young women in small and big towns freely carry contraceptives in their kits, goes the prevailing modern perception. National surveys by leading magazines suggest an increasing use of contraceptives among the 'rich' and 'poor', 'educated' and 'uneducated', 'rural' and 'urban'. With the globalisation of Indian economy, sex too is all easy to get, according to the modern media representation. A feel good factor, good coffee and good, safe sex. Hard-bitten brokers of power and money claim to think of a rich India monopolised by economic and social freedom. Their optimism uplifts the middle class sensibility. 'We are modern gals', spoke a group of middle class girls in unison in a prestigious woman's college in Delhi University. 'We enjoy sex, we party and we have fun'. Their hopes and dreams set me thinking. As I set out to probe the rhetoric of the so-called sexual freedom in the context of a snarling neo-nationalist and neo-liberal India that is emerging at such rapid speed, I decided to step back a little amid this chorus of jubilation and pipe dream of the urban young in the country. I tried to recall the history of contraception, and what it has come to mean in our country where sex was till late almost a taboo. It's worthwhile to go back to the fragmentary narratives of sex and contraception and understand the different ways contraceptive practices have or have not affected women's lives in India.

They did it in Rome

Well, they did it in Rome, too. In one of the seminal articles, the distinguished Oxford historian Keith Thomas revealed that upper class Romans in their desire for small families were concerned with contraception. Not only was contraception not a modern invention of the 19th century, Thomas demonstrated that contraception theory was part of a vibrant medical tradition which can be traced back to Aristotle and the Hippocratic Corpus.

The ancient Egyptians too engaged with the practice of contraception. In the 9th century discussions were frequent in Arab literature on intra-vaginal female methods of contraception; these ideas travelled to the West. Thereafter, a complex history of contraception unfolds, as sexuality came to be policed from different quarters, including the church, religion, dominant institutions, and the guardians.

The language of contraception transformed in the 19th century. It came to be ensconced in the ideas of freethinkers and political radicals in the West. They used the concept to 'demystify nature and to promote social justice for the working classes'. In 1822, Francis

Place, an English workingman, endorsed contraception, explaining to the working class population in industrial cities that sex should be separated from procreation. After much ado, a spring-loaded rubber vaginal diaphragm, thanks to the efforts of Wilhelm P.J. Mensinga, a German physician and professor of anatomy, became the symbol of modern contraception. Finally, came the marketing of the 'antiovlant birth-control pill' in 1960.

A lively feminist discussion set the tone for 'reproductive autonomy' for women and made contraception synonymous with sexual freedom and choice. Annie Besant, the socialist-feminist and later an advocate of India's independence, pioneered a campaign for contraception and women's rights in the late 19th century England. The term 'birth control' was coined in a 1914 issue of *The Woman Rebel*, a military feminist journal published in New York by Margaret Sanger. Her campaign, like her British counterpart Mary Stopes, was for social justice, and made way for the opening of the birth-control clinic.

Sanger's ideas travelled to India when she met the Mahatma for a historic conversation. For Sanger, birth-control meant contraception, for Gandhi birth-control meant self-control. Emphasizing sexual abstinence, Gandhi regarded birth-control measures as dangerous. He abhorred the idea of sexual satisfaction on the part of women, and endeavoured to teach them to say 'no'. An advocate of sexual joy via contraception, Mary Stopes considered Gandhi's resistance to contraception as 'ill-considered arrogance'. Gandhi's ideas on sex have come a long way. Gandhian morality informs our middle class visceral reaction to contraception and sexual freedom. An orthodox narrative incorporated Brahminical and Victorian perceptions of women's sexuality as dangerous. Gandhi's view of contraception as 'immoral' further scooped pleasure out of sex and left women at the altar of self-sacrifice.

A messy story

In post-colonial India contraception has come to be entwined with family planning and the demographic imperative. It functions within marriage as a preventive measure to control fertility. The story is a messy one. The contraceptive has become a ruse to control female sexuality; it mainly lies entrenched in a reproductive and familial context.

Crucially, contraception has been used as a statist technique of control and domination. Since the 1950s the Indian state promoted state propelled modern contraception, in the form of vasectomy through sterilization camps. During Indira Gandhi's Emergency (1975-77), as a 'national commitment' to control population Sanjay Gandhi launched the nasbandi campaigns and established vasectomy camps throughout the country. What this meant for helpless people (men and women) subjected to coercion, abuse and sterilization sends shivers down the spine. In the last six months of 1976, 6.5 million people in India were sterilized. If the Nazi regime through its 'racial hygiene' program forbade 'Aryan women' to use contraception, our government forced contraception through bodily violence.

Coercive governmental policies in India have continued to view contraception as an effective mechanism of population control. In a rapidly globalised India, hazardous 'hormone' and 'emergency' contraceptives, with fatal consequences for women's health, have been increasingly used. Women's bodies have become the testing ground for multinational companies who dump life threatening contraceptive pills developed by the rich nations, to be tested on the women of the third world countries like India. Medical science, like contraception, tends to work towards the stereotyping of vulnerable women.

Sex and Contraception

According to the 2005-2006 National Family Health Survey, 49 per cent of Indian women use modern contraceptives, and of these, only 3 per cent are on the pill. According to a recent survey, 72 per cent people in India don't use contraceptive with a new partner. This causes unplanned pregnancies and unsafe abortions.

Without accompanying advances in women's education, health care, and incomes, will contraception work? In a deeply patriarchal context, what does it mean to be a woman with sexual rights? Is modern contraception irrelevant in the light of women's subordinate status and submerged location? Can one think of contraception in a society riddled with poverty, structural inequalities and discrimination? When women don't have legal rights, when they don't have marriage rights, when they can't choose their partners freely, when they can't choose their residence and make everyday choices both as married or single, what will a pill or condom do?

For some clarity, I listened to the stories of some of my colleagues and students at Delhi University. For many women of my generation, sexual freedom is a deeply complex issue on campus; married and single women discussed their uneasy relationship with sex and contraception. 'Contraception', quipped a highly articulate Associate Professor in her forties, 'you must be joking. I've no sex life.' 'What stops you from having sex?', I asked. She said, 'Where can one find sex? I would be seen as asking for it.' I was struck by her answer. It's almost the inverse of saying 'no' that Gandhi advocated for women. As multitude of denials plague women in our university, the issue of contraception pales into insignificance. Another colleague said, 'All we find is aggression, competition and violence in the university. Where is the inclination for romance and joy of sex? There's no equality. Contraception may work in a marriage for birth control, but not among single women who are seen as 'available'.' She added, 'Our labour power matters in the university at the expense of our sexual identities and preferences.' And then one academic said unambiguously, 'How can I have sex? I'm unmarried. Contraception is meant for married women.' For a set of some young students contraception was the danger word. Though sex was at times easy, violence lurked in the background and abortion or the i-pill were the only answers. For a small minority of women, however, the contraceptive symbolised choice and right to their own bodies. While for the rest it was just an elitist idea.

Contraception is not just a passport to women's freedom. An empty rhetoric of female choices, the method and practice of contraception is surrounded by coercion and

subjugation of women in a society embedded in patriarchal restrictions. I pondered: how do women, whose identities are fractured along class, caste, ethnic and religious lines in different locations - villages, small towns, and our provincial universities and colleges - relate to sex and contraception? Universal languages of rights and freedom - reproductive, sexual, personal - hardly touch their lives. Their expressions of their desire, agency, pleasure and romance in the everyday life are silenced by the very forces and institutions that are purporting to be, in the name of democracy and progress, the strongest advocates of contraception in our country.

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Contraceptives could not guarantee health

Under the MTP(medical termination of pregnancy) Act, 1972, abortion till 20 weeks of pregnancy is legal, still an estimated 5 million illegal abortions take place in India, putting women's health at risk. For every legally induced abortion, 10 or 11 are done in unlicensed clinics or by unqualified dais (midwives), killing approximately 20,000 women every year. India has the largest number of unsafe abortions - 5 million a year, or, a quarter of the global total.

Despite huge amounts being spent on advertising different methods of contraception, only 56.3 per cent sexually active people use contraceptives in India, according to National Family Health Survey Data-3(2006). The rest either go for unsafe abortions, or, if they can afford, use emergency pill.

Though, the pharmaceutical companies would like the young women to believe, there are no side effects of the emergency pill, gynaecologists warn, frequent use - more than once or twice a year can cause fluctuations in hormonal levels and may cause infertility over a period.

Cheap medicines

AIIMS store to sell cheap medicines (The Times of India: 16.12.2011)

There is good news for the over 10,000 patients visiting the All India Institute of Medical Sciences (AIIMS) every day. Now, they can buy medicines from a pharmacy operating from within the hospital campus.

According to institute officials, space has been provided to a private pharmacy to sell medicines at discounted prices to AIIMS patients, and it will start operating soon. "The pharmacy store was selected on the basis of tenders, following a court order to allow NGOs to sell medicine at discounted rate . We are going to periodically audit the accounts of the store to ensure that the medicines are sold at the agreed price, which is 55% of the maximum retail price of the medicine," said a senior official. He said the rents being charged from the store owner is as per government rules.

Earlier, the patients had to go elsewhere, most of the time to the Yusuf Sarai market to buy the medicines.

Cholesterol-Lowering Drugs

Cholesterol-Lowering Drugs May Reduce Mortality for Influenza Patients (Science daily: 19.12.2011)

Statins, traditionally known as cholesterol-lowering drugs, may reduce mortality among patients hospitalized with influenza, according to a new study released online by The Journal of Infectious Diseases

It is the first published observational study to evaluate the relationship between statin use and mortality in hospitalized patients with laboratory-confirmed influenza virus infection, according to Vanderbilt's William Schaffner, M.D., professor and chair of Preventive Medicine.

"We may be able to combine statins with antiviral drugs to provide better treatment for patients seriously ill with influenza," said Schaffner, who co-authored the study led by Meredith Vandermeer, MPH, of the Oregon Public Health Division.

Researchers studied adults who were hospitalized with laboratory-confirmed influenza from 2007-2008 to evaluate the association between patients who were prescribed statins and influenza-related deaths.

Among 3,043 hospitalized patients with laboratory-confirmed influenza, 33 percent were given statin medications prior to or during hospitalization. After adjusting for various factors, researchers found that patients not receiving statins were almost twice as likely to die from influenza as those who received the medication.

Schaffner stressed that receiving the influenza vaccine each year is still the best defense against influenza. The Centers for Disease Control and Prevention (CDC) estimates that between 5 percent and 20 percent of U.S. residents get the flu each year, and more than 20,000 persons are hospitalized for flu-related complications.

Anti-malarial drug

Protecting an anti-malarial drug from developing resistance (The Hindu: 22.12.2011)

It is a drug that has its roots in ancient Chinese medicine. In the fight against malaria, a disease that over 200 million people are estimated to have caught in 2010, some 655,000 of whom died of it, protecting the effectiveness of artemisinin-based drugs has become vitally important.

A number of Indian pharmaceutical companies have been among those manufacturing and marketing drugs that are likely to foster resistance to artemisinin in the malaria parasite, according to the latest World Malaria Report that was recently released. However, India's Drugs Controller General initiated action earlier this year to stop the production and export of these drugs.

Artemisin and its derivatives have saved countless lives after the single-celled parasite, *Plasmodium falciparum*, that causes the most dangerous forms of the disease became resistant to the drug chloroquine. However, strains that are resistant to even artemisinin have emerged in parts of South-East Asia and could potentially spread, as has happened with earlier antimalarial drugs.

“A looming threat to malaria control is the emergence of parasites that are resistant to antimalarial medicines,” pointed out the World Health Organisation (WHO) in its ‘Global Plan for Artemisinin Resistance Containment’ published earlier this year. Resistance had developed to every antimalarial medicine used so far. When that happened, the burden of malaria increased. Child mortality in Africa increased, for instance, as *P. falciparum* strains that were resistant to chloroquine spread in the 1970s and the 1980s.

Although the problem of artemisinin resistance is currently confined to the Mekong river region, there is now “early evidence” of such resistance in Myanmar and Vietnam, warned Margaret Chan, the WHO's Director-General, in a foreword to the World Malaria Report 2011.

“Exposure of malaria parasites to suboptimal doses of artemisinin is a primary cause of the spread of resistance,” the Global Plan noted. Giving artemisinin and its derivatives alone as ‘monotherapies,’ instead of as a cocktail with another drug, could create opportunities for resistant forms of the parasite to arise and spread.

Although oral artemisinin-based monotherapies could be effective when taken for the full seven-day course, patients often stopped taking them after just a few days when the symptoms generally subsided. Parasites that were sensitive to the drug could get eliminated, allowing drug-resistant strains to proliferate and get transmitted to other people.

To prevent that from happening, the global health agency recommends that artemisinin be given in combination with another drug. Such artemisinin-based combination therapy

(ACT) should, it says, be first-line treatment for uncomplicated malaria caused by *P. falciparum*. The two-drug combination reduced the chances of the parasite developing resistance. Moreover, a three-day course of a recommended ACT generally cleared the parasites from the body.

The use of ACT has grown rapidly. Globally, the number of ACT courses procured by the public sector jumped nearly seven-fold between 2005 and 2006, and then more than doubled, reaching 181 million, in 2010, according to the World Malaria Report. The demand for these drugs was expected to reach 287 million treatments this year and touch 295 million courses in 2012.

In 2006, the WHO called for a halt to using oral artemisinin monotherapies to treat uncomplicated malaria. This was followed a year later by a resolution adopted by the World Health Assembly, the WHO's apex decision-making body, that urged its member states to “cease progressively the provision in both the public and private sectors” of such monotherapies and promote the use of ACTs.

However, according to the latest World Malaria Report, 25 countries were still allowing the marketing of these products and 28 pharmaceutical companies were making these drugs, down from 39 a year ago. “Most of the countries that still allow the marketing of monotherapies are located in the African Region, while most of the manufacturers are located in India.”

Ten of the 28 manufacturers of monotherapies were in India, according to a spokesperson for the WHO Global Malaria Programme.

The WHO has called on all manufacturers to cease the marketing of monotherapies. Besides, “greater collaboration and involvement of national regulatory authorities is required to ensure complete withdrawal of oral artemisinin-based monotherapies from all countries,” noted the World Malaria Report.

“Oral artemisinin monotherapy is banned in India,” according to the ‘Guidelines for Diagnosis and Treatment of Malaria in India’ published in 2010 by the National Institute of Malaria Research in Delhi and the Union Health Ministry's National Vector Borne Disease Control Programme.

In April this year, DCGI wrote to all State Drugs Controllers requesting them to cancel licenses to manufacture oral artemisinin-based monotherapies with immediate effect. The manufacturing of such monotherapies for export should also be stopped. “We have been very encouraged by the steps that the Government of India has taken over the past year,” said Robert Newman, director of the Global Malaria Programme at a press conference to mark the release of the World Malaria Report.

Keywords: anti-malarial drug, World Health Organisation, Drugs Controller General, treatment of malaria

Swallow pills

Take your tablets the right way (The Times of India: 20.12.2011)

There is a method to swallow pills, capsules and tablets. If you don't do it right, it can be harmful or may render the medicine ineffective, says pharmacology expert Jaykaran

There is a method to take that tablet or capsule prescribed by your doctor. Unfortunately, most of us don't give a thought to it and swallow it any which way. We don't even realise it is something we 'must' ask our doctor! Next time your physician writes a prescription, make it a point to ask how the tablet should be taken.

All tablets or capsules are not meant to be swallowed. Some tablets must be chewed until they dissolve in the mouth; some are meant to be sucked like candy and some must be placed between your lip and gums. It depends on the medication. Have it with water. Never swallow tablets or capsules without fluid. It may get stuck in your food pipe or oesophagus. Don't swallow a tablet in a hurry for the same reason. Water is the ideal fluid and it should be neither warm nor too cold.

Enough water:

One cup to one glass should be taken with a tablet or capsule. Fruit juice and milk can also be used. But ask your doctor first as some medications may react with them. Antibiotics like tetracycline should not be taken with milk as calcium present in milk may decrease the absorption of the tetracycline by reacting to form a complex.

Place it right:

A tablet or capsule should not be placed at the tip of the tongue or deep inside; it should be placed at the mid-point of your tongue. Placing it towards the end may cause a gag reflex because of contact of fingers with the uvula. The right way is to place the tablet or capsule parallel to your throat and not sideways as it may cause discomfort while swallowing.

Often people tilt their head backward while swallowing the tablet or capsule which is wrong as this may bend the pipe connecting the mouth with the stomach and may lead to discomfort. Instead, bending slightly towards the chest is advisable.

Some people crush the tablet before swallowing. Consult your doctor before doing that. Some tablets are coated in such a way that their content is dissolved only in the intestine, so crushing the tablet will destroy the coating.

Multi-vitamin supplements

Multi-vitamin supplements 'do nothing for our health'(New Kerala: 27.12.2011)

Experts have said that millions of consumers might be wasting their money on multi-vitamin supplements, as they do nothing for health.

Researchers spent more than six years following 8,000 people and found that those taking supplements were just as likely to have developed cancer or heart disease as those who took an identical-looking dummy pill.

And when they were questioned on how healthy they felt, there was hardly any difference between the two groups.

Many users fall into the category of the 'worried well' – healthy adults who believe the pills will insure them against deadly illnesses – according to Catherine Collins, chief dietician at St George's Hospital in London.

"It's the worried well who are taking these pills to try and protect themselves against Alzheimer's disease, heart attacks and strokes," the Daily Mail quoted her as saying.

"But they are wasting their money. This was a large study following people up for a long period of time assessing everything from their mobility and blood pressure to whether they were happy or felt pain," she stated.

Multi-vitamin supplements have become increasingly popular as a quick and easy way of topping up the body's nutrient levels.

But a series of studies have indicated that, for some people, they could actually be harmful.

While the evidence that vitamins can do harm is still limited, the latest study seems to confirm that many people are at the very least taking them unnecessarily.

A team of French researchers, led by experts at Nancy University, tracked 8,112 volunteers who took either a placebo capsule, or one containing vitamin C, vitamin E, beta-carotene, selenium and zinc, every day for just over six years.

They assessed the state of their health at the beginning and end of the trial, taking a quality of life survey designed to measure everything from mobility and pain to vitality and mental health.

When researchers analysed how many in each group had gone on to develop serious illnesses over the years, they found little difference.

In the supplement group, 30.5 per cent of patients had suffered a major health 'event', such as cancer or heart disease. In the placebo group, the rate was 30.4 per cent.

There were 120 cases of cancer in those taking vitamins, compared to 139 in the placebo group, and 65 heart disease cases, against 57 among the dummy pill users.

"The perception that supplementation improves general well-being is not supported by this trial," the researchers concluded.

The findings have been published in the International Journal of Epidemiology

Antibiotic

Antibiotic can prevent blinding even with half dosage (New Kerala: 30.12.2011)

Azithromycin, an antibiotic used in treating a potentially blinding eye infection, is just as effective if administered for six months instead of an year.

So, the same drug could potentially treat twice the number of patients using the same amount of medication.

"We are trying to get as much out of the medicine as we can because of the cost and the repercussions of mass treatments," said study author Bruce Gaynor, assistant professor of ophthalmology, University of California San Francisco's Francis I. Proctor Foundation.

Approximately 41 million people are infected with trachoma which blinds eight million people globally because of lack of access to treatment, journal The Lancet reports.

Researchers conducted a cluster-randomised trial, using Azithromycin to treat trachoma in Ethiopia, which has among the highest prevalence in the world, according to a university statement.

They picked 24 communities and randomised the two treatment options: 12 villages were given Azithromycin every six months and the other 12 were treated every 12 months.

Researchers tracked both groups and found the prevalence of infection decreased dramatically, even with six months of dosage of the antibiotic.

"We found that from as high as 40 percent, the prevalence of trachoma went way down, even eliminated in some villages regardless of whether it was treated in an annual way or a biannual way," Gaynor said.

Trachoma can be transmitted through touching one's eyes or nose after being in close contact with someone who is infected. It can also be spread through a towel or an article of clothing from a person who has trachoma. Even flies can transmit the disease. (IANS)

Cholesterol-lowering drugs

Cholesterol-lowering drugs may worsen asthma (The Tribune: 9.11.2011)

Washington: Cholesterol-lowering medications may help in fighting heart disease, but this class of drugs may worsen asthma control, a new study has suggested. For preliminary research, Safa Nsouli and his team from of Danville Asthma and Allergy Clinic, Calif, compared 20 patients with asthma taking prescribed cholesterol-lowering medication or statins, to 20 patients with asthma who did not take the drugs. They found that the patients taking statins had more airway inflammatory obstruction at three, six and 12 months as compared to those not on statins. "The research showed patients taking statins more frequently used their rescue medication, had increased nighttime awakenings and had increased asthma symptoms throughout the day," Nsouli said. — ANI

Education

Literacy Growth

City falters in education, health no better (The Times of India: 4.11.2011)

More Girls In School But Literacy Growth Slowest In 40 Yrs

There is bad news on the education front. Student enrolment at the primary level (class 1) fell in the 2009-10 academic session, compared to 2008-09, along with a decline in the numbers of pre-primary, primary and middle schools. The period also saw a worrying slowdown in the spread of literacy. In fact, literacy growth was slowest in the last four decades, leaving the city with a literacy level of 86.34% in 2011.

Delhi Statistical Handbook 2011 has some more surprising data on education. While the Capital implemented Right to Free and Compulsory Education in 2010, the number of middle schools fell to 583 from

659 in 2008-09. The number of primary schools has also witnessed a continuous decline, coming down to 2,586 in 2009-10 from 2,617 in 2005-06.

Social jurist Ashok Agarwal blames the city's poor showing on the government's decision to shut down many schools. "The decrease in number of schools indicates that a number of government- or MCD schools have been systematically closed because the number of private schools is on the rise. In fact, in the last three years, the government has closed down around 100 schools — in some cases to build swimming pools and parking spaces. Some schools have been merged as well."

The higher education segment has a silver lining, though. While there has been no increase in the number of educational institutions, the enrolment of girls has shot up. In 2009-10, 36% more girls enrolled in high schools compared to 2008-09. However, the number of boys enrolled in high schools saw a slight decline. The total number of boys in high schools came down 8% in 2009-10 compared to 2008-09.

The literacy rate stands at 86.34%, as against 81.67% 10 years ago. This increase of 4.67 percentage points is the lowest decadal growth — even lower than the 4.93 percentage points recorded between 1971 and 1981 — in the last 40 years. Over the years, Delhi recorded its biggest improvement in literacy in the 10 years from 1981 to 1991, with a 13.71 percentagepoint increase.

Co-relating the increase of girls' enrolment in higher education, the overall slowdown

in growth of literacy and the shrinking school education system, Agarwal said, “Government schools are open for girls in the morning shift and that is where proper teaching happens, to some extent. The second shift (for boys) in schools is a farce and it is reflecting in the performance of boys, and the overall literacy growth rate.

Malnutrition-education link

Inclusive growth: Malnutrition-education link (The Economic Times: 22.12.2011)

The approach paper for the 12th Five-Year Plan with focus on faster, sustained and inclusive growth is candid and forward-looking. On poverty reduction, the document notes, without comment, the annual trend decline of 0.8% accelerating to 1% during 2004-05 to 2009-10, against a promised target of 2% in the 11th Plan. It emphasises that India will easily meet the Millennium Development Goals (MDGs) of halving poverty by 2015, over 25 years.

This document, however, does not estimate or report on 'children in poverty'. Further, child poverty is not a serious input in the process of planning for poverty reduction, or for the implementation of the Right to Education (RTE). Our estimates indicate that 1 in 3 children lived in poverty in 2004-05 and that, at the above implied rate of poverty reduction, this number was in the vicinity of 100 million in 2009-10.

Efforts under Sarva Shiksha Abhiyan (SSA) since 2002, through substantially higher enrolments, have created the illusion that out-of-school children (OoSC; we refer to them as child labour and nowhere children) are a very small proportion of child population. This, we believe, is a serious error of judgment because the spirit of RTE is violated. Teacher absenteeism, need for community involvement, need to eradicate private tuitions and poor learning outcomes are discussed often. And the need to tackle these problems is also highlighted. However, the stark reality that each one of these is a case of 'management failure' is not underscored, although such an inference would be obvious to enlightened citizens.

It took over five years to work on RTE. The number of children in need of education was known at the state, district and even household level. What were we doing during 10th and 11th Plan periods? There are many ways to tackle these issues, if we have the will to deal with them.

Analytically, eight years of quality school education meeting national standards envisioned by RTE in India has three distinct segments, with minimum overlap. First, the best quality education that money can buy with direct and indirect government support. Upper-income Indians keep this segment well managed and resourced, and also insulated. The RTE requires that 25% of their enrolments come from excluded children from their neighbourhoods. State needs to ensure that we keep potential Dronacharyas from treating them as Eklavyas.

Second, quality education that follows the principles of demand and supply is delivered efficiently at a reasonable cost with as much subsidy from the state has been growing as fast as our middle class and aspirational lower strata of society. The middle class, estimated at 350 million, with less than one child in each family has been demanding and getting such education for the last several decades. The 25% rule under RTE applies to this large and growing segment as well.

Finally, beneficiaries of SSA since 2002 are the residual category consisting of approximately of half of India's 365 million (under-15) children as per census 2001. That a large part of this group of children is growing up in households living in absolute poverty needs to be the focus in the 12th Five-Year Plan. Child poverty reduction and RTE are organically intertwined. Treating them as separate issues of poverty and RTE, we believe, would be a serious mistake.

Implementation of RTE is a legal obligation and a constitutional responsibility. Resource constraints or teacher shortages are not admissible reasons, either in a court of law or in a democratic society hoping to be egalitarian. Following the spirit of RTE, the three segments of elementary school education will get linked if the 25% rule is seriously implemented.

Institutional arrangements under RTE are to be in place within three years from 2010. The 12th Five-Year Plan would have very little time to ensure their functioning. The informational and knowledge base is with the Planning Commission; awareness of the urgency and links to faster and inclusive growth is needed. In the first graphic, we provide a snapshot picture of schooling and OoSC across states for 2004-05. We present data for children (aged 5-14) in poverty separately from that for the non-poor. Children growing up in poverty constitute a much larger proportion of exclusion from schooling compared to children growing up in non-poor households.

Education

Indicus Analytics: Hard lessons in education (Business Standard: 22.12.2011)

Though free and compulsory education for all children aged six to 14 years is now a constitutional commitment, apart from providing access to school facilities, it is an uphill task to ensure that children stay in school. The dropout rate at primary level is calculated as the ratio of enrolment in Class V to enrolment in Class I. Though official enrolment statistics can be unreliable and lead to negative dropout rates in some cases, the dropout rate has always been used as a standard indicator for retention. Government statistics show that the problem continues to be serious; 24.93 per cent of children dropped out of primary school in 2008-09.

An encouraging trend has been that dropout rates in primary education came down from 65 per cent in 1960-61 to 25 per cent in 2008-09. More importantly, this decline shows up more sharply for girls: in 1960-61, the dropout rate for girls at primary level was around nine percentage points higher than that of boys, while in 2008-09 the dropout rate for boys exceeded that for girls by around four percentage points. The significant change in the dropout rate for girls has occurred over the period 2000-01 to 2004-05 — in just four years, there was almost 40 percentage point reduction in girl dropout rates. However, despite this positive trend, dropout rates in India remain too high for the country to attain the status of universal retention at the primary level of education.

In many states, dropout rates at primary level are seen to be alarmingly high. The north-eastern states fare poorly in terms of retention of children in school. Meghalaya records the highest dropout rate in the country, with about 59 per cent of children dropping out of school at an early age. Manipur, Arunachal Pradesh, Mizoram and Sikkim have recorded dropout rates of more than 40 per cent — higher than the all-India average by 12 to 17 percentage points. Rajasthan, Bihar, Sikkim, Uttar Pradesh, Uttarakhand and Orissa, too, have performed poorly: more than a third of children in these states have dropped out of primary school. ([Click here for chart](#))

The best performing states are Assam, Goa, Jammu and Kashmir, Kerala, Chandigarh, Daman and Diu, and Puducherry — they have registered almost no dropouts. These are followed by Delhi and Tamil Nadu, where the dropout rate is in the range of 0.5-2 per cent. Similarly, Himachal Pradesh, Karnataka and Haryana are better performers, with their dropout rates at the primary level being far below the all-India average.

A bright aspect is that for most of the states, the dropout rates are higher among boys than that for girls, the exceptions being Manipur, Punjab, Maharashtra and Himachal Pradesh.

According to surveys by the National Sample Survey Organisation, the most common reason given by girls for dropping out is to look after housework, while boys stay home to supplement household income. Keeping children in schools to complete basic education is, therefore, a challenge that goes beyond the schooling system.

Environmental Health

Climate change

Women at receiving end of climate change (The Asian Age: 10.10.2011)

Although women are admittedly bearing the brunt of climate change, India's National Action Plan on Climate Change (NAPCC) has remained gender-blind and does not focus on gender issues.

Aditi Kapoor's report Engendering the Climate for Change — Policies and Practices for Gender-Just Adaptation highlights that the four adaptation-focused missions remain largely techno-managerial in their orientation without focusing on how many women, than men, are engaged in growing vegetables, tea, coffee, paddy, livestock-rearing, fish processing and gathering medicinal herbs and fuel wood.

The report quotes from the findings of the latest Indian Network for Climate Change Assessment (INCCA), stating that the increasing number of hot days and the decreasing number of cold days (during the pre-monsoon season over a period 1970-2005) had resulted in a decline in the spring snow cover of the western Himalayas. This changing climate, Indian Agricultural Research Institute, confirmed was adversely affecting dairy milk production and also resulting in a decline in fish breeding.

India was presently losing 1.6 million tonnes of milk production to climatic stresses in different parts of the country.

Further, up to 77 per cent of the forest areas are expected to shift affecting both biodiversity and livelihoods based on these forests. This would affect forest vegetation on whose products tribal women were dependent. Presently, these women were using almost 300 forest species for medicinal purposes and a shift in forest vegetation will adversely affect their livelihoods and health.

Working in the fields, women already have climate-related data but this data is not being analysed scientifically, Ms Kapoor maintained regretting that climate research interventions are male-biased.

She has quoted several examples to illustrate this point. High-yielding saline-resistant paddy varieties promoted by the government do not meet women requirements complained, Rita from village Chak-Pitambarpur, block Basanti, 24 South Parganas in West Bengal.

The reason for this Rita said was that “high yielding varieties were small in height and gave little residue whereas that was not the case with traditional paddy varieties whose longer stalks gave them extra bio-fuel.”

Women testimonies reveal that rising sea levels left them with less space on the beach for post-harvest activity including fish-processing. Fall in fish production was forcing them to search for other livelihood options.

Drinking Water - Plastic Pipes

Drinking Water from Plastic Pipes: Is It Harmful?(Science Daily: 9.11.2011)

Pipe-in-pipe systems are now commonly used to distribute water in many Norwegian homes. The inner pipe for drinking water is made of a plastic called cross-linked polyethylene (PEX). Are these pipes harmful to health and do they affect the taste and odour of drinking water?

Previous international studies have shown that plastic pipes can release substances that give an unwanted taste and odour to drinking water. It has also been suggested that some of these substances may be carcinogenic.

The aim of the study by the Norwegian Institute of Public Health was to investigate whether leakage products from these pipes are harmful to health and if they affect the taste and odour of drinking water. These leakage products consist of residues of additives used during production to give plastic pipes their desired properties, as well as any subsequent breakdown products.

The study showed:

- There are no health risks associated with drinking water from PEX pipes
- A few types of PEX-pipe may cause prolonged undesirable taste and odour if the water remains in pipes over time
- Although the taste and odour usually dissipate with use, water from two of the PEX types still had an unpleasant smell and taste after a year
- The level of volatile organic compounds that leaked from new PEX pipes was generally low
- The level was further reduced with use
- No correlation was found between production method and leaking products

Ten different types of PEX pipes available in the Norwegian market were tested for leaching products in a standardised laboratory test. The water was in contact with the tubes for 72 hours.

Three different manufacturing methods produce pipes known as PEX-a, PEX-b or PEX-c. These methods use slightly different additives, but this study found no correlation between production method and leakage products.

2,4-di-tert-butyl-phenol and methyl-tert-butyl ether (MTBE) were two of the most commonly occurring substances detected in the water in the experiments.

For three types of new pipe, MTBE was detected in higher concentrations than the U.S. government's recommended limits for taste and odour of drinking water (USEPA), but the values were reduced to below this limit after the tubes had been in use for a while.

Family Planning

Birth control pills

Women on birth control pills at risk from HIV (The Times of India: 5.10.2011)

Paris: Women who use hormonal birth control are roughly twice as likely to become infected with HIV or pass on the AIDS virus to their partner, according to a study published on Tuesday.

The research was carried out among 3,790 heterosexual couples in Africa where one partner had HIV while the other was uninfected. The findings could have huge repercussions for policies on contraception and HIV prevention. Authors say it strengthens need for safe sex in which the condom is promoted as a shield against the AIDS pathogen. AFP

Contraception Aid

Contraception Aid for Poor Countries Urged by US (Med India: 19.10.2011)

A boost of aid for women in developing countries such as Somalia to help them control their fertility has been urged by experts in a range of fields including health, demography and climate change.

The global population is expected to reach the seven-billion mark this year and to hit 10 billion by 2100," noted Mary Robinson, the former Irish president and chair of the Aspen Institute's Global Leaders Council that staged the forum in Washington.

"Somalia shows the extent to which failure to learn from the famine in 1992, and our failure to prioritize the health of women and children has become a global problem, one none of us can ignore," she told the audience gathered at the National Press Club.

Just one percent of married women in Somalia have access to modern contraception, and their fertility rate is among the highest in the world, according to data compiled by the Population Reference Bureau.

Without access to reproductive health services, the "rates will remain unacceptably high, and children will be inadequately nourished," according to the PRB's 2011 World Population Data Sheet.

Somalia has the eighth highest birth rate in the world, and the average family has seven children.

"Somali women are not alone," insisted Geoff Dabelko, director of the Woodrow Wilson Center's Environmental Change and Security Program, and also a featured speaker at the event.

"More than 215 million women around the world want to plan their families, yet lack access to modern contraception," he said.

The Aspen Institute backed calls made at a September UN conference held by the Global Leaders Council for Reproductive Health that urged world leaders to double investment from \$3.1 billion to \$6.7 billion to help provide family planning services.

Contraception

Contraception pills hamper orgasm in women (New Kerala: 1.11.2011)

Newer forms of hormonal contraception hampers arousal, lubrication and orgasm despite its family planning benefits and convenience, according to new research.

"Contraception in general is a wonderful way for women to plan their families," said lead researcher Nicole Smith, project coordinator at IU's Center for Sexual Health Promotion.

"It's something women are often on for as many as 30 years or more; it plays a huge part in their life. If they're experiencing these negative effects, they might stop using contraception correctly or altogether.

"Women should also be counseled on the many highly effective forms of birth control currently available; switching to another method might work better for them," she said.

The study involved 1,101 sexually active women split almost evenly between those using a hormonal form of contraception such as the pill, patch, ring or shot, and those women using a non-hormonal form, such as a condom, diaphragm, cervical cap or withdrawal.

The study, based on data collected by the Kinsey Institute's Women's Well-being study, which used an online questionnaire, found that the women reported similar levels of sexual satisfaction, which included things such as intimacy and romance, but the women using hormonal contraception experienced less arousal, fewer orgasms, difficulties with lubrication, decreased pleasure and less frequent sex.

The study will be presented at the American Public Health Association's annual meeting in Washington, D.C.

Gender bias

Gender bias: Only A fares worse than India in S Asia (The Times of India: 3.11.2011)

Rukmini Shrinivasan / TIMES INSIGHT GROUP

Far from improving, India's already abysmal gender inequality statistics seem to have taken a turn for the worse. New data shows that India's Gender Inequality Index (GII) worsened slightly between 2008 and 2011, and India now ranks 129 out of 146 countries on the GI, better only than Afghanistan in south Asia.

On the Human Development Index (HDI), India ranks 134 out of 187 countries. When inequality is factored in, it experiences a 30% drop in human development values, ranking 129th out of 146 countries.

India's decline is accounted for by a fall in female labour force participation rate and a worsening of its adolescent fertility rate. Rural development minister Jairam Ramesh, who helped release the 2011 UNDP Human Development Report on Wednesday, said a decline in female labour force participation could indicate improved status or better education opportunities.

'Biz bribes abroad fall, but India still at bottom of pile'

When it comes to companies bribing public officials for business overseas, India's score improved the most globally since 2008, rights group Transparency International said, but India still ranked near the bottom of the global Bribe Payers Index, ranking 19th among 28 countries. P 11

'US ways are unsustainable'

Lifestyles Within India Also Affect The Poor, Says Jairam

Rural development minister Jairam Ramesh on Wednesday blamed developed countries for unsustainable practices, leading to environmental degradation across the world. Helping release the 2011 UNDP Human Development Report, Ramesh said the “real drivers of unsustainability are the developed countries, worst of all the US, which won’t even engage in this debate”.

The minister, however, added that just as consumption-heavy lifestyles in the industrialized world affected livelihoods in the developing world, “lifestyles within India also affect the livelihoods of the poor within India”. The 2011 report focuses on sustainability and the impact of environmental degradation on the poor. By 2050, the average HDI could drop by 12% in south Asia due to the effects of global warming on agricultural production, access to clean water and pollution, the report says.

The report also carried on with the Gender Inequality Index (GII) introduced by the United Nations Development Programme last year. The index measures female disadvantage in three areas: reproductive health as measured by the maternal mortality ratio and adolescent fertility rate; empowerment measured by proportion of seats in Parliament and proportion with at least secondary education; and the labour market measured by the labour force participation rate.


The UNDP report shows that the proportion of women with at least secondary education in India is still just half that of men. Globally, richer countries with higher human development, have higher female labour force participation too.

Within India’s neighbourhood, Sri Lanka has overtaken China on human development and with an HDI of 0.691, is now within touching distance of the “high human development” category. Sri Lanka performs particularly well on gender equality indicators; its maternal mortality ratio is same as Russia’s. “Economic growth is a necessary but not sufficient condition for human development. Recent data shows that high growth states like Gujarat have worse human development measures, particularly on malnutrition, than many of the northern states,” Ramesh said.

NOTHING TO BE PROUD OF

Country	HDI rank*	GII rank**	% of multi-dimensionally poor
India	134	129	53.70
China	101	35	12.50
Sri Lanka	97	74	5.3#
Pakistan	145	115	49.4#
Bangladesh	146	112	57.80
Nepal	157	113	64.70
Norway	1	6	NA

*Out of 187 countries; **Out of 146 countries;
Lower bound estimate Source: UNDP 2011



Contraceptive pill

Contraceptive pill use linked to high prostate cancer risk worldwide(World Newspapers: 16.11.2011)

A news study has found that use of the contraceptive pill appears to increase risk of prostate cancer around the globe.

According to the researchers, prostate cancer is the most common male cancer in the developed world and the use of the contraceptive pill has soared over the past 40 years.

The research team used data from the International Agency for Research on Cancer (IARC) and the United Nations World Contraceptive Use report to pinpoint rates of prostate cancer and associated deaths and the proportion of women using common methods of contraception for 2007.

They then analysed the data for individual nations and continents worldwide to see if there was any link between use of the contraceptive pill and illness and death caused by prostate cancer.

Their calculations showed that use of intrauterine devices, condoms, or other vaginal barriers was not associated with an increased risk of prostate cancer.

But use of the contraceptive pill in the population as a whole was significantly associated with both the number of new cases of, and deaths from, prostate cancer in individual countries around the world, the analysis showed.

The researchers emphasise that their research is speculative and designed to prompt further consideration of the issues. As such, their analysis does not confirm cause and effect, and therefore definitive conclusions cannot be drawn, as yet.

But they refer to several recent studies, which have suggested that oestrogen exposure may boost the risk of prostate cancer.

Excess oestrogen exposure is known to cause cancer, and it is thought that widespread use of the Pill might raise environmental levels of endocrine disruptive compounds (EDCs) - which include by-products of oral contraceptive metabolism.

“Temporal increases in the incidence of certain cancers (breast, endometrial, thyroid, testis and prostate) in hormonally sensitive tissues in many parts of the industrialised world are often cited as evidence that widespread exposure of the general population to EDCs has had adverse impacts on human health,” the team concluded.

Fertility and Infertility

Menopause

Women who exercise a lot hit menopause early (The Times of India: 13.10.2011)

It Cuts Breast Cancer Risk, But Affects Heart & Bones

Women who spend a lot of time exercising or eat a heart-healthy diet appear to reach menopause earlier, according to a Japanese study — findings that researchers say could be important for cancer prevention.

Researchers led by Chisato Nagata at Gifu University tracked more than 3,100 premenopausal women over 10 years. Those who exercised the most — about eight to 10 hours a week — were 17% more likely to start menopause during the study than their sedentary peers.

Similarly, women who ate the most polyunsaturated fats, found in many fish and vegetable oils, were 15% more likely to reach menopause than those who got the least.

During menopause, a woman's ovaries stop producing eggs and she can no longer get pregnant. It usually begins between ages 41 and 55.

For the study, Nagata and colleagues gave food and activity questionnaires to women aged 35 to 56 at baseline. Over the next decade, nearly 1,800 of them went through menopause. Although it was unclear how old they were when that happened, the findings published in the journal *Menopause* — suggested that very active women and those getting lots of polyunsaturated fats have a higher chance of reaching menopause earlier.

Doing so means women have less exposure to high estrogen levels, said JoAnn Manson, president of the North American Menopause Society. Estrogen promotes breast tumors, and that may explain why early menopause is tied to a lower risk of breast cancer.

On the other hand, early menopause has also been linked to increased risks of heart disease and bone thinning, she added. "I wouldn't want women to be concerned that they would be at higher risk of cardiovascular disease or osteoporosis if they make lifestyle modifications," she said. "The benefits far outweigh any risks."

Other studies on menopause have been contradictory. For examples, high levels of physical activity — usually five or more hours of exercise a week — have been tied to early menopause. But they've also been linked to irregular menstrual cycles, which could lead to later menopause. Even in the latest study, researchers said the relation between exercise and timing of menopause was "small to null". Total fat as well as saturated fat, which comes largely from animals, didn't have any effect on the timing of menopause, Nagata and colleagues said. Manson, who is also at the Harvard Medical School, said physical activity lowers estrogen levels, and that may be why it's linked to the early onset of menopause. REUTERS

Enzyme trips fertility

Enzyme trips fertility, triggers miscarriage (Med India: 17.10.2011)

An enzyme that acts as a fertility switch could trip conception in women or cause a miscarriage depending on its high or low levels.

The findings could potentially open the way to newer treatments for these conditions and lead to better contraceptives.

One in 100 women trying to conceive experience recurrent miscarriages, defined as the loss of three or more consecutive pregnancies.

Researchers from Imperial College London looked at tissue samples from the womb lining, donated by 106 women being treated for unexplained infertility or for recurrent miscarriages, the journal Nature Medicine reports.

The women with unexplained infertility had been trying to conceive for two years or more and the most common reasons for infertility had been ruled out, according to an Imperial College statement.

Researchers discovered that the womb lining in these women had high levels of the enzyme SGK1. Conversely, the women suffering from recurrent pregnancy loss had low levels of SGK1.

"I can envisage that in the future, we might treat the womb lining by flushing it with drugs that block SGK1 before women undergo IVF," said Jan Brosens, professor who led the study at the Imperial College Institute of Reproductive and Developmental Biology.

"Another potential application is that increasing SGK1 levels might be used as a new method of contraception," added Brosens.

Infertility

Faulty Molecular Switch Can Cause Infertility or Miscarriage (Science daily: 17.10.2011)

Scientists have discovered an enzyme that acts as a 'fertility switch', in a study published in Nature Medicine on October 16. High levels of the protein are associated with infertility, while low levels make a woman more likely to have a miscarriage, the research has shown.

The findings have implications for the treatment of infertility and recurrent miscarriage and could also lead to new contraceptives. Around one in six women have difficulty getting pregnant and one in 100 women trying to conceive have recurrent miscarriages, defined as the loss of three or more consecutive pregnancies.

Researchers from Imperial College London looked at tissue samples from the womb lining, donated by 106 women who were being treated at Imperial College Healthcare NHS Trust either for unexplained infertility or for recurrent pregnancy loss.

The women with unexplained infertility had been trying to get pregnant for two years or more and the most common reasons for infertility had been ruled out. The researchers discovered that the womb lining in these women had high levels of the enzyme SGK1. Conversely, the women suffering from recurrent pregnancy loss had low levels of SGK1.

The team found further evidence of SGK1's importance in experiments using mouse models. Levels of SGK1 in the womb lining decline during the fertile window in mice. When the researchers implanted extra copies of the SGK1 gene into the womb lining, the mice were unable to get pregnant, suggesting that a fall in SGK1 levels is essential for making the uterus receptive to embryos.

The research at the Institute of Reproductive and Developmental Biology (IRDB) at Imperial College London was led by Professor Jan Brosens, who is now based at the University of Warwick. "Our experiments on mice suggest that a temporary loss of SGK1 during the fertile window is essential for pregnancy, but human tissue samples show that they remain high in some women who have trouble getting pregnant," he said. "I can envisage that in the future, we might treat the womb lining by flushing it with drugs that block SGK1 before women undergo IVF. Another potential application is that increasing SGK1 levels might be used as a new method of contraception."

Any infertility treatment that blocks SGK1 would have to have a short-lived effect, as low levels of the protein after conception seem to be linked to miscarriage. When the researchers blocked the gene that codes for SGK1 in mice, the mice had no problem

getting pregnant. However, they had smaller litters and showed signs of bleeding in the uterus, suggesting that lack of SGK1 made miscarriage more likely.

After an embryo is implanted, the lining of the uterus develops into a specialised structure called the decidua, and this process can be made to occur when cells from the uterus are cultured in the lab. Cultured cells from women who had had three or more consecutive miscarriages had significantly lower levels of SGK1 compared to cells from controls.

Blocking the SGK1 gene, both in pregnant mice and in human cell cultures, impaired the cells' ability to protect themselves against oxidative stress, a condition in which there is an excess of reactive chemicals inside cells.

"We found that low levels of SGK1 make the womb lining vulnerable to cellular stress, which might explain why low SGK1 was more common in women who have had recurrent miscarriage," said Madhuri Salker, the study's first author, Institute of Reproductive and Developmental Biology (IRDB) at Imperial College London. "In the future, we might take biopsies of the womb lining to identify abnormalities that might give them a higher risk of pregnancy complications, so that we can start treating them before they get pregnant."

The research was funded by the Consortium for Industrial Collaboration in Contraceptive Research, the Genesis Research Trust, and the Imperial Comprehensive Biomedical Research Centre, established by a grant from the National Institute of Health Research.

Fertility Switch

“Fertility Switch” in Women may be the Culprit behind Failure to Conceive (Med: 18.10.2011)

A new study published in the journal Nature Medicine could be the key to treating infertility in women after it reported that a key enzyme in the body acts as a “fertility switch”, decreasing the chances of successfully conceiving a baby.

The study was conducted by researchers at Imperial College in London who analyzed the womb lining tissue of 106 women and found that those who were trying hard, but were unable, to conceive in the last two years had high levels of an enzyme protein known as SGK1 gene while those who were at a higher risk of miscarriage had low levels of the protein.

Stating that their finding could be used to develop a drug in the future that could correctly regulate the protein levels in the body, lead researcher Madhuri Salker said, “In the future, we might take biopsies of the womb lining to identify abnormalities that might

give them a higher risk of pregnancy –complications, so that we can start treating them before they get pregnant.”

Early menopause

Ladies, kick the butt or risk early menopause (The Times of India: 18.10.2011)

Premature Onset Raises Death Risk, Says Study

Women who smoke may hit menopause about a year earlier than those who don't light up, according to a study that also notes an earlier menopause may influence the risk of getting bone and heart diseases.

The study, which was carried in the journal *Menopause*, pooled data from several previous studies that included about 6,000 women in the US, Poland, Turkey and Iran.

Non-smokers hit menopause between age 46 and 51, on average. But in all but two of the studies, smokers were younger when they hit menopause, between 43 and 50 overall. During menopause, a ovaries stop producing eggs and a woman can no longer get pregnant.

“Our results give further evidence that smoking is significantly associated with earlier (age at menopause) and provide yet another justification for women to avoid this habit,” said study author Volodymyr Dvornyk, from the University of Hong Kong.

Dvornyk and his colleagues also analysed five other studies that used a cut-off age of 50 or 51 to group women into “early” and “late” menopause. Out of more than 43,000 women in that analysis, women who smoked were 43% more likely than non-smokers to have early menopause.

Both early and late menopause have been linked to health risks. Women who hit menopause late are thought to be at higher risk of breast cancer because one risk factor for the disease is more time exposed to estrogen.

“General consensus is that earlier menopause is likely to be associated with the larger number and higher risk of postmenopausal health problems, such as osteoporosis, cardiovascular diseases, diabetes, obesity, Alzheimer's disease, and others,” Dvornyk said. Overall, early menopause is also thought to slightly raise a woman's risk of death in the years following. REUTERS

Premature menopause

Beware of premature menopause (The Tribune: 9.11.2011)

The average age for the onset of "natural" menopause in India is 47 years. However, because of defective genetics, tuberculosis of the genital tract, exposure to chemotherapy or radiation, autoimmune disorders or medical/surgical procedures, some women go through menopause before the age of 40. Menopause before this age is known as "premature" menopause. The age of the onset can be as early as teenage years. Unfortunately, a large percentage of women are now suffering from premature menopause and most of them do not come to the gynaecologist for treatment. Women in premature menopause experience lowered estrogen levels as the ovaries stop most of their production of this hormone.

Low levels of estrogen can lead to changes in a woman's overall health and may increase the risk of osteoporosis and heart disease. The other health risks associated with the loss of estrogen include increased chances for colon, periodontal (gum) disease and tooth loss, dry eyes and cataract formation. In addition to dealing with hot flashes, mood swings and other symptoms that accompany menopause, many women have to cope several emotional concerns.

Symptoms

Common symptoms are the same as in natural menopause — periods that are heavier or lighter than usual, hot flashes (a sudden feeling of warmth that spreads over the upper body), irregular or missed periods, vaginal dryness (the vagina may also become thinner and less flexible), bladder irritability and worsening of the loss of bladder control (incontinence), emotional changes (irritability, mood swings, mild depression), dry skin, eyes or mouth, sleeplessness and decreased sex drive. Women who experience early menopause are more at the risk of depression, low self-esteem, negative body image and a poor quality of life.

An Indian study revealed that the percentage of young menopausal women was the highest in Andhra Pradesh at 31.4 per cent; Bihar (21.7 per cent) and Karnataka (20.2 per cent) were no better. Kerala (11.6 per cent) was a tad better while West Bengal (12.8 per cent) and Rajasthan (13.1 per cent) were just a rung lower. Overall, the percentage of women hit by premature menopause is marginally lower in urban areas (16.1 per cent) as against rural areas (18.3 per cent). Among the illiterate women, a substantive 20 per cent of them suffer from premature menopause as against 11.1 per cent of educated women. All of this establishes the fact that women from the lower economic strata are more vulnerable to premature menopause than their more privileged counterparts.

A recent study, reported from Chandigarh, also showed the incidence to be around 18 per cent. "The changing dynamics of the Indian family, the increased stress on women to be

financially independent and the whittling down of the joint family have all put tremendous physical, emotional and mental strain on our women," observed a gynaecologist in New Delhi. "These pressures, coupled with the lack of proper nutrition and education about health play havoc with female hormones, resulting in a skewed menstrual pattern," experts added. Osteoporosis (loss of calcium in bones causing bone fragility) is often not diagnosed till a bone fracture actually occurs. So, it is advisable for menopausal women to be in regular touch with their doctors."

Treatment

1. Psychological counselling and support groups may help the woman come to terms with her experience.
2. The main therapy is hormone replacement therapy (HRT). And new research shows that there are few risks involved in long-term estrogen therapy in these age groups, and when started soon after menopause until the age of 60. Women with an early menopause, especially if surgically induced, may need to have a higher dose of estrogen to control their vasomotor symptoms.
3. Experts from alternative medicine recommend ayurveda, flower remedies, aromatherapy and yoga.
4. Natural food and herbs may be of help according to some naturopaths.

The writer is a Chandigarh-based senior gynaecologist.

Menopausal hormone

Combo menopausal hormone therapy may up breast cancer risk. (New Kerala: 21.11.2011)

Women taking menopausal hormone therapy that combines estrogen and progestin may be at higher risk of developing breast cancer than women taking estrogen alone, a new study has suggested.

Menopausal hormone therapies are given to relieve symptoms in post-menopausal women

Researchers at UCLA's Jonsson Comprehensive Cancer Center found that women taking the combination hormone therapy who experienced new onset breast tenderness had a 33 percent greater subsequent risk of developing breast cancer than women who did not experience breast tenderness.

In contrast, among women taking estrogen alone, those who experienced new-onset breast tenderness did not have a higher subsequent risk of breast cancer.

“This study showed that developing new breast tenderness after the start of hormone therapy was associated with increased breast cancer risk only in women on the combination estrogen plus progestin therapy, not estrogen therapy alone,” said study first author Dr. Carolyn Crandall, a professor of general internal medicine and a scientist with UCLA’s Jonsson Comprehensive Cancer Center

“The consistent theme we’ve run across throughout these studies is that estrogen and progestin compared to estrogen alone have a more marked effect on breast tissue.

“One theory is that there may be more growth of breast tissue, making the breasts more dense, when women take the combination therapy,” Crandall added.

The study appeared in the Nov. 17, 2011 in the early online edition of the peer-reviewed journal Breast Cancer Research and Treatment.

Food and Nutrition

Vinegar

Vinegar may help detect cervical cancer in developing countries (New Kerala: 3.10.2011)

Household vinegar could help thwart cervical cancer deaths in poor areas, researchers say.

Annually, more than 250,000 women die from cervical cancer worldwide; 85 percent of which are in poor or middle-class areas.

According to The New York Times, these countries are often unable to afford the high-quality labs that Pap smear tests require, so they need cheaper-but still effective-medical techniques to diagnose cervical cancer.

A procedure developed by Johns Hopkins Medical School in the 1990s, but supported by the World Health Organization in 2010, has doctors brush vinegar on a woman's cervix, which makes precancerous spots turn white.

They are then able to freeze off the spots with metal rods cooled by carbon dioxide, a more affordable alternative to liquid nitrogen. The procedure is 90 percent effective.

Doctors and nurses there are beginning to switch from Pap smears to cryotherapy, but it is too early to know if they have decreased their cancer rates.

"Some doctors resist the cryotherapy approach," Fox News quoted Dr. Wachara Eamratsameekool, a gynecologist at rural Roi Et Hospital, who helped pioneer the procedure, as saying.

"They call it 'poor care for poor people.' This is a misunderstanding. It's the most effective use of our resources," he added.

Broccoli

A broccoli that protects heart, prevents cancers (The Times of India: 5.10.2011)

British scientists have developed what they claim is a “super broccoli” which can protect people against heart disease and cancers.

A team at the Institute of Food Research and John Innes Centre in Norwich says the new strain called Beneforte looks like normal broccoli, but it contains three times as much of a health-boosting nutrient called glucoraphanin.

Research has shown that glucoraphanin can help protect against heart disease and cancers which include those of the bowel and prostate. The nutrient is converted into a compound, sulphoraphane.

That apparently reduces inflammation which can cause heart attacks, stops uncontrolled cell division associated with early stage cancer and boosts disease-fighting anti-oxidants, say the scientists. The super broccoli raises sulphoraphane levels to two to four times that of normal broccoli, and not by genetic engineering.

“Our research has given new insights into the role of such vegetables for health and can lead to potentially more nutritious varieties of our familiar vegetables,” Richard Mithen, who led the team, said.

The vegetable has gone on sale in Britain at Marks & Spencer and costs less than two pounds a pack.

Eating apples

Eating apples 'ups dental damage risk 4 times more than fizzy drinks'(New Kerala: 10.10.2011)

A new study has revealed that eating apples can be up to four times more damaging to teeth than carbonated drinks.

Wine and lager also increase the risk of dental damage but pickled onions and grapefruit, which are consumed less frequently, do not.

"It is not only about what we eat, but how we eat it," the Daily Mail quoted Professor David Bartlett, head of prosthodontics at King's College London Dental Institute, who led the study, as saying.

"Doctors quite rightly say that eating apples is good, but if you eat them slowly the high acidity levels can damage your teeth. The drinks most often associated with dietary erosion, particularly cola, showed no increased risk.

"The results emphasise that dietary advice should be targeted at strong acids rather than some of the commonly consumed soft drinks," he stated.

In the new study, the researchers looked for links between teeth wear at several sites in the mouth, and diet in more than 1,000 men and women aged 18 to 30.

People who ate apples were 3.7 times more likely to have dentine damage, while carbonated drink consumers had no additional risk.

Fruit juice increased the likelihood of damage to the enamel around the top of the teeth near the gums fourfold, while lager, which is acidic, raised the chances of dentine damage threefold.

Some apples contain as much as four teaspoons of sugar, which contributes to raised acid levels in the mouth.

One suggestion is to eat your apple with milk or a piece of cheese as both contain calcium, which neutralises acid. Drinking water immediately after eating an apple will also help, washing away harmful effects.

Extra calcium

Extra calcium during pregnancy only helps in preventing hypertension (10.10.2011)

A review has shown that calcium supplementation has no effect on preventing preterm birth or low infant birth weight and no effect on bone density in pregnant women.

Researcher Pranom Buppasiri, MD, of the department of obstetrics and gynecology at Khon Kaen University in Thailand, and colleagues found no potential benefits of calcium supplementation for mom and baby, except for the prevention of pregnancy-related hypertension.

Buppasiri notes, however, that previous reviews have shown that calcium supplementation does help in the prevention of preeclampsia.

Preeclampsia is a dangerous condition marked by hypertension and protein in the urine that can develop into serious complications for the mother and baby.

The definitive treatment for preeclampsia is delivery of the baby, often resulting in preterm and/or low birth weight babies.

More than 16,000 women participated in the 21 studies included in the review. The review did find a small difference in average infant birth weight, but the authors were unable to ascertain the clinical significance in the diverse population examined.

The finding appears in the latest issue of The Cochrane Library.

Chocolate

Chocolate may help cut women's stroke risk by 20pc (New Kerala: 12.10.2011)

Women who have a couple of small chocolate bars every week are 20 percent less prone to debilitating strokes than those who eat none, Swedish scientists say.

Lead author of the study, Susanna Larsson, from Sweden's National Institute of Environmental Medicine in Stockholm chocolate reduces the risk of strokes caused by bleeds in the brain (hemorrhagic strokes) and strokes caused by a cutoff of blood flow through the brain (ischemic strokes).

"Even consuming a relatively small amount of chocolate had quite a large impact on stroke risk," said Larsson.

However, she says, the benefit appeared proportional to the amount of chocolate in the women's diets.

Larsson's two-bar approximation was based on the effects associated with consuming about 66.5 grams, or about 2.33 ounces, weekly.

Researchers reviewed participants' responses to questionnaires about their diet during the last year. They then grouped the women by the frequency of their chocolate consumption, ranging from never to more than three times a day and looked for associations between strokes and the amount of chocolate the women regularly ate.

The researchers found that subjects who ate about two bars of antioxidant-rich Swedish milk chocolate every week had "significantly reduced risk of stroke," compared with those who ate no chocolate, "suggesting that higher intakes are necessary for a potentially protective effect."

But before you run down to the corner store to load up on chocolate bars, be aware of some caveats. First, the Swedish findings don't prove that chocolate protects against

strokes; they suggest a link. Second, the findings won't likely translate as well in this country because 90 percent of the chocolate eaten Sweden at the time the study began was Swedish milk chocolate, which contains a higher concentration of antioxidant-rich cocoa solids (about 30 percent) than American chocolate bars.

The study has been published in the Journal of the American College of Cardiology.

Broccoli

Health Benefits of Broccoli Require the Whole Food, Not Supplements (Science daily: 12.10.2011)

New research has found that if you want some of the many health benefits associated with eating broccoli or other cruciferous vegetables, you need to eat the real thing -- a key phytochemical in these vegetables is poorly absorbed and of far less value if taken as a supplement.

The study, published by scientists in the Linus Pauling Institute at Oregon State University, is one of the first of its type to determine whether some of the healthy compounds found in cruciferous vegetables can be just as easily obtained through supplements. The answer is no.

And not only do you need to eat the whole foods, you have to go easy on cooking them.

"The issue of whether important nutrients can be obtained through whole foods or with supplements is never simple," said Emily Ho, an OSU associate professor in the OSU School of Biological and Population Health Sciences, and principal investigator with the Linus Pauling Institute.

"Some vitamins and nutrients, like the folic acid often recommended for pregnant women, are actually better-absorbed as a supplement than through food," Ho said. "Adequate levels of nutrients like vitamin D are often difficult to obtain in most diets. But the particular compounds that we believe give broccoli and related vegetables their health value need to come from the complete food."

The reason, researchers concluded, is that a necessary enzyme called myrosinase is missing from most of the supplement forms of glucosinolates, a valuable phytochemical in cruciferous vegetables. Without this enzyme found in the whole food, the study found that the body actually absorbs five times less of one important compound and eight times less of another.

Intensive cooking does pretty much the same thing, Ho said. If broccoli is cooked until it's soft and mushy, its health value plummets. However, it can still be lightly cooked for

two or three minutes, or steamed until it's still a little crunchy, and retain adequate levels of the necessary enzyme.

The new study was published in the Journal of Agricultural and Food Chemistry. It was supported by the National Institutes of Health.

Broccoli has been of particular interest to scientists because it contains the highest levels of certain glucosinolates, a class of phytochemicals that many believe may reduce the risk of prostate, breast, lung and colorectal cancer. When eaten as a raw or lightly-cooked food, enzymes in the broccoli help to break down the glucosinolates into two valuable compounds of intensive research interest -- sulforaphane and erucin.

Studies have indicated that sulforaphane, in particular, may help to detoxify carcinogens, and also activate tumor suppressor genes so they can perform their proper function.

Most supplements designed to provide these glucosinolates have the enzyme inactivated, so the sulforaphane is not released as efficiently. There are a few supplements available with active myrosinase, and whose function more closely resembles that of the whole food, but they are still being tested and not widely available, Ho said.

Small amounts of the myrosinase enzyme needed to break down glucosinolates are found in the human gut, but the new research showed they accomplish that task far less effectively than does whole food consumption.

Although broccoli has the highest levels of glucosinolates, they are also found in cauliflower, cabbage, kale and other cruciferous vegetables. The same cooking recommendations would apply to those foods to best retain their health benefits, Ho said.

Many people take a variety of vitamins, minerals and phytochemicals as supplements, and many of them are efficacious in that form, researchers say. Higher and optimal levels of popular supplements such as vitamins C, E, and fish oil, for instance, can be difficult to obtain through diet alone. Some researchers believe that millions of people around the world have deficient levels of vitamin D, because they don't get enough in their diet or through sun exposure.

But for now, if people want the real health benefits of broccoli, there's a simple guideline.

Eat your vegetables.

Chocolate

Chocolate cuts risk of stroke (The Times of India: 12.10.2011)

Tempted by a chocolate bar? Maybe indulging every so often is not a bad thing — especially if it's dark chocolate. According to a Swedish study in the Journal of the American College of Cardiology that looked at more than 33,000 women, the more chocolate the women said they ate, the lower their risk of stroke.

The results add to a growing body of evidence linking cocoa consumption to heart health, but they aren't a free pass to gorge on chocolate. "Given the observational design of study, findings of this study cannot prove that it's chocolate that lowers the risk of stroke," said Susanna Larsson from Karolinska Institutet in Stockholm.

While she believes chocolate has health benefits, she also warned that eating too much of it could be counterproductive. "Chocolate should be consumed in moderation as it is high in calories, fat and sugar. As dark chocolate contains more cocoa and less sugar than milk chocolate, consumption of dark chocolate would be more beneficial."

Larsson and her colleagues tapped into data from a mammography study that included self-reports of how much chocolate women ate in 1997. The women ranged in age from 49 to 83 years. Over the next decade, there were 1,549 strokes among the group. The more chocolate women ate, the lower their risk. REUTERS

Potatoes

Eating potatoes does not lead to weight gain: Study (The Times of India; 12.10.2011)

Potatoes may not be the fat-gain ogres that many dieticians claim, according to a study by New Zealand-based researchers. The study done by researchers at University of Otago found that when a person eats potatoes as part of a meal of meat and vegetables, the effects are barely felt, a media report said. Bernard Venn and his team enlisted 30 healthy young people and monitored the glycemic index (GI) levels of three different meals, including one with potatoes as a side dish. Venn said, "Our work suggests that having a small amount of potato with a meal isn't going to drive your blood sugar crazy."

Mushroom

Mushroom Compound Improves Effectiveness of Cancer Drugs (Med India: 13.10.2011)

Researchers report that a compound isolated from a wild, poisonous mushroom growing in a Southwest China forest appears to increase the effectiveness of a cancer-killing drug.

The compound, verticillin A, sensitizes cancer cells to TRAIL, a drug which induces cancer cells to self destruct, said Dr. Kebin Liu, cancer immunologist at the Georgia Health Sciences University Cancer Center and corresponding author of the study in the journal Cancer Research.

The compound appears to keep cancer cells from developing resistance to TRAIL, short for tumor necrosis factor-related apoptosis inducing ligand. Drug resistance, intrinsic or acquired, is a major problem for cancer patients, accounting for greater than 90 percent of treatment failures in patients with metastatic disease. "If we can make drugs work again, more people will survive," Liu said.

Patient experience has shown cancer's skill at desensitizing itself to the TRAIL. "It looks as though most cancer cells have found a way to become resistant and evade its action," said Dr. Wendy Bollag, cell physiologist at GHSU and a study co-author. Tenacious cancer cells also are naturally resistant to cell suicide, which is how TRAIL works.

In mice, they found verticillin A alone was adequate to kill cancer cells, but the required dose made the mice sick, a common problem with many cancer therapies. However, when a lower dose was paired with TRAIL, it became a powerful, more tolerable recipe that killed previously resistant cells.

Black tea

Drink black tea to detox, experts tell smokers (World Newspapers: 13.10.2011)

Black tea could help chronic smokers detox, experts at a daylong conference on the benefits of tea and its abilities to cure several maladies said here Wednesday.

‘Health and Longevity Through Chai: The Wonder Beverage’ was organised by the International Life Sciences Institute-India (ILSI-India) and supported by the Tea Board, the National Institute of Nutrition and the National Tea Research Foundation.

Scientists from around the world, who have been doing extensive research on tea and its medicinal properties, presented papers and took part in the discussions.

According to Koustubh Panda, head of Calcutta University's department of biotechnology and director of West Bengal Biotech Development Corporation (WBBDC), black tea can be a preventive measure for smokers who are at the risk of contracting emphysema, the fourth major killer disease around the world.

“Ninety percent of emphysema victims are cigarette smokers. The antioxidants in black tea prevent cigarette smoke induced oxidants of lung protein and thereby protects against emphysema,” said Panda.

“It can act as a saviour for those who lack the willpower to kick the butt. However, this research does not encourage people to take up smoking,” he added.

Another expert, Amar Misra, from the Ramakrishna Mission Seva Pratishthan, said a study conducted on patients who had suffered a stroke revealed that those who consumed five or more cups of tea daily were at a much lesser risk of suffering another attack.

Food security bill

Food security bill falls foul of SC ruling’ (The Times of India: 17.10.2011)

The Supreme Court commissioners in the food case have warned the Union government that their draft National Food Security Act falls foul of apex court orders on providing food and nutrition to the needy.

In a letter to the government, the principal adviser to the office of commissioners, Biraj Patnaik, noted that the draft violated several existing orders of the Supreme Court. He said the apex court explicitly banned the role of profit-making contractors and suppliers selling ready to eat meals to children but the draft bill has provisions that contradict this order. “The definition of meal is a cooked meal or ready to eat meal or take home ration, as prescribed by the central government. The words ‘locally produced’ should be inserted in the definition, and ready to eat food should be deleted,” he said.

The hon'ble court has explicitly stated and reiterated, through various orders over the past few years, that meals for children to mean locally produced, 'hot cooked meals' or take home rations," he added. Patnaik also pointed out that the issue of number of beneficiaries to be covered by such programmes was sub-judice at the moment. "The matter of the BPL/ priority households is now sub-judice in the Supreme Court. Till such time that a final decision on this is taken, any mention of targeting of specific percentages of people to be covered within the ambit of the NFSB is not advisable," he said.

Hearing on the controversial Planning Commission affidavit stating urban poverty cut-off at Rs 32 in urban areas and Rs 25 in rural areas is to come up in the apex court on November 2. It remains unclear if the government intends to rethink the affidavit and not use the cut-offs for counting the beneficiaries under various social sector programmes.

Patnaik has objected to the absence of a strict starvation code and the definition of priority households, which does not expressly include the vulnerable already covered under the Antodaya Anna Yojna.

Pomegranate

Pomegranate: The new wonder drug (The Times of India: 17.10.2011)

Fruit Extract Benefits Heart, Lowers BP, Fights Cancer, Cures Sex Problem

Scientists have hailed an extract from the humble pomegranate as the 'biggest breakthrough' in natural medicine since aspirin was discovered in willow trees in 1829.

They have described it as the "Swiss Army Knife" of natural pharmaceuticals as it can do so many things — from improving heart health, lowering blood pressure, treating inflammation and reducing the risk of cancers to tackling sexual dysfunction, the Sunday Express reported.

In fact, this is for the first time that they have been able to unlock the precious new extract from seeds, skin and pith of the fruit. It contains concentrated punicalagins, a plant nutrient that is virtually unique to pomegranates. Punicalagins are mostly found in the fruit's inedible husk, rind, seeds and inner yellow membranes, which till now we tended to throw away.

Dr Sergio Streitenberger, head of research at Probelte-Bio which made the breakthrough, said, "We've been throwing away the seeds, skin and the pith of pomegranates for years because they are inedible and we haven't had the science to enable us to release the benefits."

Dr Emad Al-Dujaili at Queen Margaret University, UK claims, “The pomegranate continues to offer remarkable health benefits. “This new extract and the research that supports it suggests the fruit may be a beneficial natural supplement for the prevention of risk in serious diseases.” PTI

Junk food

Junk food can make healthy lads infertile (New Kerala: 18.10.2011)

A new study has revealed that junk food can make healthy young men infertile by damaging their sperm.

And “trans fats” — processed oils used to improve food taste cheaply — are among the worst culprits, the Sun reported.

Fertility doctors from America’s Harvard University and the University of Murcia, Spain, analysed sperm from hundreds of men aged between 18 and 22.

They found those who ate a high proportion of junk food — takeaways, fried foods, processed red meats, crisps, biscuits and cakes — had poorer quality sperm than those on a nutritious daily diet.

Their sperm was found less likely to survive the journey to fertilise an egg, even if the lads were a healthy weight and exercised.

And those whose diet included the highest level of trans fats — listed on labels as “hydrogenated oil” and found naturally in many fried foods — had the worst quality sperm.

According to the results a diet of wholegrain with lots of vegetables and fish produced the best quality.

Protein

Protein Family Key to Aging, Cancer (Science daily: 18.10.2011)

The list of aging-associated proteins known to be involved in cancer is growing longer, according to research by investigators at Vanderbilt-Ingram Cancer Center and the National Institutes of Health (NIH).

The new study, published Oct. 17 in *Cancer Cell*, identifies the protein SIRT2 as a tumor suppressor linked to gender-specific tumor development in mice. Along with two other "sirtuin" proteins previously linked to cancer, the new finding suggests the existence of a rare "family" of tumor suppressors.

Cancer is primarily a disease of aging, with the majority of cancer cases occurring in people over 50. However, the biological processes that underlie this association are not clear.

In the late-1990s, sirtuins were linked to extended lifespan observed in several species maintained on a calorically restricted diet. These nutrient-sensing proteins seemed to defend against aging-related cellular damage.

"The single most important prognostic factor in cancer is increasing age," said Gius, a professor of Radiation Oncology and associate professor of Cancer Biology at Vanderbilt-Ingram. "It seems logical that the genes that play a role in aging -- or perhaps better stated, anti-aging -- would be connected to cancer."

While at the NIH's National Cancer Institute, Gius and colleagues found that when they eliminated SIRT3 -- a sirtuin localized in the mitochondria, the cellular "power plants" -- the mice developed ER/PR positive breast tumors, the most common type of breast cancer in postmenopausal women.

In the new study, Gius' lab -- working with senior author Chu-Xia Deng, Ph.D., and colleagues at the NIH's National Institute of Diabetes and Digestive and Kidney Diseases -- investigated the physiological functions of SIRT2 by eliminating the protein in cultured cells and in mice.

They found that SIRT2-deficient mice developed tumors in multiple tissues -- and, strangely, male mice and female mice developed tumors in different tissues. Lack of SIRT2 in female mice led to mammary (breast) tumors, while male mice lacking SIRT2 developed a range of gastrointestinal tumors (in the liver, pancreas, colon and stomach).

"It's kind of a startling observation, that you'd knock a protein out, and you'd get gender-specific tumors, suggesting a physiological connection between gender and the function of sirtuin proteins" Gius said.

From human cancer data, the investigators showed that SIRT2 was also decreased in human cases of breast cancer, gastrointestinal tumors (which were not broken down by gender), and several other cancer types.

While the mechanism underlying the gender-specific tumors was not determined, the researchers did find evidence that SIRT2 acted as a tumor suppressor in cultured cells. Specifically, the protein appeared to regulate an important part of the machinery involved in cell division -- a protein complex called APC/C. Loss of SIRT2 led to "genomic instability," or an abnormal segregation of chromosomes during cell division. While the

cells at first showed reduced proliferation, their growth rate gradually increased and the cells showed signs of malignant transformation.

Previous studies indicated that two other members of the sirtuin family -- SIRT1 and SIRT3 -- have tumor suppressor functions. These findings suggest that a third member of this protein family acts as a tumor suppressor.

"You don't normally find families of tumor suppressor genes," Gius said. "They're kind of lone wolves...it's just not common to find a family of (tumor suppressor) genes, especially ones connected to aging."

Because the mammary tumors that develop in female mice appear similar to the most common type of breast cancer (luminal breast cancers), Gius believes these mice could provide a much-needed animal model for that disease.

His group plans to investigate whether SIRT2 is a "driver" of luminal breast cancer and, if so, to use the mice as a model for investigating chemopreventive agents.

"Ultimately, we could possibly identify subgroups of women who might benefit from the agents we validate in mice," he said.

The research was supported by grants from the NIH's National Institute of Diabetes and Digestive and Kidney Diseases, the National Cancer Institute, the National Center for Research Resources, and from the Department of Defense.

Coffee

Coffee Culture Gives Way to Call Centers in Colombia (Med India: 18.10.2011)

Officials have found the solution to volatile commodity prices and raging unemployment in Manizales, in the heart of Colombia's prime coffee production zone. The answer is call centers.

The city of 380,000 people -- nestled in the Andes mountains in the central department of Caldas, about 175 kilometers (110 miles) northwest of the capital Bogota -- is attracting multinational firms and putting residents back to work.

Authorities in Manizales did everything to keep the coffee trade afloat.

"We tried to increase production, the number of hectares used. We also tried to specialize in a quality niche coffee, but nothing seemed to work. Meanwhile, Brazil solidified its position as the world's top coffee producer," city mayor Juan Llano told AFP.

In 2005, the unemployment rate in Manizales had hit 20 percent, giving the city the dubious distinction of being among the top three cities in Colombia in terms of the number of jobless.

Llano then opted to follow an unusual model -- that of India, a world leader in the global business outsourcing market.

He dreamed up "People Contact" -- a government-run structure attached to city hall that offers call center services. Multinationals were drawn by the nearly neutral accent of Colombians in Spanish, and their good grammar.

"We offer tax breaks, we rent out fully-outfitted offices, and we also offer young workers, some of them bilingual," explained Juan Cardona, the director of People Contact, which employs some 30 people to run about a dozen call centers.

New protein

New protein behind aging, cancer identified (New Kerala: 19.10.2011)

Scientists have found a new aging-associated protein known to be involved in cancer.

The new study by investigators at Vanderbilt-Ingram Cancer Centre and the National Institutes of Health (NIH) identifies the protein SIRT2 as a tumour suppressor linked to gender-specific tumour development in mice.

Previous studies indicated that two other members of the sirtuin family – SIRT1 and SIRT3 – have tumour suppressor functions. These findings suggest that a third member of this protein family acts as a tumour suppressor.

"The single most important prognostic factor in cancer is increasing age," said Gius, a professor of Radiation Oncology and associate professor of Cancer Biology at Vanderbilt-Ingram.

"It seems logical that the genes that play a role in aging – or perhaps better stated, anti-aging – would be connected to cancer," he stated.

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"It's kind of a startling observation, that you'd knock a protein out, and you'd get gender-specific tumours, suggesting a physiological connection between gender and the function of sirtuin proteins," Gius said.

While the mechanism underlying the gender-specific tumours was not determined, the researchers did find evidence that SIRT2 acted as a tumour suppressor in cultured cells.

The study was recently published in Cancer Cell.

Broccoli

Broccoli compound could help beat drug resistance in COPD (New Kerala: 19.10.2011)

Sulforaphane, a compound obtained from cruciferous vegetables such as broccoli, Brussels sprouts, and cabbages, could help bring relief to patients with chronic obstructive pulmonary disease, according to new research led by Indian-origin researchers.

Chronic obstructive pulmonary disease (COPD) is a common lung disease that gets progressively worse over time, making it harder and harder to breathe.

It is caused primarily by cigarette smoking, which leads to persistent inflammation in the airways and the subsequent destruction of the lung tissue.

Given the central role of inflammation in COPD, it is surprising that patients derive little benefit from treatment with potent anti-inflammatory drugs known as corticosteroids.

Working with cells from individuals with COPD, a team of researchers led by Shyam Biswal and Rajesh Thimmulappa, at Johns Hopkins University, Baltimore, has identified sulforaphane as candidate therapeutic that could potentially be used to augment the anti-inflammatory effects of corticosteroids in individuals with COPD

Fish oil

Fish oil prevents and slows progression of osteoarthritis (New Kerala: 19.10.2011)

University of Bristol researchers have found for the first time that omega-3 in fish oil could “substantially and significantly” reduce the signs and symptoms of osteoarthritis.

In their study, omega-3-rich diets fed to guinea pigs, which naturally develop osteoarthritis, reduced disease by 50 per cent compared to a standard diet, Science Daily reported.

The research is a major step forward in showing that omega-3 fatty acids, either sourced from fish oil or flax oil, may help to slow down the progression of osteoarthritis, or even prevent it occurring, confirming anecdotal reports and “old wives’ tales” about the benefits of fish oil for joint health.

Lead researcher Dr John Tarlton, from the Matrix Biology Research group at the University of Bristol’s School of Veterinary Sciences, said classic early signs of the condition, such as the degradation of collagen in cartilage and the loss of molecules that give it shock-absorbing properties, were both reduced with omega-3.

“Furthermore, there was strong evidence that omega-3 influences the biochemistry of the disease, and therefore not only helps prevent disease, but also slows its progression, potentially controlling established osteoarthritis,” he said.

Junk Food

Junk This Food Habit (The Times of India: 19.10.2011)

Being away from our original self creates a void, which we fill by eating calorie-rich food. By doing things that add value to our life, we can get over this craving, says hypnotherapist and healer, Rama Awasthi

Dieting and exercise can easily help us maintain our weight if we can control our craving for junk food. We can work on our craving by being close to our natural self. All of us have three personalities: our original self (meaning what or who we are), the self we present to the world, and what we ‘think’ we are. Being away from our original self creates a void in our life, which we try to fill by eating calorie-rich food. We try to

replace the feeling of emptiness by overeating, thereby putting on extra kilos; if this cycle continues, exercise and dieting will have little effect.

Useful and valuable feelings:

Being close to our original self is all about feeling useful in life. When we begin to focus on the concept of usefulness, our creative mind finds ways to add value to our lives and craving for unnecessary things becomes insignificant. Doing things which add value to our life is possible even in adverse situations. We can begin by realizing that there is definitely something which we love to do to make our surroundings beautiful and in return, feel worthy. This feeling of being worthy comes only when we are working from the space of our original self. Simply put, do something more for your own happiness and less to please others.

Find your original personality:

We have a natural sense of belonging with our original personality. When we are away from it, a sense of insecurity envelops us. We seek solace in food and end up eating highcalorie junk food. By accepting our importance in this world and a willingness to make a difference, we can handle the craving that provides temporary relief but forces us to fight a long battle with extra flab. The following tips can be helpful:

- Keep your interests alive. Do not let your schedule run over your interests. Take time off regularly to pursue your favourite activities.
- Practise gratitude. It helps create a friendly atmosphere around us and allows us to feel worthy.
- If your life is hectic, slow down by being aware of your breathing. Slowing down helps in connecting with ourselves.

PH diet

Alkaline or pH diet helps in losing weight and in other ailments (The Tribune; 19.10.2

London: The alkaline or pH diet not only aids weight loss but can also help alleviate a variety of ailments from indigestion to arthritis, followers of the diet have claimed. They also said it could allegedly make you happier, more energetic and even reverse the aging process, the Daily Express reported. The alkaline or pH diet, which consists mostly of fruit, salads, vegetables, chickpeas, coconuts and almonds, is the diet of choice for models, fashion designers and celebrities.

Breast milk

Can breast milk provide stem cells? (The Asian Age: 19.10.2011)

Scientists claim to have discovered that human breast milk contains stem cells which are able to turn into not only breast cells, but also cells of the bone, cartilage, fat, brain, liver and pancreas. A team, led by Dr Foteini Hassiotou at the University of Western Australia, says this shows that human breast milk has the potential to help people suffering from diseases like Parkinson's and diabetes.

"The benefit of obtaining stem cells from breast milk is that they can be accessed non-invasively, unlike getting them from the bone marrow, umbilical cord blood or peripheral blood," she said. She added: "If we can understand the properties of these cells and their role in the breast and in the breast-fed baby, we can use them as models for breast cancer research and stem cell therapies. Stem cell therapy is a very promising technology. The limitations of the current therapies are that the transplanted stem cells are accessed using invasive methods. Breast milk offers a new exciting opportunity for stem cell therapies, with the potential to benefit not only the mother and child, but also other people." The scientists said that they are currently examining the in vivo transplantation potential of milk stem cells into animals.

Soy protein

Soy protein better than milk counterpart for improving cholesterol health (new Kerala: 25.10.2011)

A new study has revealed that supplements of soy protein are much better than milk protein in terms of improving blood levels of HDL (good) cholesterol and thus the overall lipid profile in healthy individuals.

The study, which has been published in the European Journal of Clinical Nutrition, investigated the effect of soy and milk protein supplementation on lipids compared with carbohydrate among healthy adults.

Numerous research studies have demonstrated that soy protein reduces LDL ('the bad') cholesterol and increases HDL ('the good') cholesterol, supporting the soy protein heart health and cholesterol-lowering claim that is approved in 12 countries around the globe.

"Coronary heart disease (CHD) is a major health epidemic, as the No. 1 killer of women and men globally," said Elaine Krul, Ph.D., nutrition discovery lead at Solae.

“Research has shown that lowering blood lipids reduces the risk of coronary heart disease and stroke.”

“The results of this study reveal that soy protein supplementation intake can help lower blood lipids, thus helping to reduce the risk of CHD in healthy individuals.”

In this study, total cholesterol reduction as well as the total/HDL cholesterol ratio reduction was statistically significant with soy protein supplementation compared with carbohydrate.

Compared with milk protein, soy protein supplementation significantly increased HDL and significantly reduced total/HDL cholesterol ratio as well as lowered LDL cholesterol.

High Fizzy Soft Drink

High Fizzy Soft Drink Consumption Linked to Violence among Teens (Science daily: 25.10.2011)

Teens who drink more than five cans of non-diet, fizzy soft drinks every week are significantly more likely to behave aggressively, suggests research published online in Injury Prevention. This includes carrying a weapon and perpetrating violence against peers and siblings.

US lawyers have successfully argued in the past that a defendant accused of murder had diminished capacity as a result of switching to a junk food diet, a legal precedent that subsequently became known as the "Twinkie Defense" -- a twinkie being a packaged snack cake with a creamy filling.

The researchers base their findings on 1,878 teens from 22 public schools in Boston, Massachusetts. The teens were part of the Boston Youth Survey, a biennial survey of 9th to 12th graders (14 to 18 year olds).

The teens were asked how many carbonated non-diet soft drinks they had drunk over the past seven days. Intake was measured in cans (355 ml or 12 ounces), and responses categorised according to quantity.

The responses were divided into two groups: those drinking up to four cans over the preceding week (low consumption); and those drinking five or more (high consumption). Just under one in three (30%) respondents fell into the high consumption category.

The researchers then looked at potential links to violent behaviour in this group, by asking if they had been violent towards their peers, a sibling, or a partner, and if they had carried a gun or knife over the past year.

Responses were assessed in the light of factors likely to influence the results, including age and gender, alcohol consumption, and average amount of sleep on a school night.

Those who drank 5 or more cans of soft drinks every week were significantly more likely to have drunk alcohol and smoked at least once in the previous month.

But even after controlling for these and other factors, heavy use of carbonated non-diet soft drinks was significantly associated with carrying a gun or knife, and violence towards peers, family members and partners.

When the findings were divided into four categories of consumption, the results showed a clear dose-response relationship across all four measures.

Just over 23% of those drinking one or no cans of soft drink a week carried a gun/knife, rising to just under 43% among those drinking 14 or more cans. The proportions of those perpetrating violence towards a partner rose from 15% in those drinking one or no cans a week to just short of 27% among those drinking 14 or more.

Similarly, violence towards peers rose from 35% to more than 58%, while violence towards siblings rose from 25.4% to over 43%.

In all, for those teens who were heavy consumers of non-diet carbonated soft drinks, the probability of aggressive behaviour was 9 to 15 percentage points higher -- the same magnitude as the impact of alcohol or tobacco -- the findings showed. "There may be a direct cause-and-effect-relationship, perhaps due to the sugar or caffeine content of soft drinks, or there may be other factors, unaccounted for in our analyses, that cause both high soft drink consumption and aggression," conclude the authors.

Coffee Consumption

Coffee Consumption Associated With Decreased Risk for Basal Cell Carcinoma (Science daily: 25.10.2011)

Caffeine could be related to an inverse association between basal cell carcinoma risk and consumption of coffee, a study found.

The prospective study, presented at the 10th AACR International Conference on Frontiers in Cancer Prevention Research, held Oct. 22-25, 2011, examined the risks of basal cell

carcinoma (BCC), squamous cell carcinoma (SCC) and melanoma in connection with coffee consumption and found a decreased risk for BCC only.

"Given the nearly 1 million new cases of BCC diagnosed each year in the United States, daily dietary factors with even small protective effects may have great public health impact," said researcher Fengju Song, Ph.D., a postdoctoral fellow in the department of dermatology at Brigham and Women's Hospital and Harvard Medical School. "Our study indicates that coffee consumption may be an important option to help prevent BCC."

Data were taken from the Nurses' Health Study (Brigham and Women's Hospital) and the Health Professionals Follow-Up Study (Harvard School of Public Health). In the Nurses' Health Study, 72,921 participants were followed from June 1984 to June 2008. In the Health Professionals Follow-Up Study, 39,976 participants were followed from June 1986 to June 2008.

The researchers reported 25,480 incident skin cancer cases. Of those, 22,786 were BCC, 1,953 were SCC, and 741 were melanoma.

Song and colleagues reported that women who consumed more than three cups of coffee per day had a 20 percent reduction in risk for BCC, and men who consumed more than three cups per day had a nine percent risk reduction compared with people who consumed less than one cup per month.

The amount of coffee consumption was inversely associated with BCC risk. Those in the highest quintile had the lowest risk, with an 18 percent reduction for women and a 13 percent reduction for men.

Song and colleagues were surprised by the inverse connection in BCC cases only. Animal studies have suggested an association between coffee intake and skin cancer risk, but epidemiologic studies have not conclusively shown the same results, they said.

"Mouse studies have shown that oral or topical caffeine promotes elimination of UV-damaged keratinocytes via apoptosis (programmed cell death) and markedly reduces subsequent SCC development," Song said. "However, in our cohort analysis, we did not find any inverse association between coffee consumption and the risk for SCC."

Song said that additional studies specifically addressing the association between coffee consumption and BCC and the mechanism behind this association are warranted.

Lauki juice

Good old lauki juice can be lethal (World Newspapers: 31.10.2011)

Believed to have medicinal value that can cure many ailments such as diabetes, urinary disorders, aid weight loss and digestion, the good-old lauki (bottle gourd) may not be so good after all.

According to scientists, a bitter lauki when consumed with any other juice can be lethal. The Union Health and Family Welfare Ministry (MoHWF) has issued an advisory based on recommendations of an expert committee warning people from consuming bitter lauki, or mixing it up with any other juice. The advisory has been issued following cases of serious health problems cropping up after consumption of lauki juice, popularised by Baba Ramdev.

According to Ramdev, lauki juice mixed with aloe vera, amla, karela, jamun, lemon is as an effective ayurvedic remedy for many ailments including diabetes and blood pressure. Following his call for this ayurvedic concoction, lauki juice became the household remedy for many ailments and many even believed it to be a tonic, aid digestion, prevent acidity, prevent urinary disorders, and excessive sodium loss from the body, till a man died last year after consuming lauki juice.

His death led to suspicions about the efficacy and reliability of lauki juice. The matter was even raised in Parliament prompting government to set up an expert committee to examine the issue. Now following an intensive study on the toxicity of the vegetable juices, the Union Health Ministry has said that lauki juice should not be mixed with any juice.

In fact, it has warned people saying lauki should always be tasted first even before being consumed even as vegetable. If found bitter it should be discarded immediately as bitter lauki juice has the potential to be toxic. The same is the case with other fruits and vegetables from the cucumber family as they are believed to have harmful toxins that give bitter taste. And in case there is any discomfort following its consumption, it is best to rush to hospital.

The advisory is based on recommendations of an expert committee comprising of doctors from All India Institute of Medical Sciences (AIIMS) and Indian Council of Medical Research (ICMR). The committee was set up to investigate the issue of safety of consumption of lauki juice after a Member of Parliament raised the issue following death of an official with the Council for Scientific and Industrial Research (CSIR) in June last year. The official had died shortly after consuming lauki juice mixed with karela (bitter gourd) juice to control diabetes. Despite being bitter the official drank the concoction. Earlier this month about 16 trainee of Haryana police fell ill due to food poisoning after eating lauki for dinner.

To the doctors, the expert committee has recommended conducting tests including prothrombin time and platelet counts, serum amylase, blood sugar along with X-Ray chest, ECG, Ultrasound and Endoscopy. Since there is no specific antidote available, the general supportive care such IV fluids/ crystalloids / blood products/ fresh frozen plasma has to be given to maintain the hemodynamics and electrolyte balance.

Eating Disorders

Do Deficits in Brain Cannabinoids Contribute to Eating Disorders? (Science Daily: 1.11.2011)

A new report in Biological Psychiatry suggests that deficits in endocannabinoid function may contribute to anorexia nervosa and bulimia. Endocannabinoids are substances made by the brain that affect brain function and chemistry in ways that resemble the effects of cannabis derivatives, including marijuana and hashish. These commonly abused drugs are well known to increase appetite, i.e. to cause the "munchies." Thus, it makes sense that deficits in this brain system would be associated with reduced appetite.

Researchers measured the status of the endocannabinoid system indirectly by determining whether there was an increase or decrease in the density of endocannabinoid receptors, called the CB1 receptor, in several brain regions using positron emission tomography, or PET, imaging. They compared these densities in women with anorexia or bulimia with those of healthy women.

They found global increases in ligand binding to CB1 receptors in the brains of women with anorexia nervosa. This finding is consistent with a compensatory process engaged by deficits in endocannabinoid levels or reduced CB1 receptor function.

CB1R availability was also increased in the insula in both anorexia and bulimia patients. The insula "is a region that integrates body perception, gustatory information, reward and emotion, functions known to be disturbed in these patients," explained Dr. Koen Van Laere, the study's lead author.

"The role of endocannabinoids in appetite control is clearly important. These new data point to important connections between this system and eating disorders," added Dr. John Krystal, Editor of Biological Psychiatry.

Additional research is now needed to establish whether the observed changes are caused by the disease or whether these are neurochemical alterations that serve as risk factors for developing an eating disorder.

Furthermore, since very few effective treatments exist for these disorders, these data indicate that the endocannabinoid system may be a potential new target for developing drugs to treat eating disorders. Such new therapies are currently being investigated in animal models.

Milk

Are you boiling off nutrients in milk? (World Newspapers: 1.11.2011)

How many of us know that milk should not be boiled for more than two to three minutes to have its nutritional value intact? According to a recent study, a majority of Bangaloreans kill nutrition along with germs while boiling milk.

The study was conducted by Indian Medical Academy (IMA) on 300 women from the city, aged between 25 and 45 years. It revealed that people are not following correct milk boiling practices. They are boiling and re-boiling milk on high flame for extended periods of time and that too without stirring it, thus reducing the nutritional value.

“Milk Boiling Habits Study”, as the study is termed, observed that 39% Bangaloreans boil milk more than three times before consuming it. About 53% boil it for more than five minutes and 64% do not stir it while boiling. “The study has brought to the fore a very surprising fact - most Bangaloreans are not boiling milk the way it should be. There are chances that they might therefore not be consuming quality milk,” says Dr Pawan Gupta of Indian Medical Academy.

There may be two reasons to this casual approach of boiling milk, says Dr Gupta, either people are not aware of the right boiling practices or they might be finding it difficult to observe these practices. The second reason seems more probable. The study has found that 72% people find boiling milk a tedious exercise. About 64% people prefer milk that doesn't need boiling at all and can be readily consumed.

Boiling and re-boiling milk at high temperature for a long time affects the nutritional content of the milk, particularly the B group (B1, B2, B12) of vitamins. “Milk is a form of protein. And protein, if heated gets denatured. Not just that, when boiled repeatedly, the thick layer of cream that forms in the upper crust is not just fat, it also contains fat soluble vitamins, including Vitamin A, B, E and K,” said Dr Priyanka Rohatgi, chief clinical nutritionist, Apollo Hospital.

However, the best way to consume milk is by boiling it for not more than two minutes once. “In case of pasteurised milk, boiling it for a minute or two increases its shelf life. However, every time before consuming the milk, there is no need to boil it. Rather boiling it once and heating the milk till a certain temperature is just fine. Moreover, tetra pack milk doesn't require boiling at all,” added Dr Rohatgi.

Mediterranean diet

Mediterranean diet plus exercise cuts sleep apnea symptoms (New Kerala: 4.11.2011)

A new study has revealed that a Mediterranean diet coupled with physical activity can help reduce symptoms of sleep apnea.

Obstructive sleep apnea syndrome (OSAS) causes frequent pauses of breathing to occur during sleep, which disrupts a person's normal sleeping pattern.

It is one of the most prevalent sleep-related breathing disorders with approximately 2-4 percent of the adult population experiencing the condition.

This percentage increases up to 20-40 percent with obesity, and weight loss is often an essential part of the recommended treatment plan.

The researchers, from the University of Crete in Greece, examined 40 obese patients suffering from OSAS. Twenty patients were given a prudent diet to follow, while the other 20 followed a Mediterranean diet.

Both groups were also encouraged to increase their physical activity, mainly involving walking for at least 30 minutes each day.

In both groups, the patients also received continuous positive airway pressure (CPAP) therapy, which involves wearing a mask that generates an air stream, keeping the upper airway open during sleep.

The results showed that people following the Mediterranean diet had a reduced number of disturbances, known as apneas, during the rapid eye movement (REM) stage of sleep, which usually accounts for approximately 25 percent of total sleep during the night.

The findings also revealed that people following the Mediterranean diet also showed a greater adherence to the calorie restricted diet, an increase in physical activity and a greater decrease in abdominal fat.

The researchers suggested that further studies in a larger sample are required to fully understand the benefits of this diet.

The study has been published online in the European Respiratory Journal.

Food

Cooked - not raw - food provides more energy: Study (World Newspapers: 9.11.2011)

Contrary to popular belief, cooked food provides more energy than its raw version, which is particularly true of meat.

The finding suggests humans are biologically adapted to benefit from cooking, which played a key role in driving our evolution from an ape-like being into one that resembles humans today.

"It is astonishing that we don't understand the fundamental properties of the food we eat," said Rachel Carmody, evolutionary biologist at Harvard's Graduate School of Arts and Sciences, the journal Proceedings of the National Academy of Sciences reports.

"All the effort we put into cooking food and presenting it - mashing it up, or cutting it, or slicing or pounding it - we don't understand what effect that has on the energy we extract from food, and energy is the primary reason we eat in the first place," added Carmody, according to a Harvard statement.

To examine those effects, Carmody designed a unique experimental model. Over 40 days, she fed two groups of mice a series of diets that consisted of either meat or sweet potatoes prepared in four ways - raw and whole, raw and pounded, cooked and whole, and cooked and pounded.

Over the course of each diet, researchers tracked changes in each mouse's body mass, as well as how much they used in an exercise wheel. The results, Carmody said, clearly showed that cooked meat delivered more energy to the mice than raw.

Though early humans were eating meat as early as 2.5 million years ago, without the ability to control fire, any meat in their diet was raw, and probably pounded using primitive stone tools.

Approximately 1.9 million years ago, however, a sudden change occurred. The bodies of early humans grew larger. Their brains increased in size and complexity. Adaptations for long-distance running appeared.

Though earlier theories suggested the changes were the product of increased meat in their diet, Carmody's research points to another possible hypothesis - that cooking provided early humans with more energy, allowing for such energetically-costly evolutionary changes.

Green tea

Green tea may provide novel treatment for Alzheimer's (The Tribune: 9.11.2011)

London: Green tea and red laser light can act as a powerful duo in obliterating Alzheimer's plaques, a new study has revealed. The research team at the University of Ulm in Germany, including Andrei Sommer and colleagues, revealed that the light makes it feasible for the green-tea extract to work on the plaques. The researchers had earlier used red light with a wavelength of 670 nanometres to transfer cancer drugs into cells. During the process they found that the laser light pushes water out of the cells and when the laser is switched off, the cells 'suck in' water and any other molecules, including drugs, from their surroundings.

Cheese

Cheese better than butter for heart health? (The Times of India; 16.11.2011)

Doctors and nutritionists have long recommended avoiding all animal fats to trim cholesterol, but Danish researchers say cheese may not be so bad, and probably shouldn't be placed in the same category as butter. According to their study, published in the American Journal of Clinical Nutrition, people who ate daily servings of cheese for sixweek intervals had lower LDL cholesterol, the so-called "bad" cholesterol, than when they ate a comparable amount of butter.

The cheese eaters also did not have higher LDL during the experiment than when they ate a normal diet.

"Cheese lowers LDL cholesterol when compared with butter intake of equal fat content and does not increase LDL cholesterol compared with a habitual diet," wrote Julie Hjerpsted and her colleagues, from the University of Copenhagen.

The group surveyed about 50 people. Each person was put on a controlled diet and added a measured amount of cheese or butter daily.

Throughout, each participant was compared against his or herself, to follow changes in the body caused by the foods. Researchers gave each person cheese or butter, both made from cows milk, equal to 13% of their daily energy consumption from fat.

Despite eating more fat than had been in their normal diet, the cheese eaters showed no increase in LDL. While eating butter, however, the same subjects had LDL levels about 7% higher than average. REUTERS

Garlic oil

Garlic oil component protects heart (New Kerala: 18.11.2011)

A garlic oil component may help protect the heart after it suffers an attack, during cardiac surgery or as a treatment for heart failure.

At low concentrations, hydrogen sulphide (H₂S) gas has been found to protect the heart from damage. However, this unstable and volatile compound has been difficult to deliver as therapy.

Researchers at Atlanta's Emory University School of Medicine have turned to diallyl trisulphide, a garlic oil component, as a way to deliver the benefits of H₂S to the heart.

Their findings suggest that doctors could use diallyl trisulfide in many of the situations where researchers have proposed using H₂S, a university statement said.

"We are now performing studies with orally active drugs that release hydrogen sulphide-this could avoid the need to inject sulphide-delivery drugs outside of an emergency situation," says David Lefer, researcher at the Emory School of Medicine.

Conducting an experiment with Lefer, postdoctoral fellow Benjamin Predmore blocked the coronary arteries of mice for 45 minutes, simulating a heart attack, and gave them diallyl sulphide just before blood flow was restored. The compound reduced the proportion of damaged heart tissue in the area at risk by 61 percent, compared with untreated animals.

"Interruption of oxygen and blood flow damages mitochondria (which powers a cell), and loss of mitochondrial integrity can lead to cell death," says Predmore.

"We see that diallyl sulphide can temporarily turn down the function of mitochondria, preserving them and lowering the production of reactive oxygen species," he adds.

These findings were presented on Wednesday at the American Heart Association (AHA) Scientific Sessions conference, Orlando, US.

Mediterranean diet

Its official! Mediterranean diet can help improve heart health (world Newspapers: 18.11.2011)

Johns Hopkins researchers including one of Indian-origin have provided further evidence that a Mediterranean-style diet is good for your heart.

The observed diet replaces white bread and pasta carbohydrates with unsaturated fat from avocados, olive oil and nuts — foods typical of the “Mediterranean diet.”

The researchers said swapping out certain foods could improve heart health in those at risk for cardiovascular disease, even if the dietary changes aren’t coupled with weight loss.

“The introduction of the right kind of fat into a healthy diet is another tool to reduce the risk of future heart disease,” said Meghana Gadgil, M.D., M.P.H, a postdoctoral fellow in the Division of General Internal Medicine at the Johns Hopkins University School of Medicine.

Gadgil and her colleagues analysed data from the OmniHeart Trial, which studied the cardiovascular effects of three different balanced diets on 164 people with mild hypertension but no diabetes.

The researchers compared the body’s ability to regulate blood sugar and maintain healthy insulin levels while on a carbohydrate-rich diet, a protein-rich diet and a diet rich in unsaturated fats.

People whose bodies fail to effectively use insulin usually develop type 2 diabetes, which is a major risk factor for heart disease.

The researchers found that a generally balanced diet higher in unsaturated fats such as those in avocados, olive oil and nuts improves insulin use significantly more than a diet high in carbohydrates, particularly such refined carbs as white bread and pasta.

The preferred diet is very similar to the Mediterranean diet, inspired by the foods of southern Italy and Greece and emphasizing healthy fats, fruits and vegetables.

The finding will be presented at the American Heart Association’s scientific sessions in Orlando next week.

Coffee

Drinking 2- 3 cups of coffee everyday cuts endometrial cancer risk by 7 percent (New Kerala: 25.11.2011)

A new study has found that long-term coffee consumption may help reduce risk for endometrial cancer.

Coffee is emerging as a protective agent in cancers that are linked to obesity, estrogen and insulin, said Edward Giovannucci, M.D., Sc.D., professor of nutrition and epidemiology at the Harvard School of Public Health.

“Coffee has already been shown to be protective against diabetes due to its effect on insulin,” said Giovannucci, a senior researcher on the study.

“So we hypothesized that we’d see a reduction in some cancers as well,” he stated.

Giovannucci, along with Youjin Je, a doctoral candidate in his lab, and colleagues observed cumulative coffee intake in relation to endometrial cancer in 67,470 women who enrolled in the Nurses’ Health Study.

During the course of 26 years of follow-up, researchers documented 672 cases of endometrial cancer.

Drinking more than four cups of coffee per day was linked with a 25 percent reduced risk for endometrial cancer. Drinking between two and three cups per day was linked with a 7 percent reduced risk.

A similar link was seen in decaffeinated coffee, where drinking more than two cups per day was linked with a 22 percent reduced risk for endometrial cancer.

The study appeared in Cancer Epidemiology, Biomarkers and Prevention, a journal of the American Association for Cancer Research.

Vegetables

Vegetables, grain cut stroke risk in women (New Kerala: 5.12.2011)

Women eating an antioxidant-rich diet suffered fewer strokes independently of whether they had past history of cardiovascular disease or not, a new study reveals.

"Eating antioxidant-rich foods may reduce your risk of stroke by inhibiting oxidative stress and inflammation," said doctoral student Susanne Rautiainen at the Karolinska Institutet in Sweden, who led the study.

"This means people should eat more foods such as fruits and vegetables that contribute to total antioxidant capacity," she added.

Oxidative stress is an imbalance between the production of cell-damaging free radicals and the body's ability to neutralize them. It leads to inflammation, blood vessel damage and stiffening, the Journal of the American Heart Association:Stroke reported.

Researchers categorized the women according to their total antioxidant capacity (TAC) levels -- five groups without a history of cardiovascular disease and four with previous cardiovascular disease, according to a university statement.

TAC measures the free radical reducing capacity of all antioxidants in the diet and considers mutually beneficial effects among these substances.

For women with no history of cardiovascular disease and highest TAC, fruits and vegetables contributed about 50 percent. Other contributors were whole grains (18 percent), tea (16 percent) and chocolate (five percent).

Higher TAC was related to lower stroke rates in women without cardiovascular disease.

Women without cardio disease with the highest levels of dietary TAC had a statistically significant 17 percent lower risk of total stroke compared to those in the lowest quintile.

'Fast Food Energy'

Artificial Leaf May Pave Way for New Era of 'Fast Food Energy'(Med India: 5.12.2011)

Technology engaged in creating an 'artificial leaf' perhaps can soon be used for generating 'fast food energy'. Debuting an era where people will be able to generate their own electricity at home using inexpensive equipments

The technology will be perfect for the 3 billion people living in developing countries and even homeowners in the United States.

That is among the prospects emerging from research on a new genre of 'electrofuels', made by using energy from the sun and renewable ingredients like water and carbon dioxide.

C and EN Senior Correspondent Stephen K. Ritter in the study has described the artificial leaf is one of the electrofuels technologies. Made of inexpensive materials, the leaf breaks down ordinary water into the oxygen and hydrogen that can power an electricity-producing fuel cell.

Just drop the credit-card-sized device into a bucket of water and expose it to sunlight. With the cost-conscious technology, one door-sized solar cell and three gallons of water could produce a day's worth of electricity for a typical American home.

The study has also described a range of other electrofuel technologies, including ones based on engineered microbes, being developed in the quest for new ways of making fuels.

The study has been published in the Chemical and Engineering News, the American Chemical Society's weekly newsmagazine.

Detox diets'

Detox diets' 'health boost' claims unfounded, says expert (New Kerala: 13.12.2011)

A leading scientist has rubbished claims that so-called “detox” diets can boost health and cleanse the body of chemicals.

According to the Daily Mail, David Bender – an emeritus professor of nutritional biochemistry– said the diets were based on an “unlikely” premise.

He insisted there was no “magic shortcut” to weight loss - which can be achieved simply by eating less and exercising more.

“Detox” regimes may recommend consuming large amounts of fruit, vegetables and juices, and drinking large amounts of water, while avoiding caffeine, sugar and alcohol.

They claim to boost health in various ways including raising energy levels to allowing the body to focus on self-healing.

But Professor Bender of University College London has torpedoed such suggestions in an article entitled The Detox Delusion, published in the Society of Biology magazine, The Biologist.

In it, he says the term “detox” has gone from describing a chemical reaction involved in the production of urine to a “meaningless marketing term” and takes apart the claims made on behalf of detox diets.

He stated that they are at best unfounded, more likely demonstrably false, and at worst dangerous.

“I am not sure what ‘self-healing’ is and the idea of ‘raised energy levels’ is nonsense,” the Telegraph quoted Professor Bender as writing.

“The whole philosophy of detox is based on the unlikely premise that accumulated toxins cause a sluggish metabolism, weight gain, general malaise and so on.

“Weight gain is due to an imbalance between food consumption and energy expenditure. There is no magic shortcut for weight loss - you have to eat less and exercise more. It’s that simple,” he added. (ANI)

Low-carb diets

Low-carb diets better for easing weight: Study (New Kerala: 14.12.2011)

A low-carb diet is better than a standard, calorie-restricted one for cutting down weight and lowering blood levels of cancer-promoting hormone insulin, a British study has found.

Researchers at Genesis Prevention Centre at University Hospital in South Manchester, found that restricting carbohydrates two days per week may be a better dietary approach for preventing breast cancer and other diseases.

"It is interesting that the diet that only restricts carbohydrates but allows protein and fats is as effective as the calorie-restricted, low-carbohydrate diet," said Michelle Harvie, research dietician at the Genesis Prevention Centre.

Harvie and her colleagues compared three diets during four months for effects on weight loss and blood markers of breast cancer risk among 115 women with a family history of breast cancer.

They randomly assigned patients to one of the following diets: a calorie-restricted, low-carbohydrate diet for two days per week; an "ad lib" low-carbohydrate diet in which

patients were permitted to eat unlimited protein and healthy fats, and a standard, calorie-restricted daily Mediterranean diet for seven days per week.

Data revealed that both intermittent, low-carbohydrate diets were superior to the standard, daily Mediterranean diet in reducing weight, body fat and insulin resistance.

Mean reduction in weight and body fat was roughly four kg with the intermittent approaches compared with 2.4 kg with the standard dietary approach.

Insulin resistance reduced by 22 percent with the restricted low-carbohydrate diet and by 14 percent with the "ad lib" low-carbohydrate diet compared with 4 percent with the standard Mediterranean diet.

These findings were presented at the 2011 CTBC-AACR

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Data revealed that both intermittent, low-carbohydrate diets were superior to the standard, daily Mediterranean diet in reducing weight, body fat and insulin resistance.

Mean reduction in weight and body fat was roughly four kg with the intermittent approaches compared with 2.4 kg with the standard dietary approach.

Insulin resistance reduced by 22 percent with the restricted low-carbohydrate diet and by 14 percent with the "ad lib" low-carbohydrate diet compared with 4 percent with the standard Mediterranean diet.

These findings were presented at the 2011 CTRC-AACR San Antonio Breast Cancer Symposium in the US.

Fruits and veggies

Green benefits of fruits and veggies (The Times of India: 14.12.2011)

Taking five helpings of nutritious and low-calorie fruits and vegetables daily is perfect for health and weight management, and boosting immunity, says nutritionist Ishi Khosla

Fruits and vegetables give you
high nutrition and
low calories. They

have enormous therapeutic value with their rich nutritional composition, high fibre and water content. They boost immunity, improve stamina and provide protection from health problems like poor skin and hair, obesity and chronic degenerative problems like heart disease, diabetes, cataract and cancer. Diets with substantial amounts of varied vegetables and fruits are shown to reduce chances of cancer by 20% and of stroke and cardiovascular disease by 60%.

Helps in weight management:

Being low on calories and fat content and high on fibre, micronutrients and antioxidants with a high satiety value, they help in weight management. They work as fillers and can be treated as free foods with the exception of potatoes, sweet potatoes, jirani and a rabi.

Keeps BP in control:

Due to their high potassium and low sodium content, intake of fruits and vegetables is recommended for BP patients. They protect you from heart disease by preventing accumulation of cholesterol in arteries. Green vegetables are a rich source of Omega-3 fats, which prevent heart disease.

Maintains blood glucose:

The fibre in fruits and vegetables plays an important role in maintaining blood glucose levels. Diabetics are more prone to oxidative cell damage leading to complications of kidney, nerves and eyes. The antioxidants in vegetables and fruits prevent these. However, excessive consumption of fruits can impair glucose control. Diabetics need to restrict their intake of mangoes, bananas and potatoes. High-fibre content provides bulk in the diet for good bowel movement, and helps in maintaining good gut health. Being a reservoir of antioxidants, fresh fruits and vegetables boost immunity, prevent nutritional deficiencies, maintain good hair and skin health.

Healthy tips:

- Include at least five servings of brightly coloured fruits and vegetables daily.
- Have them in soups, salads, juices and desserts. Mix in chapattis and dals.
- Wash them thoroughly in saline water.
- Avoid eating cut fruits and salads outside the house to prevent infections.
- Choose cooking methods with minimum cooking time.

Caffeine

Caffeine Study Shows Sport Performance Increase (Science Daily: 16.12.2011)

Caffeine combined with carbohydrate could be used to help athletes perform better on the field, according to new research by a sport nutrition expert.

Mayur Ranchordas, a senior lecturer and performance nutritionist at Sheffield Hallam University, carried out studies on footballers using caffeine and carbohydrates combined in a drink. Along with improvements in endurance caused by ingesting carbohydrate, the athletes' skill level improved after taking caffeine and carbohydrate together.

Mayur said: "There is already plenty of research that shows that caffeine and carbohydrate improve endurance, but this study shows that there is also a positive effect on skill and performance.

"We carried out three different soccer-specific match simulations of 90 minutes each -- two 45 minute sessions -- that tested agility, dribbling, heading and kicking accuracy. The test was designed to mimic a football game where the participants had to carry out multiple repeated sprints, dribble the ball around cones and shoot accurately.

"We found that the combination of carbohydrate and caffeine allowed players to sustain higher work intensity for the sprints, as well as improving shooting accuracy and dribbling during simulated soccer activity.

"These findings suggest that, for athletes competing in team sports where endurance and skill are important factors, ingesting a carbohydrate and caffeine drink, as opposed to just a carbohydrate drink, may significantly enhance performance. Our findings suggest that soccer players should choose a carbohydrate caffeine drink over a carbohydrate drink to consume before kick off and at half-time."

Vitamin B

Vitamin B can help beat memory loss and Alzheimer's (World Newspaper: 19.12.2011)

A daily dose of Vitamin B can radically combat memory loss in old age and even help protect against Alzheimer's disease, a new study has found.

More than 250 people took part in the study, at Oxford University, including people with mild cognitive impairment who were aged 70 years or older.

They were given vitamin B, found naturally in food such as beans, meat, wholegrains and bananas, or a placebo over a two-year period.

Taking the food supplement appeared to help maintain mental processes, such as planning, organising and recalling information.

The researchers found that people taking the pill had lower levels of a brain protein known to lead to a rise in the risk of dementia.

They found that it also slowed mental decline in older people who have slight problems with their memory.

The research suggests that dementia could be treated with a food supplement rather than by taking complicated medicines.

“The findings from these two reports should be of interest to clinicians,” the Daily Mail quoted Carrie Ruxton of the Health Supplements Information Service as telling the Daily Express.

Vitamin E prevents

Vitamin E prevents muscle wasting, repairs cells (New Kerala: 22.12.2011)

Vitamin E is rubbed on the skin to reduce signs of ageing and is consumed by runners to improve endurance. But scientists now have found how the powerful antioxidant helps repair tears in the plasma membrane.

Daily activities such as eating and exercise can tear the plasma membrane and a new research by Georgia Health Sciences University shows that vitamin E is essential to repair, the journal Nature Communications reported.

Without repair of muscle cells, for example, muscles eventually waste away and die in a process similar to what occurs in muscular dystrophy, said a university statement. Muscle weakness is a common complaint in diabetes, another condition associated with inadequate plasma membrane repair.

"Without any special effort we consume vitamin E every day and we don't even know what it does in our bodies," said Paul McNeil, Georgia's cell biologist and study co-author.

Century-old animal studies linked vitamin E deficiency to muscle problems but how that happens remained a mystery until now, McNeil said.

According to him, lack of membrane repair causing muscle wasting and death prompted him to look at vitamin E.

Vitamin E appears to aid repair in several ways. As an antioxidant, it helps eliminate destructive byproducts from the body's use of oxygen that impede repair.

Because it's lipid-soluble, vitamin E can actually insert itself into the membrane to prevent free radicals from attacking. It also can help keep phospholipids, a major membrane component, compliant so they repair better after a tear. (IANS)

Food Security Bill

Food Security Bill to be tabled today (The Hindu: 22.12.2011)

The Government will introduce in the Lok Sabha on Thursday the National Food Security Bill which seeks to give legal rights to subsidised foodgrains to identified

beneficiaries under the public distribution system. “The National Food Security Bill will be introduced in Lok Sabha tomorrow,” Minister of State (Independent) for Food K. V. Thomas told journalists here on the sidelines of the annual general meeting of the Indian Sugar Mills Association.

He said Lok Sabha Speaker Meira Kumar had given the permission to introduce the Bill. The Bill would be referred to the Parliamentary Standing Committee, he added. It was approved by the Union Cabinet earlier this week.

Asked about the concerns expressed by the Tamil Nadu government, Mr. Thomas said the Bill had been prepared after wide consultations with all stakeholders in the last two-and-a-half years. Views of State governments had also been sought. “Tamil Nadu was a little late in giving their comments. We will consider their views also,” he added.

The proposed legislation seeks to provide legal right to foodgrains to up to 75 per cent, including at least 46 per cent ‘priority’, rural population and up to 50 per cent, including 26 per cent ‘priority’, urban population.

The Bill seeks to provide 7 kg of rice, wheat and coarse grains per person per month to priority households at Rs. 3, Rs. 2 and Re. 1 per kg, respectively.

Food Bill

Food Bill may not be smooth to implement (The Financial Express: 20.12.2011)

Implementation of the proposed food security law may not be smooth because of opposition from the states against the proposed legislation and absence of data on the ‘priority’ and ‘general’ categories of families for the entitlement.

Experts say that rural development ministry's socio-economic survey, 2011, is yet to be completed by many states and data about the urban poor is not readily available. Even the progress on the socio-economic survey for urban centres by ministry of housing and urban poverty alleviation has been slow.

“Once these socio economic survey reports come out next year, then only some progress on identifying families for food bill could be initiated,” NC Saxena, former rural development secretary and experts on poverty issues told FE.

The food bill aims to provide 75% of the rural households with subsidised grain. Out of these, ‘at least’ 46% households would be considered as ‘priority’ category, and each person in these households...

will get the 7 kg of grain a month at subsidised prices at Rs 3 per kg for rice, Rs 2 for wheat and Rs 1 for coarse grain. .

In case of urban centres, out of the 50% of the total households to be covered under the food act, 'atleast' 28% would get 'priority' status. The priority households in the urban areas would get 'atleast' 3 kg of subsidised food grains per person per month.

At present, the centre supplies 35 kg of rice or wheat every month at subsidised rates to 6.52 crore BPL families through ration shops. The food bill is expected to cover more than 62% of the country's population.

According to food minister KV Thomas, the bill which is expected to be introduced in the parliament during next few day, would be referred to Parliamentary Standing Committee for conducting further deliberations on many contentious issues

by FE earlier, several state governments including those ruled by the Congress party have come out against the food bill because about the negative impact of the Bill on their already-stretched finances.

Bihar, for instance, has termed the Bill as “unilaterally imposed (creating) a substantial financial burden on the state government”. Chief minister Nitish Kumar in a letter to Thomas also observed that those states that have major incidence of poverty “are the very states which are also facing an acute financial crunch”.

Kerala, ruled by Congress-led coalition government, also raised apprehensions about the likely financial burden on the state from the food security law. “The expenditure would make a serious dent on the state’s finances and can make the implementation of food security bill unviable,” T K Manoj Kumar, secretary, food, civil supplies and consumer affairs, Kerala had stated. West Bengal has also endorsed the stand taken by Kerala government.

Vegetables

Eating vegetables, fish helps you live longer (new Kerala: 23.12.2011)

Eating large amounts of vegetables and fish can make you live three years longer, experts say.

People on such a diet with low amounts of animal-based products like meat and milk have a 20 percent higher chance of living longer with an estimated average of two to three years, The Telegraph reports.

The health benefits have long been known, but now scientists have studied the effects on older people, using a unique study to compare thousands of 70-year-olds who eat the diet with others who have eaten more meat and animal products.

Known as the "H70" study, it has studied 70-year-olds for more than 40 years. These results are supported by three further studies into Mediterranean diets and their health effects, one of which was on children, the newspaper said.

Gianluca Tognon, a scientist at the University of Gothenberg, Sweden, said: "This means in practice that older people who eat a Mediterranean diet live an estimated two to three years longer than those who don't.

"The conclusion we can draw from these studies is that there is no doubt that a Mediterranean diet is linked to better health, not only for the elderly but also for youngsters."

Healthier dietary

Healthier dietary habits benefits beyond weight loss (World Newspapers: 23.12.2011)

Researchers have revealed that improvements to health remain even if weight is regained after long-term healthy dietary interventions.

Long-term healthy dietary interventions frequently induce a rapid weight decline, mainly in the first four to six months, followed by weight stabilization or regain, despite continued dieting.

The partial regain may discourage people from adhering to healthier habits, but research now shows that improvements to health remain, regardless of partial weight regain.

The study identified two distinct biomarker patterns that correspond to weight change, one of which continues to improve with time.

The study was conducted among 322 participants during the two-year Dietary Intervention Randomized Controlled Trial (DIRECT) performed by Ben-Gurion University of the Negev at the Nuclear Research Center Negev, Israel (New England Journal of Medicine).

The population was randomised to three different, but healthy interventions: low-fat, Mediterranean or low-carbohydrate diets, and unprecedented adherence rates were maintained throughout the entire two-year period.

"This study tells us that we may all have tunnel vision on weight when it comes to healthy dieting. Although maintaining ideal body weight is linked to better health, when it comes to adopting healthier dietary habits in mild to moderately obese people, there are benefits beyond weight loss, such as decreasing inflammatory tone and elevating the 'good cholesterol' HDL," said BGU Faculty of Health Sciences Prof. Assaf Rudich.

Rudich explains that switching to healthier dieting extends benefits beyond the single outcome of weight loss. In fact, important improvements that likely signify decreased risk for cardiovascular disease occur even despite weight regain, as long as dieting continues.

The researchers identified two distinct patterns

“Pattern-A” includes biomarkers [insulin, triglycerides, leptin, chemerin, monocyte-chemotactic-protein-1(MCP-1), and retinol-binding-protein-4(RBP4)] whose dynamics tightly corresponded to changes in body weight.

“Pattern B” that includes high-molecular-weight (HMW) [adiponectin, HDL-cholesterol, high-sensitive C-reactive protein (hsCRP), fetuin-A, progranulin, and vaspin], which displayed a continued, cumulative improvement throughout the intervention, despite the partial weight regain observed during months 7-24 of continued dieting, a totally different pattern of biomarkers.

These patterns were similar, although of different magnitude, across the low-carb, Mediterranean and low-fat diets.

The study was recently released online in Diabetes Care.

Macrobiotic diet

A macrobiotic diet for healthy living (The Times of India: 23.12.2011)

A macrobiotic diet supports the eastern philosophy of yin and yang and promotes balance in life, says holistic health practitioner and clinical nutritionist, Anjali Shrotriya

The word macrobiotic comes from the Greek words, macro and bio. It means ‘long life’ or ‘great life’. However, in modern times, a macrobiotic diet is associated with Japan, where it means eating natural, organic and plant-based (with the exception of fish) food. A macrobiotic diet supports the eastern philosophy of yin and yang. It promotes balance in life. Yin foods are cold, sweet and passive, while yang foods are hot, salty and aggressive. A macrobiotic diet generally contains 50% whole grains. This usually comes from brown rice. A quarter or 25% of it is comprised of seasonal vegetables and seaweeds that are organically grown, and at least 10% beans, legumes and fish, which form the protein source, and 5% nuts, seeds and fresh fruit for moderation, and 5% soups — Miso and shoyu — which are made from fermented soyabeans, are commonly used. Remember to have 25% of your vegetables raw and the rest cooked lightly — steamed or baked. In a macrobiotic diet, food such as sugar, spices, dairy products, eggs, meat, alcohol, chocolates, and honey are generally restricted. In Japan, they use ginger, wasabi, horseradish, mustard and daikon with fish in macrobiotic cooking as it helps in detoxification. Unrefined sesame oil is used for cooking in small quantities. A macrobiotic diet is tailored to suit individual needs according to your age, gender, season and health condition.

Benefits of a macrobiotic diet:

A macrobiotic diet is a low-fat, high-fibre diet and is generally given to patients suffering from chronic diseases such as rheumatoid arthritis and various types of cancer. Due to the inclusion of soyabean, it is a rich source of phytoestrogens. Because this diet is low in sugar, dairy and meat, it helps people with allergy problems. A macrobiotic diet is

recommended for people who are convalescing. Due to its high-fibre and low-calorie content, the diet can be used in weight management programmes as well.

Precautions to follow

Eating a macrobiotic diet daily can lead to deficiencies in proteins, iron, magnesium, calcium and vitamin B12. This diet should be avoided by children and pregnant or lactating women.

Protein

Protein Shakes and Baldness (Med India: 27.12.2011)

A recent study reveals that protein shakes are partly to blame for baldness as they lead to the production of certain chemicals, which causes hair loss.

WA's only hair transplant surgeon Jennifer Martinick said that she was booked out for more than six months and performing more than 400 procedures annually - up about 30 per cent from a year ago.

"Lots of young guys these days are very image conscious," Perth Now quoted Dr Martinick as saying.

"They are 20 or 30-something, go to the gym, some even have Botox, take protein shakes to build up muscle but don't realise it can contribute to baldness. They have lots of disposable income so they come for treatment because they also want a full head of hair."

"There is a growing feeling that people are getting balder earlier and it may be possibly because of diet."

"There are a lot of animal fats in the western diet and then guys go to the gym and take things like creatin, whey protein isolates and think they're doing the right thing," Dr Martinick added.

The New Hair Clinic physician said that she recommended patients to stop consuming protein shakes to prevent further hair loss and was able to delay baldness in some cases with medication.

Diet

Diet rich in vitamins and fish oils could prevent Alzheimer's (New Kerala: 30.12.2011)

People taking diets high in several key vitamins or in health-boosting omega-3 fatty acids are less likely to develop the brain shrinkage linked to Alzheimer's disease, according to a new research.

This means people who regularly eat oily fish like salmon, mackerel and sardines or large amounts of fruit and vegetables could delay the disease or stop it developing.

So the scientists claimed that making simple changes in diet could prevent death from Alzheimer's disease.

"It is very exciting to think that people could potentially stop their brains from shrinking and keep them sharp by adjusting their diet," the Daily Express quoted study author Dr Gene Bowman as saying.

Omega-3 fatty acids found in fish like salmon and mackerel have been shown to cut the risk of heart disease, help people recover from heart attacks, slow mental decline and reduce the risk of blindness.

Previous research has shown that eating fish can reduce people's risk of Alzheimer's disease by 47 per cent and even slow its progress.

But the latest study found that people with diets high in omega-3 fatty acids and in vitamins C, D, E and the B vitamins have higher scores on mental tests than people with diets low in those nutrients.

"Although there is no sure-fire way of preventing Alzheimer's yet, we know that risk factors for heart disease and stroke can also increase the risk of dementia," said Dr Simon Ridley, head of research at Alzheimer's Research UK.

"The best advice at the moment is to eat a balanced diet with plenty of fruit and vegetables, and keep healthy by not smoking, taking regular exercise and keeping blood pressure and cholesterol in check," he added.

The research was published in the online issue of Neurology, the medical journal of the American Academy of Neurology. (ANI)

Dieting

Losing Weight by Crash Dieting is a Bad Idea (Med India: 30.12.2011)

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Protein Supplements for Muscle Building and Health

Resorting to crash dieting for losing weight is not a good idea, as eventually the body tries its best to regain the lost fat stores, according to researchers at J. Paul Sticht Center on Aging and Rehabilitation.

During the study researchers evaluated 78 postmenopausal women with an average age of 58-years who had lost 12% of their weight as part of the study from a dieting program. The study showed that older women who lose weight tend to gain it back again as fat and not muscle, which is all the more unhealthy. The weight regain showed 81% fat and only 19% muscle.

Principal investigator for the study, Dr. Barbara Nicklas said, "The body composition of some of the women was worse than before their weight loss. When older women lose weight, they also lose lean mass. Most women will gain a lot of the weight back, but the majority of the weight regained is fat."

Eating

Eating with awareness (The Times of India: 30.12.2011)

If you want to lose weight, how you eat is just as important as what you eat. In other words, you need to eat 'mindfully', says alternative medicine practitioner Pallavi Yawalkar

If you are watching your weight there's a golden rule --food should satisfy hunger and should never turn out to be an overindulgence. Choose to eat "mindfully". This means eating with full attention or eating with awareness. When you do that, you enjoy your food much more -- and that too, without overeating! Mindful eating helps you feel satisfied with smaller portions. It's a key factor for weight loss. Mindfulness is simply a state of heightened self-awareness. In such a state, you are able to be "totally present in the moment". When you apply this to mealtimes, it means you savour every bite and relish the aromas and flavour of food. Both ayurveda and yoga advise this.

Wrong eating patterns:

Many people eat while watching TV, talking on the phone, driving, reading the newspaper or working. They barely taste their food and rush through meals. For some, it is just a chore to be finished! Then there are those who eat simply because they feel tempted or because meals are being served at official meetings. All this comprises faulty and dysfunctional eating habits. You should eat only when you are hungry. The body gives clear signals when you need to eat, not when your mind wants to.

Simple steps to mindful eating:

- Identify whether you are really hungry or whether you are eating to satisfy a craving. Before eating, take a few breaths, relax and centre yourself
- While taking meals, focus on the act of eating. Try to consume the meal in silence without distractions
- It is necessary that you pause for a few minutes while eating. A twominute pause, now and then, is advisable
- Eat slowly with complete awareness of the colours and texture of the food. Taste your food fully
- Be mindful of the act of swallowing. Feel gratitude as you eat. Mentally express feelings of gratitude to the Earth and plants that have provided your meal, and to all those whose efforts have brought food on your table, right from the farmer to the cook. At first, mindful eating may appear dull. Don't be discouraged. It is only because you have not learned to eat this way. Try it and see the difference.

Health Care

Hospital

Not even 1 hospital bed per 1,000 persons (The Times of India: 10.10.2011)

Globally, India Ranks Among Lowest: Study

Need admission in a hospital? Chances are that you might not get a bed, however unwell you are. Here is an example — the waiting time for a private ward under the neurosurgery department at India's premiere All India Institute of Medical Sciences (AIIMS) is around four to six months.

However, if a patient needs to be admitted in the general bed for the same surgery, the waiting time is more than a year. And this, the Planning Commission says is because of India's acute shortage of hospital beds. The Commission's high level expert group (HLEG) on health says that when it comes to secondary and tertiary care, India lags behind most other countries in the number of hospital beds per 1,000 population, despite having a higher absolute number of hospital beds than other countries.

The World Health Statistics say that India ranks among the lowest in this regard globally, with 0.9 beds per 1,000 population – far below the global average of 2.9 beds. India's National Health Profile 2010 says India has a current public sector availability of one bed per 2012 persons available in 12,760 government hospitals — around 0.5 beds per 1,000 population.

Sri Lanka on the other hand has 3.1 beds per 1,000 population, China 3 beds, Thailand 2.2, Brazil 2.4, USA 3.1 and UK 3.9 beds per 1,000 population. Shakti Gupta, HOD of hospital administration at AIIMS said: "It was recommended in 1948 by Bhore Committee that there should be one bed per 1,000 population. However it's been 63 years since and we still haven't been able to reach that target. At present, India has around 0.7 beds per 1,000 population." Gupta added

The concept is that patients should be investigated on day care basis and if found fit for surgery should be admitted.

The average stay of a patient should be three to four days. Earlier, we would admit a patient, waste 7-10 days on diagnosing the problem and then take him for surgery."

Safety net: Doctor

Safety net: Doctor on call (Business Standard: 10.10.2011)

An increasing number of people are turning to the web seeking health care support. Cashing in on the growing trend are sites offering medical counselling and bringing you closer to the best possible professionals in town.

One such portal, www.DocSuggest.com, helps you connect to 2,500 medical professionals and 150 hospitals online — providing detailed information on health care services, including doctors' profiles, schedule, specialties, ratings and reviews. The site was launched by Shantanu Jha in a joint venture with two of his colleagues last year.

The service is free for users but doctors and hospitals are charged for the services. "There is a revenue-sharing model with hospitals and fixed charges for private clinics and doctors," says Jha, the founder CEO of DocSuggest.com.

Related Stories

Safety net: Doctor on call

The start-up competes with local listing-sites, including Justdial and AskLaila, but DocSuggest has become an additional revenue channel for hospitals and doctors. "Through our EzAppointment service, DocSuggest directs more and more patients to partner hospitals and doctors, thereby adding to their revenue stream. Additionally, an aggressive marketing strategy on our part ensures higher penetration into the focused customer segment without incurring any cost on the hospital's part." According to Jha, a doctors' academic credentials are verified before registering his name and an elaborate profile is provided to the users. Users are also encouraged to give their feedback on the doctor, hospitals and services provided. In less than a year, DocSuggest.com gets close to 8,000 hits from users per month.

The ease with which the average online Indian is taking to medical services on the Internet, has opened the doors for others, including www.reachadoc.com and www.localdoctor.in. But Jha says DocSuggest.com has an advantage over others. "Ours is not an e-commerce based business model. We provide relevant content to customers. The portal banks on timely delivery and genuine reviews, and that is our biggest differentiator."

DocSuggest's EzAppointment solution allows patients to book appointments with hospitals and doctors directly through the Web or phone. Another offering called EzMedicine allows users to order medicines and get it delivered to their preferred location. At present, Vishal Gondal, CEO of UTV Indiagames, and entrepreneur Sanjay Parthasarathy are angel investors in the portal.

Hygiene

Hygiene for kitchens: Tiffin box not a must-take for students (World Newspaper: 14.10.2011)

Textbooks, notes, journals and a laptop are stuffed into a college student's bag. Rushing out of home, packing home-cooked food is the last thing in his or her mind.

But open a tiffin box in between lectures and the starved students will pounce on it like vultures.

Taking a tiffin box to college is not uncool but students like a light bag for the long journey to their colleges.

So, eating out is the only option for thousands of college-going students.

"In the peak-hour rush in trains, should I be taking care of myself or carry a tiffin to make my already heavy bag — stuffed with books, worksheets and notes — heavier," said Saumya Rao, an engineering student of Bharati Vidyapeeth, Kharghar, who lives in Borivli.

"I have to leave home by 6am to attend the first lecture at 8.30am. My classes get over around 5 pm. I carry a huge bag to carry my books. Though homemade food is bliss during the busy and tiring day, it becomes the least priority to carry it in bag," said Saumya, who eats in the canteen and food stalls around the college.

Another student from the MGM College of engineering, Navi Mumbai, who travels from Vikhroli, spoke to DNA on condition of anonymity.

"As I am studying engineering, we hardly have time to go out to eat between classes as we are juggling between assignments and journals. Bunking classes is rare. So the college canteen is the only option for me and my friends to grab a quick bite. Then, hygiene is not on our demand list," he said.

College students know that there is no option but to eat out and have whatever is there on the platter.

For Ishan Goyal, an NMIMS student, eating out has become a part of his life in college.

“Being management students, we carry laptops. Where do we make space for a tiffin box then? Going all the way down to a street food vendor is not an option for us. We crowd the college canteen or the small food stalls which sell frankie, burger, patties and rolls. We would be happy if the employees who serve food at these stalls wear gloves and it is properly air-conditioned,” said Goyal.

Chip

Chip can control pulse rate, claims firm (The Asian Age: 17.10.2011)

A technology firm called Environics has claimed that it has developed a chip that will help in controlling a person's pulse rate, which rises after prolonged exposure to radiation from cellphones, laptops, monitors and desktop computers.

“Two years have gone in the making a chip for cellphones. Our research and development began in 2009, and although the product is ready, we will continue the research work to improve

the chip,” said Ajay Poddar, an IITian and managing director of Environics.

It is a known fact that the use of electronic gadgets emitting or receiving nonthermal radiation, seriously affects a person's immunity. The human body is bombarded with radiation from all the sides, and as a result proteins and enzymes get affected, leading to an increase in the stress level and pulse rate.

“Extensive tests have shown that the use of our chips on personal electron

ic devices such as cellphones, laptops and computer desktops improves the pulse rate, and other health parameters of users, without effecting the signal quality, strength and functionality of the device,” added Mr Poddar. This chip helps in reducing the pulse rate by five per cent.

In all, there are four kinds of chips that the firm has developed. One is for cellphones that require a chip of the size of 16x10mm, which has to be fixed at the back panel of the device.

Similarly, two other chips of 45x30 mm dimensions need to be fixed, one on the top panel and another at the bottom of the panel.

While for a desktop monitor a chip (45x30 mm) should be placed on the back panel, another one (90x30 mm) should be fixed on top of the central processing unit of the computers.

The price for the cellphone chip is `275, while for a laptop one costs `400 and CPU has been priced at `450.

At present, the chip is unavailable in the retail market, but companies are ordering it in bulk for their employees directly from the manufacturer.

Doctor's prescription

Follow only a doctor's prescription (The Times of India: 18.10.2011)

Often, people do not consult doctors and eat medicines on their own, hoping the ailment will go away. Pharmacology expert, Jaykaran D warns you about the harmful effects of self-medication

Self-medication is the use of medicines without a doctor's advice. Many people think nothing of popping pills such as pain relievers or analgesics, medicine for reducing fever or antipyretics, antibiotics, medicines to reduce stomach acidity or antacids without seeing a doctor.

Watch out for painkillers: But these seemingly harmless medicines are not without danger. Simple medications like pain killers consumed in large quantities can lead to ulcers and bleeding in the stomach, decreased kidney function, and increased BP. Use of antipyretics is associated with liver failure; even drinking cough syrup can lead to irregular heartbeat, drowsiness and confusion. Unnecessary use of antibiotics causes nausea, vomiting, allergic reactions and increase chances of resistance of bacteria toward that antibiotic. Self-medication is based on "self diagnosis" – and most people tend to focus on symptoms and give no thought to the actual condition in the body that generates these symptoms.

Even innocuous symptoms like headache or nausea may be early warnings of serious disease like fatal tumors. Patients on therapy for chronic diseases like hypertension and diabetes are at risk of serious drug interactions between their medicines by self-medicating. For example, painkillers taken along with an agent that reduces BP (an anti-hypertensive pill) can reduce effect of BP medication. Additionally, there is now an increasing thrust on the use of complementary as well as alternative herbal medicines through ads in the media and the Internet. However, many of these products have not been studied systematically or their results documented.

The role of a doctor: Repeated use of medication for minor symptoms like headache and vomiting is not advisable as it may lead to various side-effects as well as dependency

on the drug. Wherever possible, people should consult their doctor and an attempt to make a proper diagnosis should always be made. Nobody should try to offer their own prescribed medicine to other people as medicines affect people differently. The potential ways of causing harm by a drug is best understood by a doctor. Hence, it is always a good practice to discuss every medicine no matter how minor it is with your doctor before considering it for selfadministration.

Free treatment

Free treatment for the poor in pvt hospitals a myth (The Tribune: 19.10.2011)

Access to the city's healthcare system is not that easy for the poor. Be it the government hospitals or the private/trust-based hospitals here, none seem to be friendly to the segment which has to go through long negotiations even for the basic treatment.

In the recent past, there have been several instances which brought out the helplessness of the city's poor.

In one such instance-a young woman of the Nizamuddin area took her infant daughter, who was diagnosed with a congenital condition, for treatment to a government hospital in South Delhi. She was refused any help despite several pleadings and eventually she had to sell the family's two rickshaws for the baby's surgery.

Further, two young men who couldn't arrange Rs 20,000 each for prosthesis after treatment at a government hospital are now seen begging on the streets in the Nizamuddin area.

The above findings are the part of an unrealised study conducted between January-August 2011 by community paediatrician and public health specialist Dr Vandana Prasad in association with Dil Se campaign.

The country's premier government hospitals do not have a prompt provision to make healthcare available to the poor on time, the situation is obviously no better at the private hospitals.

The study points out that Apollo, running on public-private partnership model, doesn't provide free beds with required drugs and consumables to the poor and this came to light when a homeless patient was told to pay Rs 15,000 for admission by the hospital and this along with the total stay and treatment incurring Rs 80,000. The cost was brought down to Rs 10,000-borne by two Delhi-based NGOs.

According to Dr Prasad, the fast-rising patient-care cost stands as the pronounced barrier between the poor and the city's healthcare facilities. There also seem to be a lack of willingness, especially on the part of those charitable hospitals which are set up on the lands purchased on subsidised costs from the Delhi Development Authority and Land & Development Office of the Delhi government.

"There is a severe denial of the basic rights of people, especially on the healthcare front. The government needs to support the public health system where the poor are actually going instead of giving subsidy to the corporate hospitals," Dr Prasad asserted while talking to The Tribune.

In the Capital, there are a total of 41 private/ charitable hospitals which are supposed to comply with the Delhi High Court ruling, 2007 which mandates them to provide 10 per cent of in-patient department services and 25 per cent of out-patient treatment to the poor, with annual income of Rs 6,084. However, many such hospitals have found an easy way-out for recovering the expenses, if incurred, in treating the poor patients by branching out into partnerships with larger set-ups.

They may be registered as trust organisations, enjoying the tax evasion under the Income Tax Act, 1961 section 12, but they have preferred to channel their resources by forging alliances with healthcare giants.

A pilot study over nine private hospitals in Delhi, "Free Treatment in the Private Sector: Myth or Reality?", it was found out that three such set-ups which started as charitable hospitals have entered into collaborations with larger healthcare chains though the hospitals involved in the study denied receiving any waivers.

In the absence of stringent monitoring by the government, there seems to be no proper accounts of the functioning of such hospitals and hence experts suggest annual audits for such so-called corporate/ charitable hospitals.

Shock therapy

Shock therapy may help overcome erectile dysfunction (World Newspapers: 31.10.2011)

Shocking the penis with sound waves may help patients with an erectile dysfunction who are not responding well to drug treatments, a new study has found.

According to the researchers, "extracorporeal shock wave therapy" significantly improved sexual function among men involved in the study, Live Science reported.

The participants underwent 12 shock treatments over nine weeks, and one month after the last treatment, participants began taking ED drugs.

They were also required to fill out a questionnaire to assess their sexual function and scores ranged from 6 to 30, with scores lower than 10 indicating severe ED, and scores from 26 to 30 indicating normal erectile function.

On an average, the men started to see a benefit three weeks after the treatment and eight men achieved normal sexual function.

The patients continued to see improvements two months after the treatment had stopped, with almost 30 per cent of them achieving normal sexual function and no longer requiring medications.

The study has been published online in the Journal of Sexual Medicine

GE Healthcare's

GE Healthcare's new imaging system captures live cells (New Kerala; 2.11.2011)

The US-based GE Healthcare's firms Applied Precision Inc Tuesday unveiled a high-end resolution imaging machine that will capture live cells to understand the mechanism in diseases like cancer and HIV at the molecular level.

"The new imaging system (DeltaVision OMX Blaze) will enable scientists follow tagged proteins within the same living cell in three-dimensional space at near molecular resolution," the company said in a statement here.

Employing high-speed cameras, the microscopy system will help researchers see moving images of live cells and how their structures behave, what they interact with and how long the events last.

"The implications of this advance in imaging technology are exciting for researchers. With the OMX Blaze, we can look for answers that we never could before," Advanced Applications director Paul Goodwin said.

Researchers at the University of California-based Center for Biophotonics Science and Technology (CBST) collaborated early as beta testers for the technology.

The system is also being installed at a number of early adopter sites around the world which are expected to go live in the next two months.

"We are only at the beginning of what this technology can do. The ability to follow cellular interactions, over time at the molecular level will open up new frontiers in many

areas of life science research. This is an important step forward for cellular imaging," GE Healthcare Life Sciences general manager Amr Abid said.

In the past decade, a number of fluorescent microscopy methods were developed to use computational or optical techniques to exceed the assumed limits of optical microscopy.

The OMX Blaze super-resolution system uses a structured illumination microscopy, which nearly doubles the resolution in three dimensions giving an eight times improvement in volume resolution compared to conventional microscopy.

"We are at the point where we need to understand mechanisms of health and disease at the molecular level. As a research tool, the advanced imaging system has potential to apply in laboratory models to observe the response of cancer cells to chemotherapy, the cell-to-cell transmission of HIV (human immunodeficiency virus) and other viruses, and the dynamics of engineered nano-particles," CBST associate research director Frank Chuang observed.

Proper shoes

Benefits of selecting proper shoes (The Tribune: 9.11.2011)

The small appendage at the end of our body that we call the foot is actually more important than we realise; this is the foundation on which we stand. Our feet bear the whole body weight (which at times could be immense) and stabilise the body as we run, twist or dance. Even the simple act of walking may be a huge strain. Many of us do not know that we walk about one lakh miles in a lifetime, and all the weight is borne by our feet! So, we must know that wearing a proper pair of shoes is the kindest thing we can do for our feet!

Let's start by shoe wear selection; specialists recommend certain things that a prospective shoe buyer should understand. I was recently in Prague, where some of us got together to evaluate different problems of the shod foot. Certain foot problems have now been clearly identified to be unique to societies wearing "fashionable" or incorrect shoes as "barefoot" societies do NOT suffer from these problems!

Firstly, we must realise that the shoe size is important, and may vary among different brands. The standard sizing systems for shoes is based on averages, and no size will be absolutely accurate for you. Additionally, minute changes in size may be seen with different types of leather or synthetic substances also. So, never select shoes by the size marked inside. Instead, try them on and see how you feel, especially while standing.

Secondly, all of us have one foot that is slightly larger than the other. When you measure your feet, measure them both by trying on both shoes. Please understand that with

unequal foot size, you must comfortably fit the larger foot, even if the second shoe feels too large on the other foot. An innersole or heel pad can be added to the larger shoe to tighten the fit, but a tight shoe will be a problem you cannot correct.

Since our feet expand sideways when we stand and walk, try on shoes during standing and walking for proper size. There should be about 1 cm width between your longest toe and the end of your shoe; and always try on shoes with socks. Another important point is to go shoe shopping in the evening; during the day our feet swell due to activities and gravity, and if the shoes fit in the evening, they will never feel too tight. After choosing the right shoes make sure that you walk with the shoes on for at least five minutes before purchasing them.

Make sure that the ball of your foot fits comfortably in the widest part of the shoe. Also, there should be some comfortable “wiggle” room for your toes. Your heel should fit comfortably into the shoe, with little or no slippage. You should not purchase shoes that feel too tight, expecting them to “stretch” to fit. Although there will be some moulding with the passage of time, most materials, including leather, do not stretch enough to make a difference, and you may end up with uncomfortable shoes.

Certain societies (like the Chinese, for example) give a lot of emphasis on small foot size, which is done with a complex system of binding and taping, especially in the growing feet of girls. This highlights the fact that a growing foot is mouldable, and has the potential to deform! Hence the sizing of children’s shoes is doubly important; not only should you leave some room for growth when you buy them, you should also ensure that they are somewhat loosely fitted in the first place. Although somewhat cumbersome, shoes with laces, which allow adjustments, are perhaps the best for children during their growth years. Never buy your child a shoe that looks good; looks are only for parents’ benefit!

I am always told by women that I have something against them wearing high-heeled shoes! That is a false statement, as I enjoy the aesthetic aspects just like all the other guys. However, medically speaking, I have to dissuade these women, albeit with a heavy heart. Many studies have proved beyond doubt that high heels and a tight toe box significantly contribute to forefoot deformities, which, once established, can be corrected by surgery! If women must wear high heels, they should not be stilettos; the heel should not be more than two inches high. If the wearing of these cannot be avoided, try not to stand in them for too long!

So, where do we stand today? In shod societies, evolving shoe-wear has actually made walking comfortable. Patients with heel pain, knee arthritis and back problems are definitely benefited by soft insoles or air cells in shoes. Some shoes shaped like a foot have been designed with separate compartments for different toes, but these are at experimental stages and are focused on athletes only.

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Four new govt hospitals

Delhi to get four new govt hospitals by year-end (Hindustan Times: 9.11.2011)

ON AN AVERAGE, EVERY BIG GOVERNMENT HOSPITAL CATERS TO ANYWHERE BETWEEN 7,000 AND 10,000 NEW PATIENTS DAILY

Delhi is likely to get four new government hospitals by the end of this year. In a review meeting on Tuesday, health minister AK Walia directed officials from the Public Works Department (PWD) to start building those hospitals that have all requisite approvals and are only awaiting construction.

Among the hospital ready for construction are the 200-bed Burari hospital, a diabetic block in east Delhi's Guru Tegh Bahadur (GTB) Hospital, Maharishi Valmiki Hospital in Rohini and Dwarka Hospital.

Keeping in view the increasing patient load on existing government hospitals in the national Capital, Walia asked the agencies concerned to expedite the construction process.

On an average, every big government hospital caters to anywhere between 7,000 and 10,000 new patients daily.

“Every year, the number of patients keeps increasing, as a large chunk migrates to the Capital from remote areas of the country.

We aim to reduce the burden on our hospitals that face difficulties in providing health care to such a large population daily,” Walia said.

With the health minister directing its staff to fulfill the Municipal Corporation of Delhi's requirements in the next couple of days, construction for GTB's diabetic clinic will be the first to start.

“There is dire need for an advanced diabetic centre in east Delhi as the number of diabetic patients is fast going up,” Walia said.

The hospital recently started a dedicated 500-bed mother and child care facility.

The 200-bed Ambedkar Nagar hospital, that has been pulled out of the public-private partnership model, will also see construction soon, as measures are being taken to seek all necessary approvals.

“While we are putting things on the fast track, we have the added responsibility to ensure that quality is not compromised,” Walia said.

Free treatment

Free treatment to poor: Govt shifts gaze to own hospitals (The Indian Express: 16.11.2011)

After sending notices to private hospitals, which are not providing free treatment to poor patients in line with a Supreme Court order, the Delhi government has decided to bring its own hospitals under the scanner.

At a meeting with nodal officers of government hospitals, Health department officials told them to increase the number of referrals involving poor patients.

“While Babu Jagjivan Ram Hospital, Maharishi Valmiki Hospital and Delhi State Cancer Institute are referring cases regularly to private hospitals, most hospitals show very poor referral rates,” said a senior official of the department.

The three main government hospitals in East, West and Central Delhi have all been rated as poor referral units, with less than five referrals in the last six months.

Guru Teg Bahadur Hospital, the nodal government hospital in Northeast Delhi, has reported only one referral to the Indian Spinal Injuries Centre in the past six months. Lok Nayak Hospital, the primary government hospital in Central Delhi, and Deen Dayal Upadhyay Hospital in West Delhi, have also been identified as poor referral centres.

“The hospitals that are identified as tertiary care centres have a problem referring patients to other centres. We have asked the nodal officers at all the three main government hospitals to step up their referrals,” the official said.

Lal Bahadur Shastri and Aruna Asaf Ali hospitals are the poorest performers among smaller government hospitals. Super-specialty hospitals, like GB Pant, have also earned the tag of poor performers with “barely one referral per month”.

Representatives of many private super-specialty hospitals have told government authorities that they are unable to meet the mandatory Supreme Court requirement of reserving 10 per cent of their beds for the poor because of the low rate of referrals from government hospitals.

On their part, government hospitals said patients were apprehensive about seeking treatment from “big private hospitals”.

Acknowledging the poor referrals from government hospitals, Health Minister Dr A K Walia said, “We will now be providing a computer with 24x7 Internet facility to all nodal officers, so that they can monitor real time updates on the availability of beds on the Health department website. We will also maintain a strict tab on the referrals, and ensure that private hospitals do not pass the buck.”

Fortis Hospitals - epilepsy care program

Fortis Hospitals launches epilepsy care program (New Kerala: 18.11.2011)

One in about every 200 children in India suffers from epilepsy, making it the second most common serious neurological disorder after stroke.

In India people with epilepsy are still stigmatized as insane, contagious or cursed — misconceptions that only heighten their suffering. Epilepsy however, is also a social disease in the sense that persons with epilepsy carry a social stigma which affects them throughout their lives.

To meet this problem head on at the social level, Fortis Hospitals, Anandapur on Thursday launched ‘Comprehensive Epilepsy Care Program’ as part of its outreach activities.

The Brain and Spine Care (neuro science) department of Fortis Hospitals organized a workshop for teachers of Kolkata to create awareness about epilepsy, its symptoms and signs, management, first aid, surgical cure and also to discuss about psychological ramifications of epilepsy especially the stigma often associated with kids who suffer from epilepsy.

Around 40 teachers attended the workshop from various leading schools- South Point, Loreto Day School, Delhi Public School, Lakshmipat Singhanian Education, St. Francis Xavier School, Calcutta International School and Welland GouldSmith School

Richa S. Debgupta, Facility Director, Fortis Hospitals said, "Epilepsy has received a low level of attention and more awareness and acceptance needs to be developed to fight against this problem.

"The Comprehensive Epilepsy Care Program at Fortis Hospitals is one of the few in Eastern India offering comprehensive evaluation, multiple forms of treatment, psychosocial support and individualized care for people with epilepsy."

"We are starting presurgical evaluation for those with refractory epilepsy with a dedicated Epilepsy Helpline - 66284020," Debgupta said.

Dr. Amit Haldar, Consultant Neurologist and Epileptologist, Fortis Hospitals said: "Epilepsy in children is considered as one of the most prevalent neurological conditions and also affects the adult population to a great extent. Epileptic 'fits' or 'seizures' occur as a result of an occasional, sudden, excessive hypersynchronous electrical discharge from cells in the brain.

"There is a social stigma as well as myths attached to Epilepsy. These baseless apprehensions stem from the widespread ignorance about epilepsy. However, the truth is that epilepsy can be treated. Majority of the persons with epilepsy can also lead a normal, healthy life.

"The Comprehensive Epilepsy Program takes a holistic approach, addressing not only patients' seizures but also aspects of their lives that might be affected by epilepsy, such as social and workplace challenges. Epilepsy surgery offers new hope to those with refractory epilepsy."

It is very difficult to pinpoint the cause of epilepsy in children. Some causes include:

- Severe head or brain injury
- Trauma during pregnancy
- Pre-natal problems that affected the brain
- Brain tumors
- Problems in blood vessels of brain
- Inborn defect of brain
- Genetic issues
- Brain related infections like meningitis, encephalitis, neurocysticercosis.
- Family history is also a risk factor

Patients with epilepsy who do not respond properly to medication should be considered for surgery more promptly.

Patients with medically refractory epilepsy will be followed up in the refractory epilepsy clinic.

Neurosurgical services available to patients with medically intractable epilepsy will include accurate identification of the epileptic focus in the brain using continuous video EEG telemetry, intra-operative EEG and high-quality brain imaging for the complete surgical removal of the firing brain focus, Resective surgery, Corpus callosotomy, said Dr Amitabha Chanda, Consultant Neurosurgery, Fortis Hospital.

Health care reforms

Writing out a prescription for health care reforms (The Hindu: 18.11.2011)

India requires professionals who are trained in institutions with standardised infrastructure, and accessible and equitable health care for both the rural and urban populace.

Health is a state of mental, social and physical well-being and not merely an absence of disease or infirmity. To achieve this noble objective, India requires health care professionals who are trained in institutions with standardised infrastructure, and the availability of accessible and equitable health care for both the rural and urban populace. Recently, the health sector has been in the news — from the creation of a rural based graduate medical education programme, the introduction of a common medical entrance exam, the recommendation by the Indian Council of Medical Research (ICMR) to include cancer under notifiable diseases, and the death of infants and children from infectious diseases. These issues may appear very diverse from the outside but are interconnected. The growth of medical education has been exponential, from 88 colleges in 1965, to 335 in 2011. Several more are in the pipeline. But West Bengal has fewer colleges, completely disproportionate to the State's needs.

The non-availability of qualified faculty, sub-standard infrastructure and clustering of medical colleges contribute to poor training and limited exposure to clinical material. The net result is that the outgoing 'basic doctor' is not fully equipped to face the challenges of ensuring ethical and safe medical practice.

Rural based medical graduates

Recently, the number of seats in private and public medical colleges has been doubled and efforts are on to conceptualise a rural doctor scheme with 3{+1}/{-2} years of training to improve the doctor-patient ratio in rural areas. Over the years, various committees — from the Bhore committee in 1946, the Bajaj committee, the National Knowledge Commission-2007 (NKC), headed by Sam Pitroda, to the present Medical

Council of India (MCI) Vision Documents 2011 — have made recommendations to improve the medical and paramedical education systems. The NKC is for training existing health care professionals and workers as multipurpose workers who will have a thorough knowledge of the management of basic health care medical practices and imparting health education. The creation of multipurpose health workers, improving the role of specialist nurses and Accredited Social Health Activists (ASHA), will provide a solution to needs in rural and underprivileged urban pockets. A rural doctor programme signals a lot of confusion and challenges the fundamental essence of human rights — 'Equality.' An individual in a village should have every right to access a well-qualified doctor just as his urban counterpart can.

There are various paramedical courses — nursing, physiotherapy and pharmacy with a training of four years and the MBBS course of 5{+1}/{-2}years. In a medical hierarchical system, a doctor leads the team, so where will a rural doctor with a training of 3{+1}/{-2}years be positioned?

Doctors selected for the regular MBBS, especially in public medical colleges, have maximum grades but it is uncertain whether students applying for the rural doctor programme will be of the same calibre. Doubling the doctor population and creating new courses alone will not improve the standard of health care. On the other hand, it is easy access to health care, availability of medicines, provision of clean water, sanitation facilities, a vaccination programme similar to what is there in developed nations, a uniform protocol-driven patient management system in certain areas such as obstetric emergencies and medical conditions such as heart attack, and strokes, and first aid to accident victims which will result in an improvement of health care.

To enhance the equitable distribution of doctors, the MCI needs to relook the methods of granting permission for new medical colleges. When there are clear guidelines for setting up of school, primary health centres, PDS shops and evenanganwadicentres, the MCI should, in similar manner, formulate stringent regulations to avoid overcrowding in medical colleges. Special incentives should be provided to encourage colleges in rural areas, in the northeast and hilly regions. Avoiding overlapping of medical colleges, the creation of more paramedical courses with an effective public-private partnership model and, most importantly, the provision of urban amenities in rural areas will pave the way for uniform distribution of doctors and equitable health care. Irrespective of his/her geographical location, every person needs quality health care. Therefore, it is safer to be in the hands of a few well-qualified doctors and multipurpose workers. The NKC has provided feasible working solutions within the existing system to increase human health resource. Therefore one needs to question the validity of the rural doctor training programme.

The other contentious figure is the doctor-population ratio. In 2005, it was 1:1,722. The present estimated ratio, logically, should be around 1:1,450. However the MCI vision document estimates it at 1:1,700 in 2010. The planning of health manpower varies from country to country, and, in a country like ours, from State to State. Therefore there is a

need to create a methodology to accurately estimate the doctor-population in accordance with our disease distribution, density of population, etc .

Entrance test NEET

The objectives behind the National Eligibility-cum-Common Entrance Test (NEET) are to set up a uniform standard for basic medical education, by including nearly 15 per cent of the State's medical seats, both private and government, under a single umbrella, disallowing students from appearing for a number of entrance exams in order to save time, energy and money. Premier institutions like the All India Institute of Medical Sciences (AIIMS) and a management quota have not been included under the NEET. Maharashtra, Tamil Nadu and Andhra Pradesh have opposed the system because they have a well-established and acceptable selection process. As the medical education system is a State subject, most States feel it is an infringement on their federal rights. Certain political observers feel that the NEET is an indirect way of diluting the reservation system that has been implemented following the Mandal Commission's recommendations.

The NKC suggests that in the current selection process most graduates are unlikely to serve in the rural areas as they come from the privileged sections. The commission also indicates that “merit” is a reason conjured to maintain the privileges within the upper crust of society.

The larger canvas

Today, an India that is following the path of liberalisation has made remarkable progress in various fields of science and technology. Yet our human development indicators are among the worst in the world — at the 119th position among 169 countries. The spectrum of diseases is as diverse as our motherland — diabetes, hypertension, cancer, morbidity from road traffic accidents to infectious diseases such as HIV and encephalitis. The incidence of cancer is on the increase. Recently, the ICMR has made a strong plea to include cancer under notifiable diseases.

The main areas that require focus are:

The 12th Five-Year plan has proposed increasing expenditure from one per cent of the GDP to 2.5 per cent, and this should become a reality. It is the private sector, an inevitable permanent feature of our health-care system, that contributes to nearly 80 per cent of health care expenditure. Though private health care has partially alleviated health problems, most of it is urban-centric. Recent figures suggest that 70 per cent of hospital beds are in the top 20 cities, of which 15 per cent are in six major cities. To encourage health care investment in towns, rural, hilly and northeastern areas, special fiscal and non-fiscal incentives should be provided. Special tax benefits such as longer holiday periods and an exemption from minimum alternate tax will be an impetus to private players to move away from cities. Revisiting the Rangarajan report (criteria for infrastructure) 2001, is necessary and the Health Ministry should engage in a dialogue

with stakeholders to consider their long-term demand for the provision of an infrastructure status to the health industry.

The implementation of universal health insurance schemes will be a boost to the private health sector but, once again, it is mandatory that there be just a single scheme in every State. At present, a few State governments have successfully implemented universal health insurance schemes. Therefore, the introduction of parallel health schemes by the Centre for political reasons should be avoided. Instead, it should integrate funds into the State insurance system. The universal health insurance will pave the way for opening more hospitals in towns and villages.

Education on preventive and early diagnostic health care should be the priority because even today hundreds of mothers and infants die from preventable causes. Over the last few decades, the medical field has seen newer innovations, prevented illnesses and death and increased the lifespan. This kind of phenomenal growth is possible because health-care professionals have moved away from their insular existence and adopted a multidisciplinary approach. In the same way, the Health Ministry should engage in interaction and dialogue, and formulate policies in close coordination with the relevant departments and ministries to improve the health care system. For example, working with the Integrated Child Development Schemes (ICDS) will help combat malnutrition and improve maternal health care that would result in a significant reduction in maternal and infant morbidity and mortality. Other key ministries that can contribute to positive health outcomes include food, rural development and environment. Poor enforcement of legislation in the food industry — excess sugar, salt, ghee, etc, — has resulted in lifestyle diseases such as obesity and diabetes, while increasing environmental pollution is causing a rise in instances of cancer.

Regulation of the pharma industry, increased funding for research and development and special incentives for medical equipment and technology industry are other areas that need to be addressed.

Within the realms of the Health Ministry, an area that has a system in place and working fairly effectively is medical education. The Centre should allow every State to have its own method of selection of candidates yet have a regulatory body to oversee the management of the medical education system. Various committees have requested a strong regulatory central body but its role should be limited. An MCI-like body should only oversee the State Medical Council and have the powers to punish it in the event of irregularities. At present, the medical education system serves two masters — the Centre and State, leading to the present state of affairs with nearly 54 per cent of the total number of 335 medical colleges in the southern States.

Every person should have access to a well-qualified basic doctor and to a health centre with adequate facilities. India has produced world-class, health care professionals and will continue to do so. International health tourism is in autopilot mode but we need to take off at the national level, and plan for our millions who have inadequate and sometimes zero access to health care. Therefore, a holistic health care policy plan alone

will take India into the league of developed nations. India can boast of its IT revolution, has the capability to lay an FI race track and continue its space rocket launches but all these spectacular successes will be offset if news headlines scream of infant and maternal deaths from avoidable causes and the arrival of killer diseases like cancer.

In 1831, Alexis de Tocqueville, an authority on democracy, said the power of democracy lies in its tendency to centralise power. Let's hope that the Union Ministry will disprove the Tocqueville theory, will leave the selection of medical students to the State authority and create innovative policies to tackle the larger issues that have to be addressed on a war-footing.

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Health

Health & the city: They don't go together (The Times of India: 22.11.2011)

Studies Show Babies Born In Cities Face Battery Of Mental And Physical Health Problems

London: Living in a city can take a toll on your health — it can make you obese, infertile, depressed, and may give you potentially life-threatening diseases such as cancer, say researchers.

A number of studies have shown that babies born in cities, and children who grow up in them, face a battery of health problems that afflict both their physical and mental well-being.

In fact, urban living carries a significantly increased risk of chronic health disorders like mental illness, immune diseases, arthritis, heart diseases, cancer and fertility problems, according to the researchers.

The studies indicate that daily exposure to urban pollution can affect people before they are even born, leaving them prone to a lifetime of illhealth. The researchers have discovered that babies born in cities are bigger and heavier — normally a good sign — than those born in the countryside. But when they compared the placentas of mothers from a busy city and a rural area, they found that the city mums had far higher levels of chemical pollutants called xenoestrogens in their blood and in that of their unborn babies.

Xenoestrogens are industrial chemicals that affect human bodies in similar ways to the

female hormone — oestrogen. As well as causing excess foetal growth, they have been linked to problems such as obesity, hyperactivity, early puberty, fertility problems and cancers of the lung, breast and prostate.

The researchers from the University of Granada, Spain, found that although city mothers were older and weighed less than rural mothers, they still gave birth to larger babies.

Maria Marcos, who led the study, has said that the toxic xenoestrogens seem to have a significant effect on the development of unborn children. Her report provides the latest evidence that city air can seriously hinder normal childhood development. But it doesn't end there. Laboratory tests undertaken at the Ohio State University showed how urban pollutants may cause metabolic changes in toddlers resulting in raised blood sugar levels and increased resistance to insulin. PTI

Public health care

Similar problems, related maladies (The Hindu: 8.12.2011)

Private and public health care delivery systems, despite their marked differences, suffer due to variable professional standards and limited accountability.

Health care in India, at its finest, matches the standards of international best practice. The knowledge, skill and confidence of its doctors and nurses, the sophistication of available technology, quality of service and five-star hospitality compete with the best in the world. Its relatively low cost has made it an important player in the health tourism sector. However, at the other extreme, publicly funded health care services often do not meet required standards, despite many committed doctors and nurses and the ideals, effort and money contributed by the National Rural Health Mission (NRHM). The regularity with which the media highlight scandals, report clusters of “unexplainable” deaths, expose dilapidated infrastructure, depict non-functioning medical equipment, record inadequate staffing and document negligence suggests a different world. Chalk and cheese.

These different systems reflect diverse philosophies and contrasting economic models: state-of-the-art private health care and capitalism, on the one hand, and public health care services with their inefficiency and socialistic framework, on the other. While many professionals in both these systems maintain the highest professional and ethical standards, many others fail to live up to the required norms of excellence and service. One often hears horror stories of exploitation and neglect. The variable standards of medical practice within each of these systems highlight similar problems, related maladies.

Professional standards: The contractual, legal and ethical obligations of medical practice and the public nature of health services mandate licensure and regulation. However, the Medical Council of India, a statutory regulatory authority, has never seriously engaged

with nor regulated medical practice. Its powers to strike off doctors from its registers, suspend and withdraw licences remain on paper.

Professional societies also have an obligation to maintain standards of medical practice. Their role in establishing diagnostic and treatment protocols is crucial. Yet these societies focus on protecting the rights of their members, with little emphasis on responsibilities related to maintaining professional and ethical standards of practice. Their relationship with pharmaceutical and hospital industries often prejudices their concerns and moves them away from the science and art of medicine. Compulsory professional development and re-certification are unheard of in India. Professional groups rarely express convictions; they often push self-interest.

Audit and accountability: The maintenance of standards in institutions demands regular audit. Such audits are crucial to medical practice as they allow health professionals to compare their services with national and international standards, identify lacunae, change policies and programmes and update their knowledge and skill. Nevertheless, regular and systematic audits of processes and procedures are rare. Audits of input in the public sector and of income in private facilities take place, but without any focus on patient outcomes and cost-effectiveness. However, holding individuals and systems accountable for faulty policies and practice should be mandatory.

Culture of silence: The medical fraternity in India has its own omerta code. Even gross misconduct, often recognised by colleagues and superiors, is met with silence, complicity and even collusion. Corrections of major violations of conduct and poor standards of service are uncommon. This is true in both the private and public sectors. Tedious procedures, long delays, ineffectual committees, political interference, inconclusive investigations and the absence of action make people hesitant to raise concerns. Instances of gross medical negligence and less-than-optimum care are often covered up, leading to perpetuation of such practices with these becoming the norm. The medical fraternity usually circles its wagons in the face of public scrutiny instead of opting for transparency, investigation and improvement.

Society in transition: India is in the early stages of transition from a feudal society to an enlightened social order. The power differentials between doctors and their patients, the unequal knowledge base, the supply-side/seller's market and paternalistic attitudes within the medical profession do not allow for the empowerment of patients. Complex decisions are often made for patients without their adequate understanding of issues, resulting in their minimal contribution to the decision-making process.

Dissimilar impacts: The lack of standard guidelines, poor execution of simple regulations and non-existent audits of medical practice play out very differently in the private and public sector health delivery systems.

The NRHM and its many innovative platforms have increased access to, and availability and affordability of health care in many rural areas. Yet, many health centres, despite improvement in infrastructure and personnel, perform poorly in providing basic health

care. The lack of professional development, low professional standards of practice, poor supervision of processes and the lack of accountability in public sector hospitals result in sub-standard care. Although the Janani Suraksha Yojana has increased institutional deliveries across the country, maternal and infant mortality continues to be unacceptably high in many regions. Audits have shown a failure to adhere to recommended treatment protocols. The absence of routine institutional audits, despite being part of the system, results in a lack of accountability. Self-regulation does not work. The culture of silence and feudal social systems results in poor quality of health services.

The context of the private sector is very different. Educated and well-heeled patients demand higher quality of health care. Failure to implement professional standards under these circumstances often results in over-investigation of patients and the use of multiple, inappropriate and expensive medication/procedures. Remunerations based on commissions distort medical practice. It is easy for bias to hide out in the fog of medical jargon, technology and decision-making. It is not difficult to befuddle patients with jargon and baffle them with technology. Even discerning patients are unable to recognise inappropriate practice and curb inflated health care costs. The prevalent neo-liberal culture focusses on the trappings of sophistication, technology and hospitality rather than on the quality of medical decision-making and therapy. The absence of medical audits, despite routine and rigorous financial reviews of performance, makes for poor health care. The culture of silence renders the exposure of incompetent or unscrupulous doctors rare. Self-regulation does not work.

The choice for patients should not be between poorly functioning public hospitals and exorbitantly priced private health care. For a majority of Indians, choosing between the devil and the deep blue sea is no choice at all.

Moving forward

While many doctors work against the odds to maintain the highest professional and ethical standards, many others fail to live up to what is required of them. While one tends to blame individuals for failures, the problems in reality, are systemic. Private and public health services need regular audits to maintain professional standards and to establish individual and collective accountability. The neoliberal creed of greed in private and corporate practice and apathy in the public sector mandate regulation and supervision. External enforcement of accountability (e.g. redress through consumer courts and the Common Review Mission of the NRHM), although necessary, has not delivered and cannot deliver quality care. There is need for regulatory authorities, professional societies and institutions to implement standards through mandatory protocol-driven management guidelines, to change their culture and enforce basic minimum standards. The publication of such protocols will democratise knowledge, allow for comparisons, assure quality and curtail costs. Display of audits carried out within institutions (e.g. microbial antibiotic resistance patterns, Caesarean section rates, etc.) will inform citizens of the issues involved and allow for informed choices. A regular review of individual and institutional performance is mandatory. Continuing professional development and re-certification are necessary. Empowerment of the general population and its participation in decision-

making are crucial. Grievance redress mechanisms should also be in place. There is need to strengthen governance at the institutional level.

Strong advice with a weak audit of practice will result in variability of performance of individuals, institutions and systems. Although it sounds blasphemous, the “Interest-Convergence dilemma” is obvious. The idea that doctors, despite their stated aim, would not always support efforts to improve the lot of patients, unless it is in their own personal interest, is not hard to see. The brightest of individuals and the best of systems need a regulatory framework to produce consistent results and maximise benefits for all. A significant proportion of doctors have yet to buy into the need to follow standard algorithms related to health care. Ideals are easy; living up to them is not. The culture needs to encourage individuals and institutions to take responsibility, update their practice and be accountable. Self-righteous defence is not an option. However, there are no black-and-white victories in such battles, only incremental ones. The proverbial two steps forward and one step back. Health systems in India have a long way to go before ethical and scientific practice is the norm rather than the exception.

Health

Health becomes casualty of sloppy development rules(The Financial Express: 14.12.2011)

The massive tragedy at AMRI Hospital in Kolkata is an example of why diatribes against foreign investment can be deadly. India’s health sector is a classic example, notes a WHO report, as to why foreign investment is crucial, yet missing.

The rules mimic those for government-run institutions, thereby making it prohibitively expensive to set up a private hospital. As a result, despite 100% FDI having been allowed in the sector for nearly a decade, there has been no foreign investment in this space.

Barring a few good chains, the sector has been taken over by institutions that short-change every possible urban regulation to make a profit. A 2008 WHO report says, “It is primarily domestic factors that are specific to the hospital business that have limited the extent of FDI in India’s hospitals.”

The report says the biggest of these is the prohibitive cost of land in cities, which with...

the construction cost exceeds 50% of the cost of setting up a medical facility. “The single most important constraint is the high cost involved in setting up hospitals, the long gestation period of such investment, and the relatively low returns,” the report said.

The report cites a survey saying construction requires an estimated R50 lakh per bed, which works out to R100 crore for a 200-bed hospital. To recover these costs, the hospital will either charge very heavily or cut corners.

From the table here (an illustrative list of investments in hospitals in urban areas) the ratio of profit after tax (PAT) to operating income is either negative or barely positive “notwithstanding some of these being well-established players”.

In the absence of established players, municipal by-laws dictate building rules especially for institutional one that are more than four-storeyed, says PK Deb, additional chief secretary (urban development) in the Rajasthan government....

While central and state rules largely prescribe how much land a hospital needs, it doesn't specify the number of doctors or nurses it needs to have, nor describe if they need to be trained in handling emergencies.

Urban policies & the right to city in India: Critics For an Indian Administrative Service officer, being posted to a city service was till recently an early end to a promising career. The lack of supposed clout in an urban centre and a work order that basically comprised directing an army of 'safai karamcharis' kept the best assiduously out of the cities.

As a result, when urbanisation in India took off, the lack of trained officials to handle city issues became a drawback. One of the targets of JNNURM is to develop a municipal cadre within a short span of time to cover this shortage.

The rapidly emerging literature on urban issues would...

Health of nations

The health of nations (Business Standard: 22.12.2011)

A recent meeting of the Standing Committee on the Law of Patents in the World Intellectual Property Organisation (WIPO) witnessed some sparring between the developed and developing countries over the issue of pharmaceutical patents and public health. As is the case at other multilateral platforms like the World Trade Organisation, the two sides view the issue of public health differently in the context of patents.

The discussion that produced difference of opinion among members was a proposal from the Development Agenda Group (DAG) and the African Group that had been presented to the Committee in May, 2011. The DAG, which consists of around 20 developing country members including India, Brazil, Egypt and Indonesia, talks for including the development agenda in WIPO discussions.

The proposal said “the patent system should be consistent with fundamental public policy priorities and in particular the promotion and protection of public health” and advocated a three-pillar approach to bringing development and public health to the core of the discussions on patents.

The three pillars elaborated in the DAG and African Group proposal included commissioning of elaborate studies by renowned independent experts; increasing information exchange among member states and experts; and providing technical assistance especially for developing and least developed countries. The proposal also called for letting the developing and least developed countries use the flexibilities available in the international trading system in their patent regimes. The proposal even talked about the use of flexibilities in WTO’s TRIPS Agreement for public health in the regional and other free-trade agreements that are being negotiated by many developing and least developed countries.

The proposal specifically stated: “In order to protect public health, the flexibilities and safeguards contained and allowed by the TRIPS Agreement would need to be incorporated in the national legislation. There is equally the need to ensure that international commitments, including regional and bilateral arrangements, do not restrict these flexibilities and safeguards. Moreover, these safeguards and flexibilities have to be workable in practice, particularly with respect to ensuring access to medicine.”

The United States countered this proposal with its own proposal at the recent meeting in December. It states that “some of the public health issues facing developing and least developed countries include neglected diseases, the spread of TB, malaria and HIV/AIDS, and availability of medicines to treat these and other ailments.” It further says that “none of these issues can be solved by IPR flexibilities alone and in particular cannot be solved by the wholesale use of compulsory licensing. To the contrary, the lack of effective patent protection is one factor which prevents the appropriate medicines from reaching the neediest patients in DC and LDCs”. It goes on to say: “weakening the patent rights granted to pharmaceutical researchers and manufacturers in certain markets not only removes or reduces the incentive to develop new medicines, but also leads manufacturers to keep already developed medicines out of those markets. It has been shown that more goods become available in developing countries when IP rights are strengthened there. In the particular case of medicines, it has been shown that all else being equal, a new drug is more likely to be launched in a country where patent protection is strong, rather than one where such protection is lacking.” It then proceeded to propose some of its ideas for addressing the issue of public health and development in the developing and least developed nations.

As expected, the developing countries pointed out that the US proposal does not reflect the opinion of the developing countries, which are seeking to balance the issue of IPR with development and public health. The developing countries particularly pointed out that the US proposal deviates from the one tabled in May on the table and even dilutes the objective of the proposed discussions.

The issue of public health remains very crucial and delicate, and needs better handling. It is a genuine concern for the developing countries and needs to be understood by the developed countries. Confronting each other at multilateral forums may not help in bringing about the required attention that this important topic needs. The two sides would do well to sit across the table informally, to begin with, and find a solution that helps developing and least developed countries address the issue of public health while ensuring that the IPR rights of the pharmaceutical companies are not weakened.

Health Care

Better Care Possible for Patients Recovering from Fracture Via Physician Notifications(Med India: 23.12.2011)

A study in CMAJ (Canadian Medical Association Journal) has revealed that a simple physician notification system can help prevent further fractures in osteoporotic patients who have had already had fractures.

Patients who have had a major fracture because of osteoporosis do not undergo testing for bone mineral density or receive medications to help prevent additional fractures. Recent 2010 Canadian clinical practice guidelines for osteoporosis care noted this "care gap" for patients at risk of additional fractures.

Researchers from the University of Manitoba and Manitoba Health conducted a randomized controlled trial in 4264 people (33% men and 67% women) aged 50 years or older who had had a major fracture to determine if notifications would lead to better after care. They randomized patients into three groups: 1480 patients in the first group received usual care; 1363 patients in the second group had notifications regarding their fracture mailed to their primary physicians; and 1421 patients in group three received notifications along with their physicians.

The researchers excluded people who were already taking osteoporosis medication or who had had a bone mineral density test within three years after the fracture. Among participants receiving usual care, only 4% underwent bone mineral density testing and 11% started pharmacologic treatment for osteoporosis. Both groups in which the physician was notified showed a combined increase over usual care of 13% for bone mineral density tests and a 5% increase in beginning pharmacologic treatment for osteoporosis. "The low rates of postfracture intervention in the group receiving usual care, particularly among men, highlight the scale of the gap in care," writes Dr. William Leslie, University of Manitoba, with coauthors. "This strategy is suitable for implementation on a population level and in areas where population density would not easily support a case-management strategy, providing that high-quality administrative data are available." The authors suggest that care after a fracture can help save money. In the US for example, an aggressive strategy to target care of patients with osteoporosis has resulted in a 37.2% reduction in hip fractures and an estimated savings of US\$30.8 million by one group. "Creative strategies are needed to enhance postfracture care, which

remains suboptimal," state the authors. While the mailed notification system to physicians improves care, "additional strategies, possibly used in combination, may be more successful but need to be developed and tested. Future research should attempt to identify postfracture interventions that lead to appropriate guidelines-based care and translate into a reduction of recurrent fractures," they conclude.

HEALTHCARE

HEALTHCARE FOCUS TURNED TO LIFESTYLE DISORDERS (The Times of India: 30.12.2011)

In a nod to the times, the state's healthcare focus this year shifted from routine medical issues like infectious diseases to lifestyle problems. Diabetes, hypertension, the risk posed by excessive use of mobile phones and antibiotic-resistance became the talking points and several policy measures were initiated to check their spread.

Diabetes and hypertension, studies proved, affect one in five adults in cities. The diseases were no less prevalent in the capital's slums. "At least 11 out of every 100 people screened for high blood sugar and blood pressure levels in city slums have been found to be diabetic; many of them had severe symptoms like blurred vision and kidney failure. More than 19% of the population has been found to be suffering from hypertension. This is a serious issue and a road map is being prepared to check the epidemic," health minister A K Walia said.

The government also admitted the presence of deadly superbug NDM1 in the ICUs of several leading city hospitals like RML Hospital. NDM1 virus develops immunity to antibiotics. The health department directed all government-run hospitals to take effective measures to contain the spread of the virus and rationalize usage of antibiotics. Another survey conducted by the Indian Council of Medical Research on urban mental health showed 8-10% people in Delhi suffer from psychiatric illnesses like depression, anxiety and schizophrenia.

Japanese Encephalitis, common in the neighbouring states, surfaced for the first time in the city in October. So far, 14 people have been infected. But dengue fever cases have dipped sharply. Against more than 6,000 dengue cases in 2010, this year less than 1,500 cases have been registered at different hospitals.

The country's premier hospital, AIIMS, made headlines this year mainly for housing VVIPs like sacked Commonwealth Games Organizing Committee chief Suresh Kalmadi and former Samajwadi Party leader and Rajya Sabha MP Amar Singh — after they complained of poor health on being sent to jail in corruption cases.

For the first time in its history, AIIMS invited Sonia Gandhi to award degrees to students at its 39th convocation. The Union health minister has traditionally been the chief guest at the ceremony.

An inter-ministerial committee formed by the ministry of communications and information technology to study hazards posed by mobile phones confirmed radiation from phones and towers poses serious health risks, including loss of memory, lack of concentration, disturbance in the digestive system and sleep. This prompted MCD to set stricter norms for building towers.

Health Policy

Health insurance

All you need to know about health insurance portability (12.10.2011)

Now, policyholders, who are dissatisfied with their current health insurers, have the freedom of switching to other insurers who offer a better deal without losing the continuity benefits. But before switching the health insurers, know the fine prints.

Firstly, when a customer shifts to a new insurer, he will have to undergo all underwriting procedures just like a new policyholder. The loading for porting will be decided only after the completion of medical risk assessment.

Bajaj Allianz General Insurance, head-underwriting, TA Ramalingam says, “The new insurer has the right to reject your policy based on its underwriting guidelines, which may differ from your existing insurer. So customers need to be cautious before planning to switch.”

Why would anybody shift to a new insurer? Of course, to get a better deal compared to the existing health one. So, compare the sum insured available with the new insurer that you intend to shift.

It is always better to switch

the plans that are similar in nature. Otherwise, the policy will end up in opting either lower cover or higher cover.

The policy holder has to inform the new insurer about the time regarding the choice of switching. According to Irda guidelines, insurers need to be informed 45 days before renewing the existing policy. If the request for the portability is made after 45 days, the insurer may reject the request.

Waiting period for certain illness varies from insurer to insurer. Hence, it is important for the policy holders to check the time period for pre-existing diseases. Besides the specific exclusions, other terms and conditions need to be scrutinised well before shifting.

“Take a conscious decision on shifting. Service levels of the insurers would be the most important criteria while changing your insurer. People would like to shift to an insurer who has excellent service levels especially in claims settlement,” says Shreeraj Deshpande, head-health insurance, Future Generali India.

The earned bonuses so far with the existing insurer may change as per the new portability guidelines. Ensure that you get existing benefits and additional benefits while porting your health insurance policy.

It is advisable to compare the product constructs such as internal sub-limits and co-payments. Also the policy holder should be aware about the age band pricing and how people of higher ages are treated while porting.

“With the implementation of health insurance portability, insurers will have to enhance their service capabilities and engage in constant innovation to service their existing and potential customers. It is expected to bring in new benchmarks in delivery mechanisms and product innovation in the industry,” say Damien Marmion, chief executive officer, Max Bupa Health Insurance.

Public Health

Public Health Should Address Needs of People with Blood Disorders (Med India: 18.11.2011)

While focusing on reducing the burden of common diseases, public health should also address the needs of people with blood disorders , experts say in a supplement to December's American Journal of Preventive Medicine.

Even relatively common blood disorders fly below the public health system's radar with no established mechanisms for surveillance, supplement editors Scott D. Grosse, PhD, of the US Centers for Disease Control and Prevention (CDC); Andra H. James, MD, of Duke University; and Michele A. Lloyd-Puryear, MD, PhD, of the US National Institutes of Health, write in an introductory essay with Hani K. Atrash, MD, MPH, also of the CDC.

The authors contend that although most of the blood disorders discussed in the supplement are considered rare in the US and Western Europe—defined as affecting about 1 in 1,500 people—they should be ranked as a public health concern. "A public health framework is needed to address public health services and functions for all rare disorders, including blood disorders, regardless of the incidence or prevalence of a given disorder," they say.

The most common blood disorder, venous thromboembolism (VTE), consists of deep vein thrombosis and pulmonary embolism. It involves blood clots that occur in veins, usually in the legs, which can break up and move to the lungs and kill. VTE affects at least 1 million people in the US and is a major cause of death in adults, but "little is definitively known about the magnitude of [its] public health burden."

Hereditary hemochromatosis is a genetic disorder present in about 1 million Americans but "the opportunity to detect iron overload at an early stage and intervene ... to prevent the development of clinical disease ... remains a challenge," they add. And while at least 3 million Americans have sickle cell trait or are carriers of the sickle cell gene mutation, "the extent to which the carrier status poses health threats is not well established."

The supplement, comprised of 13 research papers and five workshop/meeting summaries, is authored by top medical educators and public health professionals. Its publication was supported by the CDC through a cooperative agreement with the Association for Prevention Teaching and Research.

Two papers focus on sickle cell trait screening policy in college athletes and military recruits, while seven address hemophilia and bleeding disorders, the most common of which are hemophilia A and B, and the hemoglobinopathies—sickle cell disease and thalassemia.

Grosse and his colleagues propose a public health framework to address such often-overlooked conditions. The framework is similar to the 10 essential public health services but focuses on rare disorders rather than common exposures or common health problems. The framework calls for public health officials to:

- Assess the prevalence/incidence of specific rare disorders;
- Monitor the health status and health-related quality of life of people with rare disorders and their families;

- Quantify the impacts of rare disorders on disability, mortality, and healthcare system use, particularly hospital-based care;
- Conduct research to identify preventable causes of health problems among people with rare disorders, including barriers to the consistent use of effective prophylaxis and treatment;

- Establish systems for early and continuous screening where appropriate;
- Educate and empower people with rare disorders along with their family members and primary care providers;

- Ensure access to cost-effective and affordable screening, diagnostic, primary care, and specialty health services;

- Evaluate the effectiveness, accessibility, and quality of health services for people with rare disorders and
- Inform program and policy decision makers about cost-effective strategies to improve health outcomes for people with rare outcomes.

"Blood disorders have a vital importance to public health and vice versa," the authors conclude. "Whether relatively common or relatively rare, people with blood disorders have health challenges specific to their conditions that require knowledgeable healthcare providers, access to screening and diagnostic testing, and information to help them manage their conditions."

Health funds

Penal for flexible health funds to states (The Asian Age: 25.11.2011)

Unlike the present system of allocation of funds to states on health care by the Centre, the high-level experts group (HLEG) on Universal Health Coverage (UHC) in its report to the Planning Commission have recommended "flexible" and "differential norms" for allocating finances to the states.

The report which is to be reviewed by the steering committee of the Planning Commission on health

next week will take into account the recommendations of the HLEG before framing the 12th Five Year Plan.

According to the report submitted to the Planning Commission recently, the flexibility in allocation of funds will help states respond better to the physical, socio-cultural and diversities across districts.

"A major factor accounting for the low efficiency of public spending has been the practice of the Central government to develop and enforce uniform national guidelines for similar transfers for health across the states" The report therefore recommends "the Central government should adopt a fiscal transfer mechanism that allows for flexible and differential financing from the Central government to the states. This will also allow for Central transfers to better meet the diverse requirements of different states, and enable states to develop health plans that are consistent with the health care needs and requirements of their populations," said the report.

"It is important to see how to provide assessable care to the Indian population without putting the burden of out of expenses on them.

The UHC addresses all those aspects.

This is a blue print that would be helpful in developing the next plan," said Dr K. Srinath Reddy, who heads the panel.

Having recommended that general taxation and other deductions from the non-poor should be pooled to provide UHC, the expert

group has said insurance companies should not be used to purchase health care services on behalf of the government.

According to the experts group all government funded insurance schemes should, over time, be integrated with the UH C system. All health insurance cards should, in due course, be replaced by an IT-enabled National Health Entitlement Card (NHEC) that will ensure cashless transactions, allow for mobility across the country.

Hepatitis

Hepatitis Transmission

Hepatitis Transmission Risk Needs to Be Studied in Nail Salons, Barbershops, Analysis Suggests (Science Daily: 16.11.2011)

The risk of hepatitis transmission through non-single use instruments -- such as nail files, nail brushes, finger bowls, foot basins, buffers, razors, clippers, and scissors -- during nail salon and barbershop visits cannot be excluded, according to the results of a new report unveiled at the American College of Gastroenterology's (ACG) 76th Annual Scientific meeting in Washington, DC.

David A. Johnson, M.D., FACP of Eastern Virginia Medical School presented an abstract which analyzed a report developed by the Virginia Department of Health entitled, "Assessment of the Risk of Bloodborne Pathogen Transmission in Nail Salons and Barber Shops and Regulatory Requirements in Virginia."

Dr. Johnson's assessment of the Virginia report indicated that there might be potential transmission of bloodborne pathogens (e.g., hepatitis B and C viruses) if non-single use instruments are not fully cleaned and disinfected according to the state regulations. The Virginia Department of Health found that the current Virginia regulations (dated September 1, 2011), which require intermediate-level disinfection for non-single use items in nail salons or barbershops, are sufficient in preventing bloodborne pathogens transmission, if there is full compliance.

"Whether there is sufficient compliance with disinfection requirements is an important variable in the safety of salon and barbershop services from a public health perspective," commented Dr. Johnson. "The risk of transmission of infectious disease, particularly hepatitis B and C, in personal care settings is significantly understudied in the United States."

Dr. Johnson explained that a report of a case of acute hepatitis C (HCV) that was "clearly related to a manicure/pedicure treatment" prompted this evaluation of the current patient risks associated with salon exposures.

A group coordinated by the Office of Epidemiology at the Virginia Department of Health conducted the aforementioned study. This Virginia Health Department study included a comprehensive literature search on Pubmed and Google using relevant key words such as nail salon, manicure, pedicure, barber, razor and hepatitis. Additionally, the group reviewed the safety regulations in Virginia and compared them with those in 13 other states and the District of Columbia.

The review of the published literature identified eighteen papers, including nine case-control studies, three case-series studies, and six population-based surveys, that assessed manicure, pedicure, or barbering as potential risk factors for HBV and/or HCV infection. Of the nine case-control studies, five evaluated HBV and/or HCV in nail salon settings and three of the five showed association with HBV and one of the five showed association with HCV. Eight of the nine case-control studies evaluated HBV and/or HCV in barbershop settings and five showed association with HBV and two showed association with HCV. The case-series studies and surveys are less indicative of an association for HBV and HCV in nail salon or barbershop settings. Caution is required in interpreting these findings because there are substantial heterogeneities in the population studied, sample size, case and control selection, analytic method, and control of confounding variables across studies. Furthermore, none of the nine case-control studies was conducted in the United States.

The federal Occupational Safety and Health Administration (OSHA) does not have specific guidelines for the prevention of HBV or HCV infection in nail salons and barbershops, according to the Virginia Department of Health, and neither the current CDC case report form for HBV or HCV nor the National Electronic Disease Surveillance System captures barbering, manicures or pedicures as risk factors for transmission of hepatitis infection.

"The absence of infection control guidelines from federal health agencies (CDC and OSHA) for the prevention of hepatitis infections in nail salons and barbershops implies that barbering, manicure and pedicure have not emerged as significant risk factors for HBV and HCV infections in the United States," commented Dr. Johnson.

"The true magnitude of this risk has yet to be defined and clearly needs further study."

In the meantime, Dr. Johnson urged nail salon and barbershop customers to be aware of the potential risks for hepatitis transmission, and to take precautions including asking questions to determine whether or not the nail salon or barbershop is properly cleaning and disinfecting tools and equipment. He also suggests customers bring their own equipment like clippers, razors and nail files (both men and women).

"No one should accept on blind trust that a business is taking the necessary steps to prevent transmission of bloodborne infections such as hepatitis," said Dr. Johnson. "Health care providers need to be aware of these risks -both for appropriate counseling of their patients, and when assessing possible causality in patients with hepatitis B or C."

Based on the Virginia Department of Health report there are several proposed recommendations to eliminate the potential transmission of HBV, HCV and HIV infections in nail salon and barbershop settings. These include: training for all nail salon and barbershop technicians, educating them about transmission of blood-borne infections and emphasizing principles of good hygiene, antisepsis and disinfection; as well as more stringent personal hygiene, storage, disinfection and inspection requirements.

About Hepatitis

Hepatitis, an inflammation of the liver, refers to a group of viral infections that affect the liver. The most common types are Hepatitis A (HCA), Hepatitis B (HBV)), and Hepatitis C (HCV). HBV and HCV are primarily transmitted through blood.

According to the Centers for Disease Control and Prevention (CDC), viral hepatitis is the leading cause of liver cancer and the most common reason for liver transplantation. While an estimated 4.4million Americans are living with chronic hepatitis--most do not know they are infected. About 80,000 new infections occur each year although the clinical consequences of severe liver disease (e.g. cirrhosis/cancer) may not be recognized for 10-20 yrs after the infection.

Injection drug use accounts for most HCV infections in the United States and most developed nations. In developing nations, unsafe medical injections and blood transfusions are the primary risk factors for HCV infections.

Hepatitis virus

Protect yourself from hepatitis virus (The Times of India: 5.12.2011)

By taking simple yet important precautions, hepatitis B and C can be prevented, says medical expert Avinash Kumar Tank

Awareness is key to preventing hepatitis B and C as both are 'silent' viruses and could infect a person for years before he finds out about it. If left untreated, both the viruses can lead to liver failure (cirrhosis). Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic liver disease. About 25% of adults who become chronically infected during childhood later die of liver cancer or cirrhosis (scarring of the liver leading to liver failure). Hepatitis B is preventable with vaccine. Hepatitis B virus (HBV) could spread through contact with blood or other body fluids (semen and vaginal fluid) of an infected person, from mother to baby at birth, unsafe injection practices, blood transfusions and sexual contact. However, HBV is not spread by contaminated food or water.

Vaccination:

All newborn babies should be vaccinated against hepatitis B. This is the only way to prevent it. This vaccine protects one throughout life or at least for 20 years. There is no vaccine available globally to prevent hepatitis C. High-risk people like partners of HBV infected persons and healthcare workers should also be vaccinated. Like hepatitis B, hepatitis C is also a viral infection that attacks the liver and can cause both acute and

chronic liver disease. Following initial infection, approximately 80% of people do not exhibit any symptom. About 60 to 70% of chronically-infected persons develop chronic liver disease, five to 20% develop cirrhosis, and one to five per cent die from cirrhosis or liver cancer.

Precautions:

Hepatitis C is spread via contaminated blood through blood-to-blood contact with an infected person or from sharing household items that may have blood on them (even if no blood is visible) such as toothbrushes, razors or scissors. The virus does not spread through breast milk, food or water, or by casual contact such as hugging, kissing and sharing food or drinks with an infected person. To prevent infection, use sterilized medical and dental equipment, never share syringes or needles, do not share any household items that could have any blood on them, such as toothbrushes, razors or scissors and wear protective gloves if you have to handle somebody's blood.

Home Remedies

Ayurveda

Ayurveda for good health (The Times of India: 17.10.2011)

Renowned Ayurveda expert, V Vasudevan, talks about Ayurveda and the p a n c h a k a r m a technique used for detoxification and internal cleansing of the body

Ayurveda is as applicable now as it was centuries ago. It looks upon health in its totality and defines the physical, emotional and intellectual well-being of a person as a harmonious state. Serious health issues impact all three realms.

Ayurvedic medicines are given as powders, decoctions and pills, depending on the disease, constitution, body type, etc. There is no system of prescribing a particular medicine for a particular disease, as even a single medicine has a wide range of applicability in various disease conditions. The physician prescribes treatment after talking to the patient individually. Herbal medicines are safe if authentically prepared and used. The range of medicinal formulations available is immense.

Ayurveda applies both external and internal therapies for treatment, which focus on the location of the disease as well as on the entire body. The aim is to restore the total health of the patient, who also develops good immunity after treatment. P a n c h a k a r m a is a central part of the therapy and is a detoxification or internal cleansing process. Most cases are treated with p a n c h a k a r m a and that usually turns out to be the best alternative even in surgical cases. Body toxins are eliminated through external orifices like the mouth, anus, nostrils and skin.

Ayurveda has its own methods of diagnosing disease, and a skilled Ayurvedacharya relies on his skills of diagnosis for treatment. Prescribing Ayurvedic medication on the basis of modern diagnosis is usually not accurate, especially for chronic diseases. P a n c h a k a r m a in such cases is far more helpful. The procedure prescribes complete rest as well as strict adherence to physical and mental discipline. Combined with pre and post p a n c h a k a r m a treatments, the course includes therapies, medication, diet, routines and regimens and varies for different patients. P a n c h a k a r m a is effective in curing psychological imbalance and emotional disturbances too.

Ayurveda believes the human body is akin to nature and treatment lies in attuning a diseased body to match nature's rhythm.

Ayurveda

Ayurveda not just grandma's remedies, say practitioners (World Newspapers: 20.12.2011)

Ayurveda is not just about grandma's remedies; it is a science of life, and is purely, since the time of rishi munis, based on science, say vaid or ayurvedic doctors who were present for a three-day national meet on ayurveda, held for the first time in India, at the Swaminarayan Gurukul Vishwavidya Pratishthanam (SGVP), Charodi.

This meet is organised by members of the Active Ayurvedists Organisation (AAO) international trust, Ahmedabad. Besides imbibing in young ayurvedic practitioners and students importance of staying loyal to the subject they study, this meet is also aimed at letting the young generation know that with patience and perseverance this science can help achieve satisfaction and success, professionally and personally.

The meet will conclude on December 18, when an Ayurved Mahashranyatra would be carried out. This will include a ride of the seven granths of Ayurveda, wrapped in gold and silver paper and cloth, on elephants. This will be followed by a maha yagya at Memnagar Swaminarayan Gurukul, wherein 111 kgs of different ayurvedic medicines will be used.

The meet also highlighted innovative forms of medicines available now. For instance, the sitopaladi churna is now available in candy form while body oils come as lotions.

Vaid Tapan Kumar

Known to be a multi-dimensional master of ayurveda and MD in cardiology, Vaid Kumar believes that the current education system is unable to create the right ambience for students of ayurveda. He said, "The system fails to create an ambience which could help to deepen faith and loyalty in the subject."

Vaid B Joshi

"In a recent survey it was found that, if given a choice, nearly 96% of the people would prefer to get cured with ayurvedic medicine. However, they lacked trust in the same. Hence this national meet is being held to create awareness among students and practitioners, first about the benefits of ayurveda which will then pass on to the general public", he said.

Vaid Vinay Vora

Practising both in India and Switzerland, Vaid Vora claims that people's trust in ayurvedic is low owing to lack of awareness about vaid and benefits of medicines. "Currently, nobody knows about authentic and well qualified vaid of ayurveda as they are not identified. This national meet is also aimed towards doing the same. for instance,

an ayurvedic spa can only offer a royal treatment to a body, but only vaidas can give a properly diagnosed cure of a disease", he said. Vaidas can provide cure through therapeutic procedures based on principles of ayurveda, he said.

Student Jinal Vora

"With 88% in 12th science I did have a chance of bagging a seat at the BJ Medical College. However, because both my parents are ayurvedic doctors, I preferred to choose the same. Learning this science of life helps one understand the nature and environment we live in today. It might look complex initially, but the deeper you go, it gets simplified."

Student Jigar Shah

"Despite getting entry into MBBS and Dental, ayurveda was my first choice, as I feel that allopathic has a lot of limitations. By prescribing ayurvedic medicines to patients, we are able to cure not just the disease, but the make the person relaxed and solve most of his/her mental, physical and emotional problems."

Immunization

Vaccination

Research Finds Single-Sex Vaccination is most effective at Reducing HPV Infection (Med India: 23.12.2011)

Johannes Bogaards of VU University, the Netherlands and colleagues investigated whether vaccinating females only, males only, or both sexes is the best way to achieve the most effective reduction in the population prevalence of sexually-transmitted infections. The study appears in this week's PLoS Medicine.

Specifically for human papillomavirus (HPV), the authors found that single-sex vaccination was the most effective strategy for prevention of disease and that it was preferable to vaccinate the sex with the highest prevaccine prevalence of HPV infection which for HPV is females.

The authors say: "Our results provide a justification, under most circumstances, for the intuitively plausible strategy of targeting intervention at the subgroups that harbor most infections and that act as a reservoir for transmission...We show that, once routine vaccination of one sex is in place, increasing the coverage in that sex is much more effective in bolstering herd immunity than switching to a policy that includes both sexes."

Infant mortality

Infant mortality

Infant mortality up 18.5% on declining healthcare (The Times of India: 4.11.2011)

New Delhi: The state government's claims of better child healthcare lie exposed. Between 2009 and 2010, the infant mortality rate (children dying within the first year of birth) has increased 18.5% — from 18.96 per thousand to 22.47 per thousand. At the same time, the number of still-births has almost doubled. Experts say the collapse of the public health system is to blame.

“This is shocking. Delhi should be the role model but it is clearly lagging behind states like Goa and Kerala, where the infant mortality rate is less than 12 per thousand. In my view, high influx of migrants, who are mostly poor and have least access to good food and healthcare, is the main reason for this. Food prices have gone up and many poor expectant mothers are not able to fulfill their nutrition needs. Their children are born with low birth weight and remain malnourished, which is the main reason for infant mortality. Malnourished children are predisposed to infections and other diseases,” said Mira Shiva, founder, People's Health Movement and coordinator of Initiative for Health and Equity in Society.


She said the government is promoting institutional childbirth with the introduction of new schemes such as 'Janani Suraksha Yojna', but infrastructure required for these remains poor. “In most maternity centres, infection rates are high due to lack of hygiene. The number of doctors and nurses is low,” said Shiva.

Child rights activist Raaj Mangal Prasad said the increased rate of infant mortality is reflective of the collapse of the public health system. “Public sector hospitals are overburdened. Private sector has grown significantly but that is inaccessible to a large population. Many people in slums still go to quacks for treatment,” he added. Delhi Medical Council's anti-quackery cell in its recent inspections held across all nine districts found 150 quacks operating in slums and unauthorized colonies.

Dr VK Paul, head of pediatrics at AIIMS, added that there is too much pressure on big government hospitals in Delhi. “We need to strengthen infrastructure at medium-sized hospitals in Malviya Nagar, Ambedkar Nagar, East-Delhi, among others. Delhi should be the role model for the country for providing quality healthcare to everyone, including the large migratory population,” he said.

The provisional data on 'birth, death and infant mortality rates in Delhi' was released

by the Delhi government on Thursday. State health minister AK Walia said the increase in infant mortality was mainly due to increasing influx of migrants. “At least 40% of these deaths are of infants brought to city hospitals at the terminal stage,” he said.
durgesh.jha@timesgroup.com

	MORE KIDS DIE	Total Infant Mortality rate*		Total Still births	
	2006	18.05	2007	210	
	2007	25.44	2008	204	
	2008	18.38	2009	1,244	
	2009	18.96	2010	2,140	
	2010	22.47			
	* Rate per 1,000 live births				
DEATH DUE TO SICKNESS (IN TOTAL POPULATION)					
Respiratory diseases	7,525	Cholera	192		
Injuries (including suicides)	5,088	Dysentery & diarrhoea	120		
Fever	2,082	Other causes	1,09,346		

Advertisement

Maternal and Child Health

Premature babies

Premature babies 'five times more likely to have autism' (New Kerala: 18.10.2011)

Premature infants are five times more likely to have autism than children born at normal weight, according to new research.

The children, some born as small as about a pound, were followed for 21 years making this study.

The infants were born between September 1984 through July 1987 in Middlesex, Monmouth, and Ocean counties in New Jersey at birthweights from 500 to 2000 grams or a maximum of about 4.4 pounds.

“As survival of the smallest and most immature babies improves, impaired survivors represent an increasing public health challenge,” said lead author Jennifer Pinto-Martin, MPH, PhD, director of the Center for Autism and Developmental Disabilities Research and Epidemiology (CADDRE) at Penn Nursing.

“Emerging studies suggest that low birthweight may be a risk factor for autism spectrum disorders.”

Links between low birthweight and a range of motor and cognitive problems have been well established for some time, but this is the first study that establishes that these children are also at increased risk for autism spectrum disorders (ASD).

“Cognitive problems in these children may mask underlying autism,” said Dr. Pinto-Martin.

“If there is suspicion of autism or a positive screening test for ASD, parents should seek an evaluation for an ASD. Early intervention improves long-term outcome and can help these children both at school and at home,” she added.

Premature babies

Premature babies more likely to have autism (The Tribune: 19.10.2011)

Washington: Premature infants are five times more likely to have autism than children born at normal weight, according to a new research. These children, some born as small as about a pound, were followed for 21 years making this study. The infants were born between September 1984 through July 1987 in Middlesex, Monmouth, and Ocean counties in New Jersey at birthweights from 500 to 2000 grams or a maximum of about 4.4 pounds. "As survival of the smallest and most immature babies improves, impaired survivors represent an increasing public health challenge," said lead author Jennifer Pinto-Martin, director of the Center for Autism and Developmental Disabilities Research and Epidemiology (CADDRE) at Penn Nursing.

Mums-to-be beware

Mums-to-be beware: Packaged food makes baby girls aggressive (The Indian Express: 25.10.2011)

Moms-to-be, make sure that you avoid packaged foods during pregnancy, for a study says exposure to bisphenol A (BPA), a common chemical used in plastic products, could cause behavioural problems in your baby girl. Researchers at Harvard University have found that exposure to BPA while in the womb can make girls as young as three years aggressive and hyperactive, the 'Daily Mail' reported.

BPA, which is used to harden plastics, can be found in lining of tins and bottles and the ends of knives and forks. It is known as the genderbending chemical as previous studies showed it interferes with the way hormones are processed.

In their research, the researchers at the university's School of Public Health compared levels of the chemical in 244 pregnant women. Each one provided three urine samples during pregnancy, and another at birth, which were tested for BPA.

When the children reached the age of one, the researchers measured their levels of BPA, and did so again over the next two years. Once the children turned three, their mothers all filled in a survey about their behaviour. The researchers found that girls were more likely to be hyperactive, aggressive, anxious, and depressed and unable to control themselves if their mothers had recorded higher levels of BPA during pregnancy. The study found no such link among boys.

The researchers think that girls' hormones may make them more sensitive to BPA. They said doctors should advise worried women to reduce their exposure to BPA during pregnancy. PTI

Maternal data

States fudging infant, maternal data: Azad (The Times of India: 31.10.2011)

States fudging figures of how many pregnant women and newborn children have received health services they are entitled to — like immunization — are in trouble.

The Union health ministry's unique Mother and Child Tracking (MCTS) system is calling and checking with the women — pregnant and those who just gave birth — on the "truth behind the claims of high service delivery rates by the states."

On Saturday, the total number of pregnant women registered in MCTS — an e-governance initiative of the health ministry — crossed the one crore mark.

"States, on one hand, were reporting high infant and maternal mortality rates, and on the other reporting immunization rates as high as 80%. This made us realize that the data was being fudged. That is why we rolled out MCTS in December, 2010," Union health minister Ghulam Nabi Azad said.

He added "Around 20 consultants are now calling randomly to cross check the data. Around 60% have been found to correct. At the end of April 2012, the ministry plans to give a medal to the top three performing states."

The minister said the MCTS has been designed to collate information of all pregnant women and infants to ensure delivery of maternal and child health services from conception till 42 days after delivery for pregnant women and up to five years for children. The move will help all pregnant women and newborn receive full maternal and immunization services.

The system generates data like when anti-natal check-up is due, or the immunization dates of a child. "The number of children registered in the system is also expected to cross 50 lakh by the end of this month," Azad added. Some of the states which have done very well in the implementation of the MCTS include Goa, Gujarat, Chhattisgarh and Rajasthan.

Against the earlier norm, where states reported only the number of children vaccinated in an area, it is now mandatory for vaccinators to write various other personal details like the name of the child, h/his father's name, address, phone numbers etc.

India aims to vaccinate 25 million children every year under the country's Routine Immunization programme. In addition, 30 million pregnant women are administered the tetanus vaccine under RI every year.

Newborn

Newborn washed with acid in WB hospital, dies (The Times of India: 3.11.2011)

Officials Say Kid Was Stillborn, Blames Family Ayah for Mishap

The alleged death of a newborn at a government hospital in West Bengal on Monday — because a nurse used acid instead of an antiseptic solution during delivery — has once brought to focus the poor state of healthcare in the state.

The mother, Sikha Bibi, suffered severe burns on her private parts and legs, relatives said. Family members said they had kept quiet for a day because Sikha's husband was yet to arrive from Delhi, where he works. It was only when some local politicians learnt of the incident and demanded answers from the hospital that it came to light.

However, hospital authorities denied the baby had died due to negligence on their part. They claimed it was stillborn. "The woman received a little injury. I can say she gave birth to a dead baby," said deputy chief medical officer B P Sau.

But the baby's mother contradicted this saying she heard the baby cry. Sikha also said the baby was put on oxygen. "Hospital nurses and ayahs washed Sikha with acid, which led to the baby's death and left her with burn injuries. We demand the culprits be punished," said Sikha's brother-in-law Ashraf Sheikh.

Hospital authorities gave out two versions about who or how the acid was administered. "Sweepers perhaps mistakenly placed acid and the staff took it to be Dettol or Savlon as they look identical," Sau said.

However, hospital superintendent Saswati Nath blamed an ayah brought in by the family for the incident. "I have received a verbal report that someone had administered antiseptic lotion. She is not our staff. The patient's family had kept an ayah from outside." Sau said an inquiry committee under the hospital superintendent would probe the allegations.

This incident comes close on the heels of 12 crib deaths in a Burdwan hospital and 13 baby deaths at Kolkata's BC Roy referral hospital.

Mother's touch

Mother's touch vital for newborn's well being (World Newspapers: 4.11.2011)

A mother's constant touch is vital for the well being of a newborn but the practice of separation immediately after birth could be stressful.

The current practice is to separate the newborn and place it in a separate crib so the mother can rest following labour. This practice may stress the baby, says new research.

Separation is also common for babies under medical distress or premature babies, who may be placed in an incubator, reports the journal Biological Psychiatry.

"Our results are a first step towards understanding exactly why babies do better when nursed in skin-to-skin contact with mother, compared to incubator care," study author Barak Morgan, University of Cape Town, explained in a statement.

Premature Babies

Premature Babies in Malawi Face Higher Death Risk (med India: 9.11.2011)

In Malawi, babies who were born prematurely continue to have poor growth rate and development, than babies born at term, finds study published in this week's PLoS Medicine.

The authors, led by Nynke Van Den Broek from the Liverpool School of Tropical Medicine, and Melissa Gladstone, from the University of Liverpool say that their findings show that in addition to interventions in the immediate neonatal period, a focus on early childhood is needed to improve outcomes for infants born prematurely in low-income settings.

In their study of 2,297 pregnant women in southern Malawi, the authors compared 247 infants born preterm with 593 infants born at term and found that premature infants were 1.79 times more likely to die than term infants: 27 (10.9%) preterm babies died compared to 37/593 (6.2%) term babies. Furthermore, at 12, 18, and 24 months follow up, the

authors found that surviving preterm infants were more likely to be underweight and have higher rates of disability and developmental delay.

The authors say: "To date, interventions in low-income settings to reduce neonatal morbidity and mortality have targeted the perinatal period. Our data show that, for preterm babies who survive the immediate neonatal period, there is ongoing disadvantage with increased risk of death, growth retardation, and developmental delay. "

They continue: "Further detailed qualitative and longitudinal studies to assess the causal mechanisms for these problems would be extremely beneficial. Along with these studies, post-neonatal interventions need to be trialled that might improve outcomes in this group of preterm born children."

Prenatal Exposure

Prenatal Exposure to Environmental Pollutants May Affect Weight and Size of Newborn (Science Daily: 14.11.2011)

University of Granada researchers have shown that infants born to women living in large cities are more likely to have higher weight at birth than those born to mothers living in rural areas. This is probably due to a higher exposure to xenoestrogens, a type of environmental pollutants that act like hormones, according to researchers. This is the first research study conducted in Spain establishing a correlation between estrogenic burden in pregnant women's placenta and a higher birth weight.

For the purpose of this study, the researchers examined two groups of pregnant women. The first group was composed of pregnant women living in Madrid, while the second consisted of women living in Granada. The researchers found that there were biological, demographic and socioeconomic differences between both groups of women, which determined the presence of xenoestrogens in the placenta due to exposure to environmental chemicals.

The first group of mothers was composed of women living in Madrid, having a medium-high educational level, and most of them (89%) working in the field of administration or education. By contrast, the mothers sampled in the second group lived in rural areas of the province of Granada, had a low educational level (53.4% had no education or only primary education), and a high percentage of them were exclusively devoted to household chores (38.3%).

All this factors determine environmental exposure.

The researchers examined the factors conditioning environmental exposure, and a correlation was found between anthropometric and sociodemographic factors, health status, lifestyle and working conditions, and the total estrogenic burden. University of Granada researchers found that the estrogenic effect of placental tissue extract is directly

related with certain characteristics in parents, childbirth and newborn babies. Thus, the group with higher estrogenic effect of placental tissue extract in alpha fraction was that of older women with lower body mass index and living in Madrid. Additionally, this is the group which gave birth to higher weight infants. These results suggest that estrogenicity of xenostrogens directly affects embryo-fetal development.

This study was conducted by María Remedios Prada Marcos, at the University of Granada Radiology and Physical Medicine Department, and coordinated by professors Nicolás Olea Serrano; Mariana Fátima Fernández Cabrera and Julio J. Boza Puerta.

Combined Effect Biomarker

Remedios Prada affirms that most studies on exposure to environmental pollutants are focused on separately quantifying the presence of chemicals in human body. "However, at present, more than 100,000 synthesized chemicals have been identified in the human body, which interaction effects –that might be additive, synergistic or even antagonistic– are unpredictable. Therefore, concentrations considered insignificant by classical toxicological parameters might interact and have a significant cumulative effect. That is the reason why, in this study, we have approached environmental exposure by using a combined-effect biomarker".

Currently, health authorities from different countries are trying to establish monitoring systems for environmental pollutant exposure by using exposure markers. Such systems have already been established in USA through the National Health and Nutrition Examination Survey, and in Spain through the Environment and Childhood Project (INMA).

Child Abuse

Child Abuse Changes the Brain, Study Finds (New Kerala: 7.12.2011)

When children have been exposed to family violence, their brains become increasingly "tuned" for processing possible sources of threat, a new study reports. The findings, reported in the Dec. 6 issue of *Current Biology*, a Cell Press publication, reveal the same pattern of brain activity in these children as seen previously in soldiers exposed to combat.

The study is the first to apply functional brain imaging to explore the impact of physical abuse or domestic violence on the emotional development of children, according to the researchers.

"Enhanced reactivity to a biologically salient threat cue such as anger may represent an adaptive response for these children in the short term, helping keep them out of danger," said Eamon McCrory of University College London. "However, it may also constitute an

underlying neurobiological risk factor increasing their vulnerability to later mental health problems, and particularly anxiety."

Maltreatment is known to be one of the most potent environmental risk factors associated with anxiety and depression. Still, McCrory said, "relatively little is known how such adversity 'gets under the skin' and increases a child's later vulnerability, even into adulthood."

The new study shows that children with documented exposure to violence in the home differ in their brain response to angry versus sad faces. When presented with angry faces, children with a history of abuse show heightened activity in the brain's anterior insula and amygdala, regions involved in detecting threat and anticipating pain.

McCrory says the changes don't reflect damage to the brain. Rather, the patterns represent the brain's way of adapting to a challenging or dangerous environment. Still, those shifts may come at the cost of increased vulnerability to later stress.

Although the results may not have immediate practical implications, they are nonetheless critical given that a significant minority of children are exposed to family violence, McCrory says. "This underlines the importance of taking seriously the impact for a child of living in a family characterized by violence. Even if such a child is not showing overt signs of anxiety or depression, these experiences still appear to have a measurable effect at the neural level.

Premature kids

Premature kids likely to face behavioral problems in pre-school: Study (world Newspapers: 7.12.2011)

Children born prematurely have greater chances of experiencing behavioural or emotional problems or both in the pre-school years, a study reveals.

While the rate of premature births has remained more or less constant for some time, the rate of moderately premature births has been rising, Dutch researchers say.

They based their findings on more than 1,500 children whose behaviour and emotional development was assessed for four years, the journal Archives of Disease in Childhood reported.

About 1,000 children born between 32 and 35 weeks of pregnancy, were classified as moderately premature and just under 600 were born at term.

All the children were part of a long term study - The Longitudinal Pre-term Outcome Project or Lollypop - that looked at the growth, development, and general health of children born prematurely.

The study was conducted by paediatricians and neonatologists Marieke R. Potijk, Andrea F de Winter, Sijmen A. Reijneveld, Arend F Bos and Jorien M Kerstjens from the University of Groningen Medical Centre, The Netherlands.

Seven behavioural or emotional components were assessed, including anxiety or depression, aggression, attention disorders, and somatic complaints - conditions with no obvious physiological cause, according to a university statement.

"Our results demonstrate that moderately premature children are more likely to have behavioural and emotional problems before they enter school," said a researcher.

These types of problems tend to persist into later childhood and adolescence of the premature children and is likely to affect their academic performance and friendships at school.

Child Health

Mother's touch may prevent child against drug addiction in later life (New Kerala: 8.12.2011)

Attentive, nurturing mothers may protect their children against drug addiction during later stages of life, a new study has suggested.

According to a study in rats conducted by Duke University and the University of Adelaide in Australia, a rat mother's attention in early childhood actually changes the immune response in the brains of her pups by permanently altering genetic activity.

High-touch mothering increased the brain's production of an immune system molecule called Interleukin-10, leaving these rats better able to resist the temptation of a dose of morphine much later in life.

To program some of the rat pups to produce more IL-10, the researchers used an established technique called the 'handling paradigm', in which very young rat pups are removed from their mother's cage for 15 minutes and then returned.

"As soon as they're returned, she checks them out vigorously, grooming the pups and cleaning them," Staci Bilbo, an assistant professor of psychology and neuroscience at Duke, who led the research said.

For a control group, another set of pups was never removed. Some of them had more attentive mothers than others, just by natural variation.

The animals then were put through a test called the 'place preference chamber', a two-roomed cage in which they would be given a dose of morphine if they entered one side, or a dose of saline on the other. Over the next four weeks, the rats were returned to the two-sided chamber three times a week for five minutes, but were never given another dose of morphine.

Bilbo said that initially, they all showed a preference for the morphine side, but over time, the handled rats showed little preference, which indicated their craving had been 'extinguished'.

About 8 weeks after their first exposure to morphine, the animals were each given a very small dose of morphine to prime craving and then returned to the 2-sided chamber. The non-handled control rats preferred spending time in the morphine chamber; the handled rats still showed no clear preference.

Good maternal care

Good maternal care boosts healthy development in kids (New Kerala: 9.12.2011)

Experts have revealed that intensive maternal care during infancy promotes the effect of Neuropeptide Y (NPY) in the brain, which is involved in various processes including stress management, the development of anxiety behaviour and body weight regulation.

Neuropeptide Y (NPY) is the most abundant peptide hormone of the central nervous system.

As a result of receiving such care, the animals were also less anxious in adulthood and weighed more than their counterparts who had received less affection.

The research group was able to show that the effect is explained by the maternal care, which stimulated the persistent formation of certain NPY receptors in the forebrain.

Neuropeptide Y (NPY) assumes several key roles in the brain's complex control circuits. The messenger substance not only influences body weight but also controls, among other things, the development of anxiety and stress responses.

The study on mice carried out by Rolf Sprengel from the Max Planck Institute for Medical Research and his colleagues in Italy have shown that the effect of NPY depends on how much care and attention the young animals experienced in the first three weeks of life.

Mice who had received little care from their mothers were more anxious adults than their counterparts who had received intensive attention in their early weeks of life. They also remained slimmer throughout their lives.

As the researchers discovered, the maternal behaviour influenced the formation of NPY1 receptors in the limbic system – the area of the brain responsible for the processing of emotions.

“We were able to show that the expression of the NPY1 receptor in the young animals’ limbic system is increased by good maternal care,” explained Rolf Sprengel.

“This ensures their healthy development in the long term,” he said.

Premature Babies

Premature Babies Harbor Fewer, but More Dangerous Microbe Types (9.12.2011)

One of the most comprehensive studies to date of the microbes that are found in extremely low-birthweight infants found that hard-to-treat *Candida* fungus is often present, as well as some harmful bacteria and parasites.

Researchers at the Duke University Medical Center and Nicholas School of the Environment looked at the microbes in 11 premature infants and found much less diversity than in full-term infants.

"The babies' guts were taken over by microbes we know are dangerous if they get into the blood," said senior author Patrick Seed, MD, PhD, assistant professor of pediatrics at Duke. "Even after the babies were no longer on antibiotics, healthier bacteria didn't appear in the babies very quickly. This may be one reason why premature babies are so vulnerable to infections."

All of the premature children were placed on antibiotic treatments after birth, which would wipe out some types of bacteria and yeast, but once they were off the antibiotics and taking food, the researchers expected to see more diversity of bacteria in the babies' developing digestive systems than they found.

The findings were published in PLoS One open-access journal on December 8, 2011.

Five infants had blood infections while three had necrotizing enterocolitis, an infection-related death of bowel tissue, said Seed, who is also with the Jean and George Brumley Jr. Neonatal-Perinatal Research Institute and the Duke Center for Microbial Pathogenesis.

Seed said that while the study babies were colonized mainly by organisms that were found in stool specimens, in some cases they also had infections with *Staphylococcus epidermidis*, a form of staph infection, that was abundant in many of the babies' digestive tracts.

The bacteria and yeast in the premature babies' digestive tracts are known causes of devastating infections in these babies. The gut seems to be a reservoir for some organisms that form infections, Seed said. Previous to this work, "we only knew the tip of the iceberg," he said.

The researchers used genomic (DNA) typing of the bacteria, fungi, and parasites to determine which types were present.

It's not clear if the newborns are picking up these early infections from their mother's milk, blood, or in other ways, or if the pathogens are from the environment surrounding the infants.

"It's important to know where these pathogens come from so that doctors can possibly manipulate the babies' environment or their digestive systems," Seed said. He noted that other studies had shown value for giving babies probiotic substances to tip the internal balance toward more favorable bacteria, necessary for immunity and better health.

Seed stressed that certain bacteria and other microbes are helpful for growing babies and their immune systems, so it is important not to do any damage by creating an antiseptic environment.

"It's a question of balance," Seed said. "As vulnerable as these babies are, we still wouldn't want to wipe out all of the bacteria, even all of the potentially harmful bacteria."

Other authors include Mariam LaTuga, Michael Cotton, Ronald Goldberg and James Wynn of Duke Department of Pediatrics; and Christopher Ellis and Robert Jackson of Duke's Nicholas School of the Environment (Jackson is also with the Biology Department and the Center on Global Change at Duke University).

This research was supported by a pilot grant from the Duke Institute for Genome Sciences & Policy, the Duke Department of Pediatrics -- Division of Perinatal-Neonatal Medicine, the Jean and George Brumley, Jr. Neonatal-Perinatal Research Network and the Center on Global Change, as well as support from the Gerber and Hartwell Foundations.

Tiniest babies

World's tiniest babies growing up healthy (The Tribune: 14.12.2011)

Washington: The world's smallest surviving babies, who were born as tiny as an iPhone, are growing up and doing fine with normal motor and language development, physicians have revealed. In 1989, Madeline Mann became the world's smallest surviving baby after she was born at Loyola University Medical Centre weighing just 280 g. Later Rumaisa Rahmam set a new Guinness World Record in 2004 after she was born at Loyola, weighing 260 g. Now, Loyola physicians have revealed that both Madeline and Rumaisa have normal motor and language development. Rumaisa, 7, is a first grader and Madeline, 22, is an honours student at Augustana College in Rock Island, Il. But they both remain small for their ages.

Breastfeeding

Breastfeeding cuts baby's risk of obesity, diabetes' (The Times of India: 23.12.2011)

To-be-moms please note: Breastfeeding not only promotes healthy growth of children, but could also help reduce their risk of developing diabetes and becoming obese later in life, a new study has claimed. Researchers at the Faculty of Life Sciences at Copenhagen University in Denmark found that breastfed babies follow a different growth pattern to those who drink formula milk and have significant future health benefits.

TWO-IN-ONE: A two-headed boy was born to a Brazilian woman on Monday. Doctors said they were unsure whether they can operate on him as he shares one heart, lungs, liver and pelvis.

Breastfeeding

Breastfeeding cuts blood pressure risk in women (The Times of India: 27.12.2011)

London: To-be-moms please take note: Mothers who exclusively breastfeed their babies for at least six months can lower their risk of developing high blood pressure later in life by a quarter, a new study has claimed.

Researchers at the University of North Carolina in the US found that women who gave their babies formula or breastfed for less than three months were almost a quarter more likely to develop blood pressure problems.

The study involving nearly 56,000 women with at least one child concluded that mothers who breastfed for at least six months were less likely to develop hypertension over a 14 year period than those who bottle fed.

The research, published in the American Journal of Epidemiology, estimated that up to 12% of high blood pressure cases among women with children could be linked to “suboptimal” breastfeeding.

While the findings do not prove breastfeeding was behind healthier blood pressure, the researchers said it added to evidence that it was good for both mothers and babies. PTI

Child health

Kids who hate their mums likely to become obese (world Newspapers: 30.12.2011)

The quality of the emotional relationship between a mother and her child could affect the potential for that kid to be obese during adolescence, a new study has suggested.

Researchers from Ohio State University analysed data from 977 participants in the Study of Early Child Care and Youth Development, a project of the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

The sample in this national study included diverse families living in nine US states whose children were born in 1991.

As part of that national study, trained observers assessed child attachment security and maternal sensitivity by documenting interactions between mothers and their children at three time points—when the children were 15, 24 and 36 months old.

In the maternal sensitivity assessment, mothers were instructed to play with their child while investigators rated several aspects of each mother’s behaviour, including supportiveness and respect for autonomy as well as signs of intrusiveness or hostility.

Investigators rated attachment security of the children at age 15 and 36 months by monitoring a child’s separation from and reunion with the mother. At 24 months, researchers assessed children’s attachment security by observing mothers and children in their home.

Using these assessments of maternal sensitivity and child attachment security, Sarah Anderson and her colleagues developed a maternal-child relationship quality score for their own statistical analysis.

With a range of zero to six, the score served as an aggregate measure of a child's early relationship experience, each point reflected a child's display of insecure attachment or a mother's ranking in the lowest quartile of sensitivity at one of the three assessment time points.

The researchers designated a score equal to or greater than three as indicating a poor-quality emotional relationship.

They calculated the body mass index (BMI) of the children using their heights and weights measured at or near age 15 years. BMIs were converted into percentiles for age and sex based on growth charts developed by the Centers for Disease Control and Prevention. In accordance with current guidelines, children were considered obese if their BMI scores were at or above the 95th percentile on those charts.

A total of 241 children, or 24.7%, were classified as having a poor quality maternal-child relationship during early childhood based on a score of three or higher. The prevalence of obesity in adolescence was 26.1% among these children with the poorest early maternal-child relationships.

The teen obesity prevalence was lower for children with better maternal relationships—15.5%, 12.1% and 13% among those who had scores of two, one and zero.

The researchers suggest that this association between early childhood experiences and teen obesity has origins in the brain. The limbic system in the brain controls responses to stress as well as the sleep and wake cycle, hunger and thirst, and a variety of metabolic processes, mostly through the regulation of hormones.

"Sensitive parenting increases the likelihood that a child will have a secure pattern of attachment and develop a healthy response to stress," Anderson, the lead author, said.

"A well-regulated stress response could in turn influence how well children sleep and whether they eat in response to emotional distress—just two factors that affect the likelihood for obesity," she said.

Obesity may be one manifestation of dysregulation in the functioning of the stress response system. Parents help children develop a healthy response to stress by protecting children from extreme levels of stress, responding supportively and consistently to normal levels of stress, and modelling behavioural responses to stress.

"The evidence here is supportive of the association between a poor-quality maternal-child relationship and an increased chance for adolescent obesity.

“Interventions are effective in increasing maternal sensitivity and enhancing young children’s ability to regulate their emotions, but the effect of these interventions on children’s obesity risk is not known, and we think it would be worth investigating,” she added.

Medical Education

3.5yr med course

Azad pushes for 3.5yr med course (The Times of India: 1.11.2011)

New Delhi: The 3.5-year shortterm medical course, which aims to raise a new cadre of health workers who will exclusively serve in rural and backward areas, is all set to become a reality.

On October 19, Union health minister Ghulam Nabi Azad gave the Medical Council of India (MCI) a three-week deadline to endorse the course, failing which the ministry will issue a directive to MCI to recognize and roll out the course. Azad told TOI that the course enjoys the backing of all state governments, and blamed an apathetic MCI for tardiness.

“We have made up our mind to introduce the Bachelor of Rural Medicine (BRM) degree. Sometimes the MCI gets influenced by its own fraternity. With doctors unwilling to serve in rural areas, even after being given incentives, we are left with no choice but to introduce a new cadre of health workers,” Azad told TOI. He added “We want an MCI stamp on the degree to make it universally recognized. The syllabus is ready and it is need based. If MCI endorses it, students will get the confidence that the degree has a standing. If MCI does not agree, we will send them a directive that it has to adhere to.” Union health secretary P K Pradhan said, “The degree-holders will be rural public health officers and will look after primary and preventive healthcare.”

Medical education

Medical education blues (The Tribune: 23.12.2011)

Common entrance test a non-starter

WHAT the Medical Council of India (MCI) announced with a bang, has ended up as a whimper. The ambitious plan to hold a common entrance test for MBBS, which was scheduled in a hurry for May 2012, will have to wait for a while. For, the government agencies and institutions like AIIMS (All-India Institute of Medical Science) expected to conduct the test have expressed their inability to do so due to lack of time for preparation. As a result, both NEET (National Eligibility-cum-Entrance Test) for both undergraduate medical courses as well as for postgraduate courses have been deferred.

The well-meaning plans of the MCI began by preparing a roadmap to meet the urgent demand for more medical colleges and to plug the deficit of faculty in medical colleges, that is reported to range from 25 to 33 per cent, according to its own report. To plug this, the government announced plans to create an additional 7000 MD seats to tide over the crisis of faculty shortage by 2014. Then came the proposal to introduce a common MBBS entrance test. In a notification filed in 2010, the MCI had announced the common tests would be conducted from the academic year 2012.

With the benefit of hindsight, it can be said that the MCI needed to do its home-work well before embarking upon such bold plans. To begin with, a nationwide common entrance test would require mega-scale logistics to be in place, as also a well-thought-out curriculum, which would do justice to aspirants from all states, without compromising on the demands of this profession. The reality is that for the tests to be conducted in May 2012, the MCI unloaded the course content only in Nov 2011. This caused many states to protest on grounds that students required more time to prepare for the new examination system. Rightly so, the apex court has rapped the Central government, which, despite cautions raised by several quarters, had assured that the NEET could be implemented in 2012. Their callousness has further slowed down the speed required for improvement in the medical education sector.

Medical education: (The Hindu: 26.12.2011)

Gujarat to add 1,350 medical seats in the next 3 years (The Hindu: 26.12.2011)

The Gujarat government has planned to add 450 medical seats every year in the next three years, Health Minister Jaynarayan Vyas announced here on Sunday.

Claiming that Gujarat was racing ahead of other States in the country, he said that by 2022, when India was expected to have one medical college for every 25 lakh population, Gujarat would have in place one medical college for every 15 lakh people in the State.

Mr. Vyas was speaking at a function organised to celebrate the beginning of the silver jubilee year of the Pramukhswami Medical College at Karamsad.

At the same function, Chief Minister Narendra Modi laid the foundation stone for the Ramanbhai Gokal Privilege Centre, an extension of the medical facilities being provided at the Shree Krishna Hospital. Once operational, the centre with state-of-the-art infrastructure would cater for the needs of patients from rural areas at an affordable price and the income generated by it would be used for providing subsidy to poor patients at the Shree Krishna Hospital.

The Pramukhswami College was the first private medical college in the State and perhaps first in the country with base in rural areas. Mr. Modi said the State government was committed to laying equal emphasis on preventive healthcare as much as medical care as part of the State's policy for "a healthy Gujarat." He claimed that several welfare schemes of the State government, including measures for providing clean drinking water and proactive steps to curb pollution, had given Gujarat an edge over other States in terms of public health and family welfare.

Outlining the State's medical education programme, Mr. Vyas said as per present projections, India would need about 6.5 lakh doctors and about 12.5 lakh trained nurses by the year 2025 to meet the demand for skilled medical and para-medical professionals. He said Gujarat was chalking out plans to achieve the goal with focus on quality education and training. He also stressed the need for medical colleges to introduce continuing education and training programmes for doctors and para-medics to keep themselves abreast of the latest advancements in medical technology and procedures.

Keywords: Medical seats, Jaynarayan Vyas, medical education

Mental Health

Mental therapy

Parents sending inter-caste lovers for mental therapy (The Times of India: 10.10.2011)

Falling in love outside one's community does not figure anywhere in the Diagnostic and Statistical Manual of Mental Disorders. Yet, a growing number of parents are sending their children — both adults and adolescents — to psychiatrists in a bid to “cure” them of this “affliction”. Some parents in metropolitan cities have their own style of being prejudiced. They don't kill their kids, only beat them up or treat them as if they were mentally ill.

Psychiatrists themselves have come under fire from irate parents. When Dr Harish Shetty, president of the Counsellors' Association of India, helped a Muslim girl escape from parents who were preventing her from marrying a Hindu, the girl's mother threatened to kill Shetty. He had to file a police complaint to seek protection.

“There are instances when parents have brutally beaten a girl for falling in love outside her community and have even threatened the boy's family with dire consequences if he didn't leave their daughter . After the violence, they seek psychiatric help to legitimize their actions,” says Shetty.

One of the worst instances he has dealt with involved a girl from an upper-caste Brahmin household who was branded with iron rods and beaten by her uncles for falling in love outside the community.

The parents of a young man working in the infotech industry in London once tried to persuade city psychiatrist Dr Dayal Mirchandani to fly with them to London and hypnotize their son into falling out of love with his foreigner girlfriend and returning to India. Recently, a father wanted his daughter locked up in a psychiatric ward for a few months in the hope that her lover would forget about her in that time. Antagonism towards mixed marriages cuts across community lines, with Hindus, Muslims, Parsis and Christians dragging their ‘errant’ children to counsellors.

Psychiatrists say that highly educated parents, who neither physically nor mentally abuse their children, can try to bombard the young with ‘logical’ reasons for why they should not marry outside the community. They weave in a network of family, friends and neighbours to convince the child. They also want mental health professionals to be part of this network.

However, instead of following the parents' instructions to talk youngsters out of their feelings, many psychiatrists say they instead give the children strength to deal with the crises their families have created. Psychiatrist Dr Anjali Chhabria recently counselled the mother of a girl who had, in the past, been in three relationships with boys from another religion. "The mother felt the religion which the boys belonged to was 'inferior'. She could not understand why her daughter was 'selling herself short' when there were so many boys to choose from within the community," says Chhabria

Mirchandani feels that with increasing globalization, youngsters from different parts of the world get a chance to meet each other.

Mental illness

1 in 5 kids has mental illness' (The Times of India: 17.10.2011)

Only 1 In 50 Gets Treatment In India While Ratio Is 1:3 In West: Study

One in 5 children in developing countries like India has a mental health problem. Globally, mental health problems affect 10–20% of children and adolescents. However, while 1 in 3 people with a mental health problem in wealthy nations receive treatment, in developing countries, it is as few as 1 in 50.

One of the main reasons for this is that there is an overall shortage of 2.39 lakh mental health workers (17.3 workers per one lakh population in low-income countries and 14.9 per lakh population in middle-income countries). For young people, neuropsychiatric disorders are a leading cause of health-related burden, accounting for 15–30% of the disability-adjusted life-years (DALYs) lost during the first three decades of life.

Children and adolescents constitute almost a third (2.2 billion individuals) of the world's population and almost 90% live in low-income and middle-income countries (LMIC), where they form up to 50% of the population. These are some of the findings of the four studies on mental health to be published in the Lancet on Monday.

Only 10% of trials of mental health interventions come from LMIC, and most of these are for drug-based interventions not psychosocial strategies.

Dr Vikram Patel, lead editor of the Lancet series and professor at the London School of Hygiene and Tropical Medicine, UK told TOI from Cape Town, "The main problem in countries like India is that services for mental health are fragmented and are being provided by different organisations. There is no real connection between the services. Shortage of skilled human resources particularly specialists besides lack of good leadership is a major problem."

According to Dr Patel, despite their relevance as a leading cause of health-related disability in the age group and their long-lasting effects throughout life, the mental health needs of children and adolescents are neglected, especially in low-income and middle-income countries.

Progress is hampered by lack of government policy, inadequate funding and a dearth of trained clinicians. That less than a third of countries have an entity in charge of mental health programmes for children and adolescents illustrates the chronic neglect in this area.

A survey of 87 mostly developing countries has, encouragingly, shown some improvement in awareness of mental health issues among leaders during the past three years, with more than half of respondents reporting “more” or “much more” awareness. Many countries are also updating their mental health policy or legislation.

Yet, about 40% of respondents, from 26 (44%) of the countries surveyed, identified continuing poor awareness and low priority or poor commitment by political leaders as major barriers to development of mental health services.

Mental illness

Mental illness in developing nations: many kids, little care (the Indian Express: 18.10.2011)

Up to 1 in 5 children in developing countries have a mental health problem, yet treatment is woefully inadequate, says a new series on global mental health launched by The Lancet on Monday. Lead editor Dr Vikram Patel told The Indian Express from Cape Town that mental health problems affect 10-20 per cent of children and adolescents worldwide.

The authors, who include Prof Atif Rahman of the University of Liverpool, say that only 10 per cent of trials of mental health interventions come from low and middle-income countries, though children and adolescents form half the population in these countries. Most of these interventions are drug-based and not psychosocial strategies. Progress is hampered by lack of government policy, inadequate funding, and a dearth of trained clinicians, the study says.

How do we scale up mental health care, Patel asks, when as few as one in 50 people with mental health problems have access to treatment in developing countries, compared with one in three in wealthy nations.

He says India is woefully short of psychiatrists, with just 4,000 of them. A district mental health programme is in place in only 123 of 640 districts, with total coverage anticipated only by 2017. Even then, there will be insufficient psychiatrists, says Patel.

The national mental health programme too lacks guidance and leadership, he says. No mental health policy existed before the programme, and the 1987 Mental Health Act has been largely non-functional. Experts have identified apathy, an absence of leadership, and issues of political power as barriers.

Evidence on the number of mental health workers comes from WHO's 2011 Mental Health Atlas on 183 nations, covering 99 per cent of the world's population. Globally, psychiatrists form the second largest workforce in the mental health system, after nurses. The population-based median for psychiatrists varies 172 times between high-income and low-income countries, with the former showing faster growth too. The atlas estimates a shortage of 1.18 million mental health workers for all 144 countries of low and middle income.

The Lancet Series on Global Mental Health 2011 follows up on a set of papers published in 2007. It tracks progress over the past four years, with updates to provide a resource for health workers and policymakers, Patel says.

Psychological health

Turmoil in Kashmir takes toll on psychological health: Study (The Tribune: 31.10.2011)

The 20-year turmoil in Kashmir has led to an increase in psychological problems among the populace as traditional mechanisms of mental care have deteriorated due to the conflict, an NGO report has claimed.

“Conflict situation in Kashmir led to an increase in psychological problems... traditional mechanisms of care crumbled in various ways, mosques got closed for sheltering everyone, including persons facing psychological problems, (and) health care system faced paucity of manpower,” a report released yesterday by ActionAid International-India said.

A sense of insecurity, exposure to sufferings, abuses, instigation to and participation in violence, a choked atmosphere that blocks avenues of expression, humiliation and torture, were some of the reasons cited by the report for the increase in psychological problems in Kashmir.

Among other causes were death of those in proximity, rape, feeling for revenge, tragedies, the breaking down of family structures, all of which were consequences of conflict situations, it said.

The care that existed here in the form of mental institutions became inaccessible on account of “hazards involved in travel and stay in Srinagar”. “On top of it psychologically disordered persons became vulnerable targets in encounters,” it alleged.

Also, the Mental Health Act of 1987 makes it obligatory for the state to create a mechanism for licensing and monitoring mental health care facilities, the report said.

“The state has created such an authority but it remains non-functional as there are no recognised mental health care facilities in the private state sector... whatever exists is unlicensed as no licence has ever been issued by the authority," the report claimed.

The mental health facilities are expected to be monitored by the Mental Health Authority, but there is no such monitoring, it said.

“There is a high incidence of psychiatric disorders among those who are in jails and other detention centres. The reason for high incidence of persons with psychological disorders in jails can have two reasons -- either the ones getting involved in crimes suffer from psychological disorders, or these disorders overtake them once they are lodged in jails,” it said.

The prime reason for non-adherence to mental health care standards is unfamiliarity of those who are in this job with their responsibilities, it said.

“For this purpose, the study suggests creation of a mental health manual so that everyone involved in mental health care is familiar with his assignments and responsibilities,” it said.

Spirituality

Spirituality helps cure illness (The Times of India: 31.10.2011)

Washington: Saints and religious gurus have been saying this since ages, now a new study has reinforced their idea that spirituality improves health outcomes for both men and women facing chronic illnesses.

Researchers at the University of Missouri in the US found that being involved in religious or spiritual activities improves women’s mental health, while men experience better physical health as well as improved mental health. “The new findings reinforce the idea that religion or spirituality may help buffer the negative consequences of chronic health conditions,” study author Stephanie Reid-Arndt said.

Numerous previous studies have shown the positive effects of spirituality and religion on health. To delve deeper into the religion-health link, Reid-Arndt and her colleagues

looked at the role of gender in using spirituality to cope with their chronic health conditions such as stroke, cancer, spinal cord injury or brain injury. For their study the researchers recruited 168 people, aged 18 and more, from an academic health center who had chronic health conditions.

After gauging each participant's level of religiousness or spirituality, the researchers measured their general mental and physical health by asking them to fill out questionnaires. Though women are stereotypically regarded as more religious than men, the researchers found no differences between two sexes in terms of self-reported levels of spiritual experiences, religious practices or congregational support. PTI

Child's mental health

Parents, society play crucial role in child's mental health (World Newspapers: 18.11.2011)

The government has an important role in improving the mental health of children and adolescents. But the problem is neither the government nor society is able to create an environment that will ensure the best mental growth for children in general and mentally-challenged children in particular, additional chief secretary K Jairaj has said. He was talking at the inauguration of the national conference of Indian Association for Children and Adolescent Mental Health (IACAM) at the St John's National Academy of Health Sciences on Thursday.

The government can ensure financial grant for every child, Jairaj said. "But to understand the role of the government and society in improving the mental health of children, IACAM should provide an action plan to ensure that every child gets access to healthy mental environment," he added.

Rev Fr Dr Lawrence D'souza, director, St John's National Academy of Health Sciences, said: "When parents become partners in upbringing a child, the growth of the child can be manifested. Thus, instead of individually trying to play their part in bringing up a child, parents should try to join hands in the whole process. This will be of benefit to the child."

There are various therapies available that can help differently-abled children to cope with the situation. However, involvement of parents is vital since parents need to understand well, when and how to intervene to help their children, said Manju Mehta, president, IACAM.

Speaking about the various psychological therapies available for intervention and prevention of mental disorders, especially among children, she said: "Various types of therapies in practice include behavioural modification, play therapy, cognitive behaviour therapy, psycho-education and family therapy. And for different types of behavioural disorders, different types of therapies are practised."

The national conference will conclude on Saturday and the theme is 'Parents: Parenting and Partnering'.

Psychiatric Disorders

Psychiatric Disorders in Women may not affect Cancer Diagnosis (Med India: 25.11.2011)

It is believed that Psychiatric disorders could be a hindrance to timely medical care among vulnerable populations

Earlier studies had shown that women victims of psychiatric disorders were less likely to receive cancer screening and may also experience delays in diagnostic resolution following an abnormal mammogram and/or pap test.

A new investigation looked into whether pre-existing depression may actually make a difference to the time taken to diagnostically resolve an abnormal mammogram and/or Pap test.

Researchers from Boston University School of Medicine (BUSM) found that depression and anxiety in a vulnerable population of urban women was not connected to delays in diagnostic resolution.

"Although we found delays in diagnostic resolution after abnormal cancer screening, women with a depression diagnosis did not have increased delays compared to those who were not depressed," said lead author Andrea Kronman.

Psychopathy

Psychopathy: A Misunderstood Personality Disorder (Science Daily: 8.12.2011)

Psychopathic personalities are some of the most memorable characters portrayed in popular media today. These characters, like Patrick Bateman from American Psycho, Frank Abagnale Jr. from Catch Me If You Can and Alex from A Clockwork Orange, are typically depicted as charming, intriguing, dishonest, guiltless, and in some cases, downright terrifying. But scientific research suggests that psychopathy is a personality disorder that is widely misunderstood.

"Psychopathy tends to be used as a label for people we do not like, cannot understand, or construe as evil," notes Jennifer Skeem, Professor of Psychology and Social Behavior at the University of California, Irvine. Skeem, Devon Polaschek of Victoria University of Wellington, Christopher Patrick of Florida State University, and Scott Lilienfeld of Emory University are the authors of a new monograph focused on understanding the psychopathic personality that will appear in the December issue of *Psychological Science in the Public Interest*, a journal of the Association for Psychological Science.

In the course of their research, the authors reviewed many scientific findings that seemed to contradict one another. "Psychopathy has long been assumed to be a single personality disorder. However, there is increasing evidence that it is a confluence of several different personality traits," Skeem says. The authors of the monograph argue that rather than being "one thing" as often assumed, psychopathy appears to be a complex, multifaceted condition marked by blends of personality traits reflecting differing levels of disinhibition, boldness, and meanness. And scientific findings also suggest that a sizable subgroup of juvenile and adult offenders labeled as psychopathic are actually more emotionally disturbed than emotionally detached, showing signs of anxiety and dysphoria.

According to Skeem, these important distinctions have long escaped the attention of psychologists and policy-makers. As a result, she and her co-authors set about to try to dispel some of the myths and assumptions that people often make about psychopathy. Although many people might assume that psychopaths are 'born,' not 'made,' the authors stress that psychopathy is not just a matter of genes -- it appears to have multiple constitutional causes that can be shaped by environmental factors. Many psychologists also assume that psychopathy is inalterable -- once a psychopath, always a psychopath. However, there is currently scant scientific evidence to support this claim. Recent empirical work suggests that youth and adults with high scores on measures of psychopathy can show reduced violent and other criminal behavior after intensive treatment.

Along with challenging the assumption that psychopathy is a monolithic entity, perhaps the other most important myth that the authors hope to dispel is that psychopathy is synonymous with violence. Skeem points out that psychopathic individuals often have no history of violent behaviour or criminal convictions. "Psychopathy cannot be equated with extreme violence or serial killing. In fact, "psychopaths" do not appear different in kind from other people, or inalterably dangerous," she observes. Nor is it clear that psychopathy predicts violence much better than a past history of violent and other criminal behavior -- or general antisocial traits.

Effectively dispelling these myths is important, the authors argue, because accurate policy recommendations hinge on which personality traits -- and which groups of people -- associated with psychopathy one is examining. "Decisions about juvenile and adult offenders that are based on faulty assumptions about violence risk, etiology, and treatment amenability have adverse consequences, both for individual offenders and the public," Skeem says.

In clarifying the personality traits that characterize psychopathy, scientists can contribute to prevention and treatment strategies that improve public health and safety. "In short, research on psychopathy has evolved to a level that it can greatly improve on the current, 'one size fits all' policy approach," concludes Skeem.

Music Therapy

Sufi Singer Leads Music Therapy Initiative (Med India: 16.12.2011)

Fortis Hospitals in Noida have launched the city's first music therapy center with acclaimed Sufi singer, Zila Khan heading the initiative.

The Fortis Zila Khan Music Therapy Centre will be open on Saturdays with patients being made to listen to songs sung by Zila Khan and other singers.

Mrs Khan, who has extensively researched the therapeutic powers of music, said that a number of doctors support music therapy as a good mode of treatment.

Fortis Healthcare (North) director, Sukhmeet Singh Sandhu expressed his confidence that the music therapy center will make a contribution to the overall well being of the people in the region. "We believe that the Fortis Zila Khan Music Therapy Centre will contribute to the overall well being of our patients", he said.

Mental healthcare

Mental healthcare in dire straits (The Times of India: 22.12.2011)

India Has 77% Shortfall In Psychiatrists

New Delhi: With around 7% of India's population suffering from some form of mental disorder, the health ministry is now focusing on increasing the country's annual output of qualified mental health professionals.

Health minister Ghulam Nabi Azad on Wednesday said India has only 23% of the required psychiatrists and 25% of required psychiatric nurses. In view of this critical shortage, the ministry, under the National Mental Health Programme, has allocated Rs 470 crore for manpower development through 11 Institutions of Excellence across the country, which will help produce 1,756 qualified mental health professionals annually, Azad said.

The minister had earlier said that 20% of all patients seen by primary health care doctors had one or more mental disorders. One in four families is likely to have at least one member with a behavioral or mental disorder, he said.

However, lack of trained manpower to deal with mental health has been India's major shortcoming. There is a shortage of about 8,000 psychiatrists, 17,000 clinical psychologists, 23,000 psychiatric social workers and 9,000 psychiatric nurses. As against 30,000 beds required for the mentally ill, there are only about 200 beds at present.

A ministry official told TOI that the centres of excellence in mental health would add 44 psychiatrists, 176 clinical psychologists, 176 psychiatric social workers and 220 psychiatric nurses annually.

A note prepared by the ministry said, "Seven per cent of the population suffers from mental disorders. Over 90% remain un-treated. There is less than one psychiatrist available for every four lakh population. The psychiatrist-population ratio is one for every million."

Under the 12th plan, the ministry is also planning on starting counselling services in colleges where a significant proportion of students have recognizable mental disorders in the form of depression, anxiety, somatoform disorders, adjustment disorders, personality disorders and alcohol and drug abuse. Around 29 state-run mental hospitals and 88 psychiatry wings in government colleges are also being upgraded.

By the year 2020, experts say, nearly 15% of the world's disease burden will be due to mental disorders.

Mental health

Mood swings that time of the month may be treatable (The Times of India: 26.12.2011)

Ladies, here's some good news! Your monthly mood swings could soon be treatable, claim scientists.

A team at Umea University in Sweden says that women who suffer from severe premenstrual syndrome (PMS) and mood swings once a month may soon be able to reduce the symptoms as it may be easily treatable.

Their research in to premenstrual syndrome showed the affliction was due to a hormone that occurs naturally in the body. But women suffer the physical and emotional symptoms of PMS depending on sensitivity to the allopregnanolone hormone. The hormone is released in the body after ovulation and during pregnancy, and when changes occur in the course of the menstrual cycle. Most women are more sensitive to the hormone immediately after menstruation, and less sensitive before.

However women who suffer severe symptoms of PMS experience the opposite — a high sensitivity before their period — that may mean they've less ability to adapt to hormonal variations. So, a high sensitivity to allopregnanolone before menstruation results in mood swings and heightened emotions before menstruation.

“Greater knowledge of the underlying mechanisms of pronounced PMS can ultimately provide clues for new methods of treatment.

Mental therapy

Parents sending inter-caste lovers for mental therapy (The Times of India: 10.10.2011)

Falling in love outside one's community does not figure anywhere in the Diagnostic and Statistical Manual of Mental Disorders. Yet, a growing number of parents are sending their children — both adults and adolescents — to psychiatrists in a bid to “cure” them of this “affliction”. Some parents in metropolitan cities have their own style of being prejudiced. They don't kill their kids, only beat them up or treat them as if they were mentally ill.

Psychiatrists themselves have come under fire from irate parents. When Dr Harish Shetty, president of the Counsellors' Association of India, helped a Muslim girl escape from parents who were preventing her from marrying a Hindu, the girl's mother threatened to kill Shetty. He had to file a police complaint to seek protection.

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The parents of a young man working in the infotech industry in London once tried to persuade city psychiatrist Dr Dayal Mirchandani to fly with them to London and hypnotize their son into falling out of love with his foreigner girlfriend and returning to India. Recently, a father wanted his daughter locked up in a psychiatric ward for a few months in the hope that her lover would forget about her in that time. Antagonism towards mixed marriages cuts across community lines, with Hindus, Muslims, Parsis and Christians dragging their ‘errant’ children to counsellors.

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However, instead of following the parents' instructions to talk youngsters out of their feelings, many psychiatrists say they instead give the children strength to deal with the crises their families have created. Psychiatrist Dr Anjali Chhabria recently counselled the mother of a girl who had, in the past, been in three relationships with boys from another religion. "The mother felt the religion which the boys belonged to was 'inferior'. She could not understand why her daughter was 'selling herself short' when there were so many boys to choose from within the community," says Chhabria

Mirchandani feels that with increasing globalization, youngsters from different parts of the world get a chance to meet each other.

Mental illness

1 in 5 kids has mental illnesses (The Times of India: 17.10.2011)

Only 1 In 50 Gets Treatment In India While Ratio Is 1:3 In West: Study

problem. Globally, mental health problems affect 10–20% of children and adolescents. However, while 1 in 3 people with a mental health problem in wealthy nations receive treatment, in developing countries, it is as few as 1 in 50.

One of the main reasons for this is that there is an overall shortage of 2.39 lakh mental health workers (17.3 workers per one lakh population in low-income countries and 14.9 per lakh population in middle-income countries). For young people, neuropsychiatric disorders are a leading cause of health-related burden, accounting for 15–30% of the disability-adjusted life-years (DALYs) lost during the first three decades of life.

Children and adolescents constitute almost a third (2.2 billion individuals) of the world's population and almost 90% live in low-income and middle-income countries (LMIC), where they form up to 50% of the population. These are some of the findings of the four studies on mental health to be published in the Lancet on Monday.

Only 10% of trials of mental health interventions come from LMIC, and most of these are for drug-based interventions not psychosocial strategies.

Dr Vikram Patel, lead editor of the Lancet series and professor at the London School of Hygiene and Tropical Medicine, UK told TOI from Cape Town, "The main problem in countries like India is that services for mental health are fragmented and are being

provided by different organisations. There is no real connection between the services. Shortage of skilled human resources particularly specialists besides lack of good leadership is a major problem.”

According to Dr Patel, despite their relevance as a leading cause of health-related disability in the age group and their long-lasting effects throughout life, the mental health needs of children and adolescents are neglected, especially in low-income and middle-income countries.

Progress is hampered by lack of government policy, inadequate funding and a dearth of trained clinicians. That less than a third of countries have an entity in charge of mental health programmes for children and adolescents illustrates the chronic neglect in this area.

A survey of 87 mostly developing countries has, encouragingly, shown some improvement in awareness of mental health issues among leaders during the past three years, with more than half of respondents reporting “more” or “much more” awareness. Many countries are also updating their mental health policy or legislation.

Yet, about 40% of respondents, from 26 (44%) of the countries surveyed, identified continuing poor awareness and low priority or poor commitment by political leaders as major barriers to development of mental health services.

Mental illness

Mental illness in developing nations: many kids, little care (the Indian Express: 18.10.2011)

Up to 1 in 5 children in developing countries have a mental health problem, yet treatment is woefully inadequate, says a new series on global mental health launched by The Lancet on Monday. Lead editor Dr Vikram Patel told The Indian Express from Cape Town that mental health problems affect 10-20 per cent of children and adolescents worldwide.

The authors, who include Prof Atif Rahman of the University of Liverpool, say that only 10 per cent of trials of mental health interventions come from low and middle-income countries, though children and adolescents form half the population in these countries. Most of these interventions are drug-based and not psychosocial strategies. Progress is hampered by lack of government policy, inadequate funding, and a dearth of trained clinicians, the study says.

How do we scale up mental health care, Patel asks, when as few as one in 50 people with mental health problems have access to treatment in developing countries, compared with one in three in wealthy nations.

He says India is woefully short of psychiatrists, with just 4,000 of them. A district mental health programme is in place in only 123 of 640 districts, with total coverage anticipated only by 2017. Even then, there will be insufficient psychiatrists, says Patel.

The national mental health programme too lacks guidance and leadership, he says. No mental health policy existed before the programme, and the 1987 Mental Health Act has been largely non-functional. Experts have identified apathy, an absence of leadership, and issues of political power as barriers.

Evidence on the number of mental health workers comes from WHO's 2011 Mental Health Atlas on 183 nations, covering 99 per cent of the world's population. Globally, psychiatrists form the second largest workforce in the mental health system, after nurses. The population-based median for psychiatrists varies 172 times between high-income and low-income countries, with the former showing faster growth too. The atlas estimates a shortage of 1.18 million mental health workers for all 144 countries of low and middle income.

The Lancet Series on Global Mental Health 2011 follows up on a set of papers published in 2007. It tracks progress over the past four years, with updates to provide a resource for health workers and policymakers, Patel says.

Psychological health

Turmoil in Kashmir takes toll on psychological health: Study (The Tribune: 31.10.2011)

The 20-year turmoil in Kashmir has led to an increase in psychological problems among the populace as traditional mechanisms of mental care have deteriorated due to the conflict, an NGO report has claimed.

“Conflict situation in Kashmir led to an increase in psychological problems... traditional mechanisms of care crumbled in various ways, mosques got closed for sheltering everyone, including persons facing psychological problems, (and) health care system faced paucity of manpower,” a report released yesterday by ActionAid International-India said.

A sense of insecurity, exposure to sufferings, abuses, instigation to and participation in violence, a choked atmosphere that blocks avenues of expression, humiliation and torture,

were some of the reasons cited by the report for the increase in psychological problems in Kashmir.

Among other causes were death of those in proximity, rape, feeling for revenge, tragedies, the breaking down of family structures, all of which were consequences of conflict situations, it said.

The care that existed here in the form of mental institutions became inaccessible on account of “hazards involved in travel and stay in Srinagar”. “On top of it psychologically disordered persons became vulnerable targets in encounters,” it alleged.

Also, the Mental Health Act of 1987 makes it obligatory for the state to create a mechanism for licensing and monitoring mental health care facilities, the report said.

“The state has created such an authority but it remains non-functional as there are no recognised mental health care facilities in the private state sector... whatever exists is unlicensed as no licence has ever been issued by the authority,” the report claimed.

The mental health facilities are expected to be monitored by the Mental Health Authority, but there is no such monitoring, it said.

“There is a high incidence of psychiatric disorders among those who are in jails and other detention centres. The reason for high incidence of persons with psychological disorders in jails can have two reasons -- either the ones getting involved in crimes suffer from psychological disorders, or these disorders overtake them once they are lodged in jails,” it said.

The prime reason for non-adherence to mental health care standards is unfamiliarity of those who are in this job with their responsibilities, it said.

“For this purpose, the study suggests creation of a mental health manual so that everyone involved in mental health care is familiar with his assignments and responsibilities,” it said. — PTI

Spirituality

Spirituality helps cure illness (The Times of India: 31.10.2011)

Saints and religious gurus have been saying this since ages, now a new study has reinforced their idea that spirituality improves health outcomes for both men and women facing chronic illnesses.

Researchers at the University of Missouri in the US found that being involved in religious or spiritual activities improves women's mental health, while men experience better physical health as well as improved mental health. "The new findings reinforce the idea that religion or spirituality may help buffer the negative consequences of chronic health conditions," study author Stephanie Reid-Arndt said.

Numerous previous studies have shown the positive effects of spirituality and religion on health. To delve deeper into the religion-health link, Reid-Arndt and her colleagues looked at the role of gender in using spirituality to cope with their chronic health conditions such as stroke, cancer, spinal cord injury or brain injury. For their study the researchers recruited 168 people, aged 18 and more, from an academic health center who had chronic health conditions.

After gauging each participant's level of religiousness or spirituality, the researchers measured their general mental and physical health by asking them to fill out questionnaires. Though women are stereotypically regarded as more religious than men, the researchers found no differences between two sexes in terms of self-reported levels of spiritual experiences, religious practices or congregational support. PTI

Child's mental health

Parents, society play crucial role in child's mental health (World Newspapers: 18.11.2011)

The government has an important role in improving the mental health of children and adolescents. But the problem is neither the government nor society is able to create an environment that will ensure the best mental growth for children in general and mentally-challenged children in particular, additional chief secretary K Jairaj has said. He was talking at the inauguration of the national conference of Indian Association for Children and Adolescent Mental Health (IACAM) at the St John's National Academy of Health Sciences on Thursday.

The government can ensure financial grant for every child, Jairaj said. "But to understand the role of the government and society in improving the mental health of children, IACAM should provide an action plan to ensure that every child gets access to healthy mental environment," he added.

Rev Fr Dr Lawrence D'souza, director, St John's National Academy of Health Sciences, said: "When parents become partners in upbringing a child, the growth of the child can be manifested. Thus, instead of individually trying to play their part in bringing up a child, parents should try to join hands in the whole process. This will be of benefit to the child."

There are various therapies available that can help differently-abled children to cope with the situation. However, involvement of parents is vital since parents need to understand

well, when and how to intervene to help their children, said Manju Mehta, president, IACAM.

Speaking about the various psychological therapies available for intervention and prevention of mental disorders, especially among children, she said: “Various types of therapies in practice include behavioural modification, play therapy, cognitive behaviour therapy, psycho-education and family therapy. And for different types of behavioural disorders, different types of therapies are practised.”

The national conference will conclude on Saturday and the theme is ‘Parents: Parenting and Partnering’.

Psychiatric Disorders

Psychiatric Disorders in Women may Not Affect Cancer Diagnosis(Med India: 25.11.2011)

It is believed that Psychiatric disorders could be a hindrance to timely medical care among vulnerable populations

Earlier studies had shown that women victims of psychiatric disorders were less likely to receive cancer screening and may also experience delays in diagnostic resolution following an abnormal mammogram and/or pap test.

A new investigation looked into whether pre-existing depression may actually make a difference to the time taken to diagnostically resolve an abnormal mammogram and/or Pap test.

Researchers from Boston University School of Medicine (BUSM) found that depression and anxiety in a vulnerable population of urban women was not connected to delays in diagnostic resolution.

“Although we found delays in diagnostic resolution after abnormal cancer screening, women with a depression diagnosis did not have increased delays compared to those who were not depressed,” said lead author Andrea Kronman.

Psychopathy

Psychopathy: A Misunderstood Personality Disorder (Science Daily: 8.12.2011)

Psychopathic personalities are some of the most memorable characters portrayed in popular media today. These characters, like Patrick Bateman from *American Psycho*, Frank Abagnale Jr. from *Catch Me If You Can* and Alex from *A Clockwork Orange*, are typically depicted as charming, intriguing, dishonest, guiltless, and in some cases, downright terrifying. But scientific research suggests that psychopathy is a personality disorder that is widely misunderstood.

"Psychopathy tends to be used as a label for people we do not like, cannot understand, or construe as evil," notes Jennifer Skeem, Professor of Psychology and Social Behavior at the University of California, Irvine. Skeem, Devon Polaschek of Victoria University of Wellington, Christopher Patrick of Florida State University, and Scott Lilienfeld of Emory University are the authors of a new monograph focused on understanding the psychopathic personality that will appear in the December issue of *Psychological Science in the Public Interest*, a journal of the Association for Psychological Science.

In the course of their research, the authors reviewed many scientific findings that seemed to contradict one another. "Psychopathy has long been assumed to be a single personality disorder. However, there is increasing evidence that it is a confluence of several different personality traits," Skeem says. The authors of the monograph argue that rather than being "one thing" as often assumed, psychopathy appears to be a complex, multifaceted condition marked by blends of personality traits reflecting differing levels of disinhibition, boldness, and meanness. And scientific findings also suggest that a sizable subgroup of juvenile and adult offenders labeled as psychopathic are actually more emotionally disturbed than emotionally detached, showing signs of anxiety and dysphoria.

According to Skeem, these important distinctions have long escaped the attention of psychologists and policy-makers. As a result, she and her co-authors set about to try to dispel some of the myths and assumptions that people often make about psychopathy. Although many people might assume that psychopaths are 'born,' not 'made,' the authors stress that psychopathy is not just a matter of genes -- it appears to have multiple constitutional causes that can be shaped by environmental factors. Many psychologists also assume that psychopathy is inalterable -- once a psychopath, always a psychopath. However, there is currently scant scientific evidence to support this claim. Recent empirical work suggests that youth and adults with high scores on measures of psychopathy can show reduced violent and other criminal behavior after intensive treatment.

Along with challenging the assumption that psychopathy is a monolithic entity, perhaps the other most important myth that the authors hope to dispel is that psychopathy is

synonymous with violence. Skeem points out that psychopathic individuals often have no history of violent behaviour or criminal convictions. "Psychopathy cannot be equated with extreme violence or serial killing. In fact, "psychopaths" do not appear different in kind from other people, or inalterably dangerous," she observes. Nor is it clear that psychopathy predicts violence much better than a past history of violent and other criminal behavior -- or general antisocial traits.

Effectively dispelling these myths is important, the authors argue, because accurate policy recommendations hinge on which personality traits -- and which groups of people associated with psychopathy one is examining. "Decisions about juvenile and adult offenders that are based on faulty assumptions about violence risk, etiology, and treatment amenability have adverse consequences, both for individual offenders and the public," Skeem says.

In clarifying the personality traits that characterize psychopathy, scientists can contribute to prevention and treatment strategies that improve public health and safety. "In short, research on psychopathy has evolved to a level that it can greatly improve on the current, 'one size fits all' policy approach," concludes Skeem.

Music Therapy

Sufi Singer Leads Music Therapy Initiative (Med India: 16.12.2011)

Fortis Hospitals in Noida have launched the city's first music therapy center with acclaimed Sufi singer, Zila Khan heading the initiative.

The Fortis Zila Khan Music Therapy Centre will be open on Saturdays with patients being made to listen to songs sung by Zila Khan and other singers.

Mrs Khan, who has extensively researched the therapeutic powers of music, said that a number of doctors support music therapy as a good mode of treatment.

Fortis Healthcare (North) director, Sukhmeet Singh Sandhu expressed his confidence that the music therapy center will make a contribution to the overall well being of the people in the region. "We believe that the Fortis Zila Khan Music Therapy Centre will contribute to the overall well being of our patients", he said.

Mental healthcare

Mental healthcare in dire straits (The Times of India: 22.12.2011)

India Has 77% Shortfall In Psychiatrists

With around 7% of India's population suffering from some form of mental disorder, the health ministry is now focusing on increasing the country's annual output of qualified mental health professionals.

Health minister Ghulam Nabi Azad on Wednesday said India has only 23% of the required psychiatrists and 25% of required psychiatric nurses. In view of this critical shortage, the ministry, under the National Mental Health Programme, has allocated Rs 470 crore for manpower development through 11 Institutions of Excellence across the country, which will help produce 1,756 qualified mental health professionals annually, Azad said.

The minister had earlier said that 20% of all patients seen by primary health care doctors had one or more mental disorders. One in four families is likely to have at least one member with a behavioral or mental disorder, he said.

However, lack of trained manpower to deal with mental health has been India's major shortcoming. There is a shortage of about 8,000 psychiatrists, 17,000 clinical psychologists, 23,000 psychiatric social workers and 9,000 psychiatric nurses. As against 30,000 beds required for the mentally ill, there are only about 200 beds at present.

A ministry official told TOI that the centres of excellence in mental health would add 44 psychiatrists, 176 clinical psychologists, 176 psychiatric social workers and 220 psychiatric nurses annually.

A note prepared by the ministry said, "Seven per cent of the population suffers from mental disorders. Over 90% remain un-treated. There is less than one psychiatrist available for every four lakh population. The psychiatrist-population ratio is one for every million."

Under the 12th plan, the ministry is also planning on starting counselling services in colleges where a significant proportion of students have recognizable mental disorders in the form of depression, anxiety, somatoform disorders, adjustment disorders, personality disorders and alcohol and drug abuse. Around 29 state-run mental hospitals and 88 psychiatry wings in government colleges are also being upgraded.

By the year 2020, experts say, nearly 15% of the world's disease burden will be due to mental disorders.

Mental health

Mood swings that time of the month may be treatable (The Times of India: 26.12.2011)

Ladies, here's some good news! Your monthly mood swings could soon be treatable, claim scientists.

A team at Umea University in Sweden says that women who suffer from severe premenstrual syndrome (PMS) and mood swings once a month may soon be able to reduce the symptoms as it may be easily treatable.

Their research in to premenstrual syndrome showed the affliction was due to a hormone that occurs naturally in the body. But women suffer the physical and emotional symptoms of PMS depending on sensitivity to the allopregnanolone hormone. The hormone is released in the body after ovulation and during pregnancy, and when changes occur in the course of the menstrual cycle. Most women are more sensitive to the hormone immediately after menstruation, and less sensitive before.

However women who suffer severe symptoms of PMS experience the opposite — a high sensitivity before their period — that may mean they've less ability to adapt to hormonal variations. So, a high sensitivity to allopregnanolone before menstruation results in mood swings and heightened emotions before menstruation.

“Greater knowledge of the underlying mechanisms of pronounced PMS can ultimately provide clues for new methods of treatment.”

Mental therapy

Parents sending inter-caste lovers for mental therapy (The Times of India: 10.10.2011)

Falling in love outside one's community does not figure anywhere in the Diagnostic and Statistical Manual of Mental Disorders. Yet, a growing number of parents are sending their children — both adults and adolescents — to psychiatrists in a bid to “cure” them of this “affliction”. Some parents in metropolitan cities have their own style of being prejudiced. They don't kill their kids, only beat them up or treat them as if they were mentally ill.

Psychiatrists themselves have come under fire from irate parents. When Dr Harish Shetty, president of the Counsellors' Association of India, helped a Muslim girl escape from parents who were preventing her from marrying a Hindu, the girl's mother threatened to kill Shetty. He had to file a police complaint to seek protection.

"There are instances when parents have brutally beaten a girl for falling in love outside her community and have even threatened the boy's family with dire consequences if he didn't leave their daughter. After the violence, they seek psychiatric help to legitimize their actions," says Shetty.

One of the worst instances he has dealt with involved a girl from an upper-caste Brahmin household who was branded with iron rods and beaten by her uncles for falling in love outside the community.

The parents of a young man working in the infotech industry in London once tried to persuade city psychiatrist Dr Dayal Mirchandani to fly with them to London and hypnotize their son into falling out of love with his foreigner girlfriend and returning to India. Recently, a father wanted his daughter locked up in a psychiatric ward for a few months in the hope that her lover would forget about her in that time. Antagonism towards mixed marriages cuts across community lines, with Hindus, Muslims, Parsis and Christians dragging their 'errant' children to counsellors.

Psychiatrists say that highly educated parents, who neither physically nor mentally abuse their children, can try to bombard the young with 'logical' reasons for why they should not marry outside the community. They weave in a network of family, friends and neighbours to convince the child. They also want mental health professionals to be part of this network.

However, instead of following the parents' instructions to talk youngsters out of their feelings, many psychiatrists say they instead give the children strength to deal with the crises their families have created. Psychiatrist Dr Anjali Chhabria recently counselled the mother of a girl who had, in the past, been in three relationships with boys from another religion. "The mother felt the religion which the boys belonged to was 'inferior'. She could not understand why her daughter was 'selling herself short' when there were so many boys to choose from within the community," says Chhabria.

Mirchandani feels that with increasing globalization, youngsters from different parts of the world get a chance to meet each other.

Mental illness

1 in 5 kids has mental illness' (The Times of India: 17.10.2011)

Only 1 In 50 Gets Treatment In India While Ratio Is 1:3 In West: Study

New Delhi: One in 5 children in developing countries like India has a mental health problem. Globally, mental health problems affect 10–20% of children and adolescents. However, while 1 in 3 people with a mental health problem in wealthy nations receive treatment, in developing countries, it is as few as 1 in 50.

One of the main reasons for this is that there is an overall shortage of 2.39 lakh mental health workers (17.3 workers per one lakh population in low-income countries and 14.9 per lakh population in middle-income countries). For young people, neuropsychiatric disorders are a leading cause of health-related burden, accounting for 15–30% of the disability-adjusted life-years (DALYs) lost during the first three decades of life.

Children and adolescents constitute almost a third (2.2 billion individuals) of the world's population and almost 90% live in low-income and middle-income countries (LMIC), where they form up to 50% of the population. These are some of the findings of the four studies on mental health to be published in the Lancet on Monday.

Only 10% of trials of mental health interventions come from LMIC, and most of these are for drug-based interventions not psychosocial strategies.

Dr Vikram Patel, lead editor of the Lancet series and professor at the London School of Hygiene and Tropical Medicine, UK told TOI from Cape Town, “The main problem in countries like India is that services for mental health are fragmented and are being provided by different organisations. There is no real connection between the services. Shortage of skilled human resources particularly specialists besides lack of good leadership is a major problem.”

According to Dr Patel, despite their relevance as a leading cause of health-related disability in the age group and their long-lasting effects throughout life, the mental health needs of children and adolescents are neglected, especially in low-income and middle-income countries.

Progress is hampered by lack of government policy, inadequate funding and a dearth of trained clinicians. That less than a third of countries have an entity in charge of mental health programmes for children and adolescents illustrates the chronic neglect in this area.

A survey of 87 mostly developing countries has, encouragingly, shown some improvement in awareness of mental health issues among leaders during the past three years, with more than half of respondents reporting “more” or “much more” awareness. Many countries are also updating their mental health policy or legislation.

Yet, about 40% of respondents, from 26 (44%) of the countries surveyed, identified continuing poor awareness and low priority or poor commitment by political leaders as major barriers to development of mental health services.

Mental illness

Mental illness in developing nations: many kids, little care (the Indian Express: 18.10.2011)

Up to 1 in 5 children in developing countries have a mental health problem, yet treatment is woefully inadequate, says a new series on global mental health launched by The Lancet on Monday. Lead editor Dr Vikram Patel told The Indian Express from Cape Town that mental health problems affect 10-20 per cent of children and adolescents worldwide.

The authors, who include Prof Atif Rahman of the University of Liverpool, say that only 10 per cent of trials of mental health interventions come from low and middle-income countries, though children and adolescents form half the population in these countries. Most of these interventions are drug-based and not psychosocial strategies. Progress is hampered by lack of government policy, inadequate funding, and a dearth of trained clinicians, the study says.

How do we scale up mental health care, Patel asks, when as few as one in 50 people with mental health problems have access to treatment in developing countries, compared with one in three in wealthy nations.

He says India is woefully short of psychiatrists, with just 4,000 of them. A district mental health programme is in place in only 123 of 640 districts, with total coverage anticipated only by 2017. Even then, there will be insufficient psychiatrists, says Patel.

The national mental health programme too lacks guidance and leadership, he says. No mental health policy existed before the programme, and the 1987 Mental Health Act has been largely non-functional. Experts have identified apathy, an absence of leadership, and issues of political power as barriers.

Evidence on the number of mental health workers comes from WHO's 2011 Mental Health Atlas on 183 nations, covering 99 per cent of the world's population. Globally, psychiatrists form the second largest workforce in the mental health system, after nurses. The population-based median for psychiatrists varies 172 times between high-income and low-income countries, with the former showing faster growth too. The atlas estimates a shortage of 1.18 million mental health workers for all 144 countries of low and middle income.

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Psychological health

Turmoil in Kashmir takes toll on psychological health: Study (The Tribune: 31.10.2011)

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A sense of insecurity, exposure to sufferings, abuses, instigation to and participation in violence, a choked atmosphere that blocks avenues of expression, humiliation and torture, were some of the reasons cited by the report for the increase in psychological problems in Kashmir.

Among other causes were death of those in proximity, rape, feeling for revenge, tragedies, the breaking down of family structures, all of which were consequences of conflict situations, it said.

The care that existed here in the form of mental institutions became inaccessible on account of “hazards involved in travel and stay in Srinagar”. “On top of it psychologically disordered persons became vulnerable targets in encounters,” it alleged.

Also, the Mental Health Act of 1987 makes it obligatory for the state to create a mechanism for licensing and monitoring mental health care facilities, the report said.

“The state has created such an authority but it remains non-functional as there are no recognised mental health care facilities in the private state sector... whatever exists is unlicensed as no licence has ever been issued by the authority,” the report claimed.

The mental health facilities are expected to be monitored by the Mental Health Authority, but there is no such monitoring, it said.

“There is a high incidence of psychiatric disorders among those who are in jails and other detention centres. The reason for high incidence of persons with psychological disorders in jails can have two reasons -- either the ones getting involved in crimes suffer from psychological disorders, or these disorders overtake them once they are lodged in jails,” it said.

The prime reason for non-adherence to mental health care standards is unfamiliarity of those who are in this job with their responsibilities, it said.

“For this purpose, the study suggests creation of a mental health manual so that everyone involved in mental health care is familiar with his assignments and responsibilities,” it said. — PTI

Spirituality

Spirituality helps cure illness (The Times of India: 31.10.2011)

Saints and religious gurus have been saying this since ages, now a new study has reinforced their idea that spirituality improves health outcomes for both men and women facing chronic illnesses.

Researchers at the University of Missouri in the US found that being involved in religious or spiritual activities improves women’s mental health, while men experience better physical health as well as improved mental health. “The new findings reinforce the idea that religion or spirituality may help buffer the negative consequences of chronic health conditions,” study author Stephanie Reid-Arndt said.

Numerous previous studies have shown the positive effects of spirituality and religion on health. To delve deeper into the religion-health link, Reid-Arndt and her colleagues looked at the role of gender in using spirituality to cope with their chronic health conditions such as stroke, cancer, spinal cord injury or brain injury. For their study the researchers recruited 168 people, aged 18 and more, from an academic health center who had chronic health conditions.

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Child's mental health

Parents, society play crucial role in child's mental health (World Newspapers: 18.11.2011)

The government has an important role in improving the mental health of children and adolescents. But the problem is neither the government nor society is able to create an environment that will ensure the best mental growth for children in general and mentally-challenged children in particular, additional chief secretary K Jairaj has said. He was talking at the inauguration of the national conference of Indian Association for Children and Adolescent Mental Health (IACAM) at the St John's National Academy of Health Sciences on Thursday.

The government can ensure financial grant for every child, Jairaj said. "But to understand the role of the government and society in improving the mental health of children, IACAM should provide an action plan to ensure that every child gets access to healthy mental environment," he added.

Rev Fr Dr Lawrence D'souza, director, St John's National Academy of Health Sciences, said: "When parents become partners in upbringing a child, the growth of the child can be manifested. Thus, instead of individually trying to play their part in bringing up a child, parents should try to join hands in the whole process. This will be of benefit to the child."

There are various therapies available that can help differently-abled children to cope with the situation. However, involvement of parents is vital since parents need to understand well, when and how to intervene to help their children, said Manju Mehta, president, IACAM.

Speaking about the various psychological therapies available for intervention and prevention of mental disorders, especially among children, she said: "Various types of therapies in practice include behavioural modification, play therapy, cognitive behaviour therapy, psycho-education and family therapy. And for different types of behavioural disorders, different types of therapies are practised."

The national conference will conclude on Saturday and the theme is 'Parents: Parenting and Partnering'.

Psychiatric Disorders

Psychiatric Disorders in Women may Not Affect Cancer Diagnosis(Med India: 25.11.2011)

It is believed that Psychiatric disorders could be a hindrance to timely medical care among vulnerable populations

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Psychopathy: A Misunderstood Personality Disorder (Science Daily: 8.12.2011)

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"Psychopathy tends to be used as a label for people we do not like, cannot understand, or construe as evil," notes Jennifer Skeem, Professor of Psychology and Social Behavior at the University of California, Irvine. Skeem, Devon Polaschek of Victoria University of Wellington, Christopher Patrick of Florida State University, and Scott Lilienfeld of Emory University are the authors of a new monograph focused on understanding the

psychopathic personality that will appear in the December issue of *Psychological Science* in the Public Interest, a journal of the Association for Psychological Science.

In the course of their research, the authors reviewed many scientific findings that seemed to contradict one another. "Psychopathy has long been assumed to be a single personality disorder. However, there is increasing evidence that it is a confluence of several different personality traits," Skeem says. The authors of the monograph argue that rather than being "one thing" as often assumed, psychopathy appears to be a complex, multifaceted condition marked by blends of personality traits reflecting differing levels of disinhibition, boldness, and meanness. And scientific findings also suggest that a sizable subgroup of juvenile and adult offenders labeled as psychopathic are actually more emotionally disturbed than emotionally detached, showing signs of anxiety and dysphoria.

According to Skeem, these important distinctions have long escaped the attention of psychologists and policy-makers. As a result, she and her co-authors set about to try to dispel some of the myths and assumptions that people often make about psychopathy. Although many people might assume that psychopaths are 'born,' not 'made,' the authors stress that psychopathy is not just a matter of genes -- it appears to have multiple constitutional causes that can be shaped by environmental factors. Many psychologists also assume that psychopathy is inalterable -- once a psychopath, always a psychopath. However, there is currently scant scientific evidence to support this claim. Recent empirical work suggests that youth and adults with high scores on measures of psychopathy can show reduced violent and other criminal behavior after intensive treatment.

Along with challenging the assumption that psychopathy is a monolithic entity, perhaps the other most important myth that the authors hope to dispel is that psychopathy is synonymous with violence. Skeem points out that psychopathic individuals often have no history of violent behaviour or criminal convictions. "Psychopathy cannot be equated with extreme violence or serial killing. In fact, "psychopaths" do not appear different in kind from other people, or inalterably dangerous," she observes. Nor is it clear that psychopathy predicts violence much better than a past history of violent and other criminal behavior -- or general antisocial traits.

Effectively dispelling these myths is important, the authors argue, because accurate policy recommendations hinge on which personality traits -- and which groups of people -- associated with psychopathy one is examining. "Decisions about juvenile and adult offenders that are based on faulty assumptions about violence risk, etiology, and treatment amenability have adverse consequences, both for individual offenders and the public," Skeem says.

In clarifying the personality traits that characterize psychopathy, scientists can contribute to prevention and treatment strategies that improve public health and safety. "In short, research on psychopathy has evolved to a level that it can greatly improve on the current, 'one size fits all' policy approach," concludes Skeem.

Music Therapy

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Mental healthcare

Mental healthcare in dire straits (The Times of India: 22.12.2011)

India Has 77% Shortfall In Psychiatrists

New Delhi: With around 7% of India's population suffering from some form of mental disorder, the health ministry is now focusing on increasing the country's annual output of qualified mental health professionals.

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However, lack of trained manpower to deal with mental health has been India's major shortcoming. There is a shortage of about 8,000 psychiatrists, 17,000 clinical

psychologists, 23,000 psychiatric social workers and 9,000 psychiatric nurses. As against 30,000 beds required for the mentally ill, there are only about 200 beds at present.

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A note prepared by the ministry said, “Seven per cent of the population suffers from mental disorders. Over 90% remain un-treated. There is less than one psychiatrist available for every four lakh population. The psychiatrist-population ratio is one for every million.”

Under the 12th plan, the ministry is also planning on starting counselling services in colleges where a significant proportion of students have recognizable mental disorders in the form of depression, anxiety, somatoform disorders, adjustment disorders, personality disorders and alcohol and drug abuse. Around 29 state-run mental hospitals and 88 psychiatry wings in government colleges are also being upgraded.

By the year 2020, experts say, nearly 15% of the world’s disease burden will be due to mental disorders.

Mental health

Mood swings that time of the month may be treatable (The Times of India: 26.12.2011)

Ladies, here’s some good news! Your monthly mood swings could soon be treatable, claim scientists.

A team at Umea University in Sweden says that women who suffer from severe premenstrual syndrome (PMS) and mood swings once a month may soon be able to reduce the symptoms as it may be easily treatable.

Their research in to premenstrual syndrome showed the affliction was due to a hormone that occurs naturally in the body. But women suffer the physical and emotional symptoms of PMS depending on sensitivity to the allopregnanolone hormone. The hormone is released in the body after ovulation and during pregnancy, and when changes occur in the course of the menstrual cycle. Most women are more sensitive to the hormone immediately after menstruation, and less sensitive before.

However women who suffer severe symptoms of PMS experience the opposite — a high sensitivity before their period — that may mean they’ve less ability to adapt to hormonal variations. So, a high sensitivity to allopregnanolone before menstruation results in mood swings and heightened emotions before menstruation.

“Greater knowledge of the underlying mechanisms of pronounced PMS can ultimately provide clues for new methods of treatment.”

Obesity

Overweight

Overweight Mothers Increase Asthma Risk for Their Children, Study Finds (Science daily: 3.10.2011)

The children of mothers who overweight or obese when they become pregnant are more likely to have asthma or wheezing as teenagers, according to a team of researchers including Swatee Patel from the University of Greenwich.

A study published in the Journal of Epidemiology & Community Health found that there was an increased risk of 20 to 30 per cent, compared with women who have a healthy pre-pregnancy weight

Swatee Patel, Principal Lecturer in Statistics in the University of Greenwich's School of Health & Social Care, analysed data from almost 7,000 15 and 16-year-olds born in northern Finland.

The study also suggested that the heavier the women, the greater the risk of wheezing and asthma-like symptoms. Those with a history of allergies also have a much higher risk of their children having chest problems.

Swatee Patel says: "Our research has shown that overweight or obese women, who become pregnant are more likely to have children who suffer from asthma or wheeze in their teenage years. The heaviest mothers were 47 per cent more likely to have children with severe wheezing compared to normal weight mothers. Our findings suggest that being overweight may interfere with normal fetal development as a result of disrupted metabolic or hormonal activity. This could partly contribute towards the rising rates of chronic asthma suffered by children. These new findings add to a long list of damaging effects of obesity, not only in the mothers but in their children."

The mothers were questioned when they were 12 weeks pregnant about their lifestyle, social background, and educational achievements. Medical data on height and weight before pregnancy was also examined.

The study was carried out with colleagues from Imperial College London, and institutions in Finland including the National Public Health Institute, University of Oulu and the University Hospital of Oulu.

Fat and Figure (The Hindustan Times: 10.10.2011)

The good times aren't rolling for those with extra rolls on the waist, as the tastebuds are being taxed as if it's a sin to be fat? While most will say a resounding no (in these interesting times that we live in, I s s i one needs to be politically correct), there seems to be a sinister plot going around the world to tell fat people they are fat and need to shape up, but in a nice, roundabout way. So while the technique earlier was to say that fat people (doesn't it sound gross?) must exercise to shed some of their flab or eat non-fatty foods and more leafy stuff, nowadays it's done much more discreetly. But the message is the same: if you are fat, you will have to pay extra -and also be the butt of all kinds of medical experiments and theories.

Just as the festive (gorging) season is commencing, an Australian surgeon has been the first off the block: he has criticised the British government's focus on promoting exercise as a key to tackling obesity. The surgeon says that instead of exercising, fat people must eat less (now, tell us, is that easy?). Plus, who doesn't know the benefits of doing a couple of kilometres on the treadmill? And the Australian surgeon is not the only one telling fat people to shape up. Recently, the Danish government imposed a fat/sin tax on some food choices made by Danes, one of the world's healthiest people. From October 1, they targeted saturated fats from animals, such as butter, cream and meat. So that is the end of the tasty smorgasbord. Earlier, the Danish government had placed a high tariff on sugar and seven years ago, the country became the first nation to ban trans fats, which are commonly used in snacks and processed foods. There have been less discreet ways also: In 2009, an airline in the United States announced that they would tax overweight passengers.

However, in India, we are tolerant towards almost anything.

Ahead of the festive season, the government even keeps a strict watch on sugar and milk prices. Now isn't that something to celebrate? So what about some extra gulab jamuns after dinner tonight?

Fat

Does running make you fat? (The Tribune; 12.10.2011)

Many of us take up jogging to help lose weight. But the latest research shows it could have just the opposite effect. Sophie Morris, who ran a marathon and ended up heavier, explains why.

Not long ago, a friend called me on a Sunday morning, flushed with fresh air and pride after completing an early run. “I can already smell that lunchtime burger,” she reported. I wasn’t going to deny her the pleasure of a good burger. I probably had one lined up myself. But after jogging for 40 minutes, she would have burned off around 400 calories. Even if she cooked a burger herself at home, chose a healthy bun and passed on the butter and mayo, the minimum possible calorie intake would cancel out those she used up running. It’s much more likely, given the sort of treats we like to indulge in after exercise, that she went out and ordered a cheeseburger with fries on the side. The result being that she consumed far more calories than if she hadn’t gone running.

The idea that exercise, and running in particular, will lead to weight loss, is a common misconception. I have been running for years. Net weight loss: zero. When I ran a marathon, under the extremely naive apprehension I would cross the finish line looking like Paula Radcliffe, I put on weight. At the time, this seemed astonishing. In fact, it is quite common. This is partly because muscle is denser than fat. But there is also a more subtle connection. Getting up at 6am for long runs demands an increase in calorie intake. My response? Two breakfasts, minimum, and then protein-based snacks before and after runs. Ah yes, and the cake.

“It is possible to lose weight with dietary changes alone,” explains Laura Clark, a registered dietician with the British Dietetic Association, “but to lose weight just through exercising is very difficult.”

One pound of fat equates to 3,500 calories. You need a deficit of 500 calories a day to lose a pound, so rewarding yourself with a burger or a cake will automatically cancel out that deficit. The catch is that this is so easy to do. “It can take an hour to burn off 400 or 500 calories, and just two minutes to eat that,” says Clark.

Exercise has been found both to curb and stimulate hunger. Unfortunately, only very intense exercise will suppress appetite. A Loughborough University study found that vigorous exercise increases levels of peptide YY, an appetite-suppressing hormone, and reduces ghrelin, an appetite-stimulating hormone. But an hour later, the appetite will kick in again. Another study, from the University of Massachusetts, found that not only does exercise increase hunger, by increasing levels of insulin and leptin, both appetite-stimulating hormones, but that women are affected more than men.

It is important not to downplay the benefits of exercise. The part it plays in weight loss has been overstated, but it has a crucial role in most aspects of our physical health, in fighting disease and in moderating mental health. Even better, a morning jog will put a smile on your face.

Weight loss

Running and weight loss: the dos and don'ts (The Tribune; 12.10.2011)

Eat an hour-and-a-half before a run and have a healthy snack available for afterwards.

Mix up the intensity of your run. Running for 30 minutes with bursts of sprinting is better for fat burning, lean-muscle building and fitness than a 45-minute trudge.

Exercise followed by a treat is better for overall health than not exercising. But be aware of the calories burnt. Running for 40 minutes does not buy you two doughnuts – more like three or four oatcakes with hummus, 80g of dark chocolate or two eggs on slices of wholemeal toast.

Avoid isotonic drinks if you're exercising for less than 60 minutes. You don't need them because the carb reserve in muscles and the liver sustains us for an hour. Rehydrate with water instead.

Obesity

Pills to halt obesity come closer to reality (World Newspapers: 17.10.2011)

A breakthrough in understanding how obesity progresses, is providing clues for future treatments to tackle the epidemic.

In a study, researchers at Monash University in collaboration with colleagues in the United States, have revealed how resistance to the hormone leptin, a key causal component of obesity, develops.

Lead author Professor Tony Tiganis, of the Monash Obesity and Diabetes Institute and Monash University's Department of Biochemistry and Molecular Biology, said our bodies produce leptin in response to increasing fat deposits.

"Acting on a part of the brain called the hypothalamus, leptin instructs the body to increase energy expenditure and decrease food intake, and so helps us maintain a healthy body weight," said Professor Tiganis.

"The body's response to leptin is diminished in overweight and obese individuals, giving rise to the concept of 'leptin-resistance'. We've discovered more about how 'leptin-resistance' develops, providing new directions for research into possible treatments."

Two proteins are already known to inhibit leptin in the brain and Professor Tiganis' team have discovered a third. In mice, this third protein becomes more abundant with weight-gain, exacerbating leptin-resistance and hastening progression to morbid obesity.

The study showed that the three negative regulators of leptin take effect at different stages, shedding light on how obesity progresses.

“Drugs targeting one of the negative regulators are already in clinical trials for Type 2 Diabetes, however, our research shows that in terms of increasing leptin-sensitivity in obesity, targeting only one of these won't be enough. All three regulators might need to be switched off,” said Professor Tiganis.

Professor Tiganis said the more that is known about obesity, the better equipped scientists are to develop drugs to support good diet and exercise choices.

“Simply telling people to eat less and exercise more is not going to be sufficient to reverse the obesity trend. There is a pressing need to develop novel drugs that complement diet and exercise to both prevent and treat this disease,” said Professor Tiganis.

Obesity,

Obesity, dietary choices may pose threat for non-Hodgkin lymphoma (New Kerala: 25.10.2011)

Body weight in young adulthood and diet can trigger non-Hodgkin lymphoma in later life, a new study has suggested.

In previous analyses of the Nurses' Health Study at 14 years of follow-up, lead researcher Shumin Zhang, M.D., Sc.D., and colleagues reported positive associations with NHL for trans fat intake and inverse associations for vegetable intake.

To expand those findings, Bertrand and colleagues evaluated the association of obesity, specific types of dietary fats and fruits and vegetables with risk for NHL.

Researchers analyzed questionnaire responses from 47,541 men followed for 22 years in the Health Professionals' Follow-Up Study and 91,227 women followed for 28 years in the Nurses' Health Study.

Among the women, researchers confirmed 966 incident diagnoses of NHL through 2008, and among the men, they confirmed 566 cases through 2006.

"In analyses that controlled for age, race and other factors, we found that obesity in young adulthood (ages 18 to 21 years) was associated with risk for NHL later in life," Bertrand said.

"Men who were obese (body mass index [BMI] equal to or greater than 30) [in young adulthood] had a 64 percent higher risk for NHL compared with men who were lean, while obese women had a 19 percent higher risk."

Current BMI was also associated with risk for NHL in men but not in women.

Although total and specific dietary fats were not associated with NHL risk, findings also suggested that women who consumed the highest amounts of Trans fat in their diets had a nonstatistically significant increased risk for NHL overall.

"The results from this study, if confirmed in other studies, suggest that body weight and dietary choices may be potentially modifiable risk factors for NHL," Bertrand said.

The results were recently presented at the 10th AACR International Conference on Frontiers in Cancer Prevention Research.

Obesity hormone

Obesity hormone ups risk of osteoporosis, fractures (New Kerala: 3.11.2011)

The body's obesity hormones are linked to osteoporosis and an increased risk of fractures, a new study has said.

According to the researchers at the Sahlgrenska Academy at the University of Gothenburg, Sweden, adiponectin is linked to osteoporosis along with being an important cause of cardiovascular disease.

Through the research, Dan Mellstrom and his colleagues have shown that people with raised levels of adiponectin also have more fragile skeletons and more fractures, as well as reduced muscle strength and lower muscle mass, increasing the risk of fractures.

High adiponectin also seems to be related to increased functional ageing.

"High levels of adiponectin in the elderly seem to be associated with both reduced functioning of the musculature and a more fragile skeleton," Mellstrom said.

"This means a higher risk of fractures and falls, and also increased mortality," he added.

Obese adolescents

Obese adolescents benefit from high-dose vitamin D (New Kerala: 4.11.2011)

Providing obese adolescents with a high daily dose of vitamin D3 can be a safe and effective way of improving their vitamin D status.

Vitamin D3 deficiency is linked to a surprising number of other health conditions such as depression, back pain, cancer, both insulin resistance and pre-eclampsia during pregnancy, impaired immunity and macular degeneration.

"Obese adolescents face an increased risk for deficiency because they tend to absorb vitamin D in their fat stores, which prevents it from being utilised in their blood," said Catherine Peterson, associate professor of nutrition and exercise physiology who led the study at University of Missouri.

"We found that a daily dose of 4,000 IUs (international units) of vitamin D3, the maximum intake level set by the Institute of Medicine (IOM), is safe and effective at improving vitamin D status in obese adolescents," added Peterson, according to a university statement.

Vitamin D is obtained by eating certain foods, taking supplements and through sunlight exposure. It is essential for maintaining healthy bones, muscles, nerves and immunity. The IOM recently set new dietary reference intakes for vitamin D.

They recommend 600 IUs per day, with a tolerable upper intake of 4,000 IUs.

Based on the guidelines, it is important to determine the effects of a vitamin D dose that is equivalent to the upper limit, especially in understudied groups, such as obese adolescents, Peterson said.

Obese adolescents are only about half as efficient at using vitamin D as their lean counterparts.

"It takes 4,000 IUs to raise their vitamin D status within a sufficient range. This is much higher than the currently recommended daily amount for this age group. This indicates that physicians need to carefully evaluate the vitamin D status in their overweight and obese patients."

The findings were presented at the annual meeting of Experimental Biology.

Obesity epidemic

Seeds of obesity epidemic sown in babyhood (World Newspapers: 9.11.2011)

The growth charts that paediatricians use can predict a baby's probability of becoming obese later in life.

A population-based study by the Children's Hospital Boston and Harvard Medical School, funded by the Centres for Disease Control and Prevention, tracked more than 44,000 babies.

It found that those who rose two or more major percentiles in weight-for-length on their growth charts at any time before two years doubled their odds of obesity at five years and were nearly twice as likely to be obese at age 10.

Weight-for-length percentiles show how a baby's weight compares to that of other babies of the same length, the journal Archives of Paediatrics and Adolescent Medicine reports.

The study further found the highest prevalence of later obesity among babies who rose two or more weight-for-length percentiles before six months of age, or who were already in a high percentile at their first visit, according to a Children Hospital's statement.

The findings provide specific guidance to help paediatricians recognise when a baby is at true risk of becoming obese later in childhood, which may help stem the obesity epidemic in its earliest stages, says Elsie Taveras of Harvard medical School, who led the study.

"We shouldn't neglect these early gains and think that it's just baby fat, and that these children are going to grow out of it," says Taveras, also co-director of the Obesity Prevention Program at Harvard.

Child obese

Will your child be obese? Rapid growth holds clue (The Times of India: 9.11.2011)

Chicago: Researchers say there's a new way to tell if infants are likely to become obese later on: Check to see if they've passed two key milestones on doctors' growth charts by age 2.

Babies who grew that quickly face double the risk of being obese at age 5, compared with peers who grew more slowly, their study found. Rapid growers were also more

likely to be obese at age 10, and infants whose chart numbers climbed that much during their first 6 months faced the greatest risks.

That kind of rapid growth should be a red flag to doctors, and a sign to parents that babies might be overfed or spending too much time in strollers and not enough crawling around, said pediatrician Dr Elsie Taveras, the study's lead author and an obesity researcher at Harvard Medical School.

Contrary to the idea that chubby babies are the picture of health, the study bolsters evidence that "bigger is not better" in infants, she said.

But skeptics say not so fast. Babies often grow in spurts and flagging the speediest growers could lead to putting infants on diets — a bad idea that could backfire, said Dr Michelle Lampl, director of Emory University's Center for the Study of Human Health. AP

'Antibiotics for kids overprescribed'

Pediatricians in the US write more than 10 million unnecessary antibiotic prescriptions every year for conditions such as the flu and asthma, contributing to potentially dangerous drug resistance, a study said. Researchers looked at a sample of almost 65,000 outpatient visits by children under 18 during 2006 to 2008. In total, doctors prescribed an antibiotic at one in every five visits, with most dispensed for children with respiratory ailments. REUTERS

Overweight babies

Obese mums-to-be likelier to have overweight babies. (New Kerala: 21.11.2011)

Obese mothers develop a weight-regulating hormone defect that causes their children also to become overweight, a new study has claimed.

According to researchers at Guy's and St Thomas's Hospital in London, the hormone leptin, which controls the desire to eat, is overproduced in obese women and excess levels of the hormone can damage the weight-control gland in fetuses.

"This is a worrying prospect with growing obesity among women of child-bearing age," the Daily Express quoted Professor Lucilla Poston, the lead researcher as saying.

The proportion of pregnant women who are obese has more than doubled in the last 20 years from seven percent to 15 percent, and experts estimate more than 100,000 babies a year are at risk of death, deformity or serious health problems because of the surge.

Experts also believe that the dangers could be greatly reduced if obese women lose weight before becoming pregnant or modify their diet during pregnancy.

"This is a worrying prospect with growing obesity among women of child-bearing age," Poston said.

Obesity

Amino Acids Can Help Burn Calories (MedIndia: 30 Nov. 2011)

Amino acids stimulate the orexin cells that keep us awake and burn calories, it has been found. The discovery has implications for understanding obesity and sleep disorders.

The "orexin cells" secrete a stimulant called orexin/hypocretin in the brain. Reduced activity in these unique cells results in narcolepsy and has been linked to weight gain. Scientists at the University of Cambridge compared actions of different nutrients on orexin cells. They found that amino acids – nutrients found in proteins such as egg whites – stimulate orexin neurons much more than other nutrients.

"Sleep patterns, health, and body weight are intertwined. Shift work, as well as poor diet, can lead to obesity," said lead researcher Dr Denis Burdakov of the Department of Pharmacology and Institute of Metabolic Science. "Electrical impulses emitted by orexin cells stimulate wakefulness and tell the body to burn calories. We wondered whether dietary nutrients alter those impulses."

To explore this, the scientists highlighted the orexin cells (which are scarce and difficult to find) with genetically targeted fluorescence in mouse brains. They then introduced different nutrients, such as amino acid mixtures similar to egg whites, while tracking orexin cell impulses.

They discovered that amino acids stimulate orexin cells. Previous work by the group found that glucose blocks orexin cells (which was cited as a reason for after-meal sleepiness), and so the researchers also looked at interactions between sugar and protein. They found that amino acids stop glucose from blocking orexin cells (in other words, protein negated the effects of sugar on the cells).

These findings may shed light on previously unexplained observations showing that protein meals can make people feel less calm and more alert than carbohydrate meals.

"What is exciting is to have a rational way to 'tune' select brain cells to be more or less active by deciding what food to eat," Dr Burdakov said. "Not all brain cells are simply turned on by all nutrients, dietary composition is critical."

"To combat obesity and insomnia in today's society, we need more information on how diet affects sleep and appetite cells. For now, research suggests that if you have a choice

between jam on toast, or egg whites on toast, go for the latter! Even though the two may contain the same number of calories, having a bit of protein will tell the body to burn more calories out of those consumed.”

The findings are published in the 17 November issue of the scientific journal Neuron.

There's a fat chance your kid might become obese (Daily News & Analysis: 30 Nov. 2011)

It has been estimated that at least 20% of children from the city are obese. Experts from the city blame it on the changing lifestyle and diet.

“Children’s diet has become more westernised, with consumption of high calorie food like chocolates, ice creams, pizzas, etc. The intake of less fibrous food also gives rise to obesity. It is also caused due to lack of physical activity, reduced play time due to no access to proper playgrounds, spending more time in front of TV and other gadgets, including computers, mobiles and electronic games,” said Dr Anjana Hulse, consultant paediatrician endocrinology, Apollo Hospital.

Obesity seems to be more of an urban problem, as it is mostly seen in high society groups, because of their easy availability of things.

Obesity is observed mostly in schoolchildren. "It is a tendency to put on weight during puberty. Most children cannot make the right choice of food and end up consuming food that is tasty, but unhealthy," said Dr Hulse.

Obesity is common among children aged below five years. “This is because parents over-feed their children, in an attempt to make them gain weight. Parents should follow the height/weight chart,” said Dr Hulse.

Different studies across India have shown that about 15% to 20% of paediatric population, mainly those from urban schools, are victims of obesity. Obesity among children has increased three-fold as compared to a decade ago. “However, obesity among children is measured according to their age, sex, and the international growth curve set by the World Health Organisation,” said Dr Preethi Galagali, consultant, pediatrician, Chord Road Hospital and a member of Academy of Indian Paediatrics.

Diabetes, obesity

Diabetes, obesity after 60 may up breast cancer risk (New Kerala: 8.12.2011)

Being diabetic or obese after 60 years of age may increase breast cancer risk in women, a new study has suggested.

Data also showed that high blood lipids were less common in patients when diagnosed with breast cancer, while low blood lipids were associated with an increased risk.

Researchers of the Swedish study also looked at overall cancer incidence and discovered that use of one diabetes drug was associated with a lower rate of any cancer, while another was associated with an increased risk.

Researchers evaluated health care data from a region of 1.5 million people living in South-western Sweden to provide a comprehensive picture of cancer risk.

“We are looking at everybody, and we found that diabetes in adult women and obesity in women aged 60 and older significantly increased breast cancer risk,” said Hakan Olsson, professor in the departments of oncology and cancer epidemiology at Lund University.

“This is useful information for women who want to know their risk and who can take steps to lower it.”

He and his colleagues examined records of 2,724 patients up to 10 years before they developed cancer and 20,542 patients who never developed the disease.

They found that obesity in women after age 60 increased risk for developing breast cancer by 55 percent.

“At the most, 15 out of 100 obese women would get breast cancer compared with slightly less than 10 out of 100 in the general population,” Olsson said.

Women with diabetes had a 37 percent increased risk for developing breast cancer if their diabetes had been diagnosed up to four years before cancer was diagnosed.

Women with abnormally low levels of blood lipids (mostly cholesterol) had a 25 percent greater risk for developing breast cancer, while high levels of blood lipids appeared to be associated with a lower risk for breast cancer.

Olsson said that the mechanisms behind these effects are unclear, and the finding needs to be replicated in a different population-based study.

Researchers also looked at the national drug prescription registry to examine the link between risk for all cancers and use of two diabetes drugs, glargine and metformin.

In this study, investigators found that glargine use, which had been associated with increased cancer development in previous European studies, almost doubled the risk for development of any cancer, while metformin was linked to an 8 percent lower risk for cancer in patients with diabetes.

Child Obesity

Blame your weight on your childhood companions (The Times of India: 19.12.2011)

Are you obese? Then, blame it on the people with whom you have spent your childhood, says a new study.

The research by a team from the Newcastle University in the UK found that people who were around us during childhood influence how much one weighs as an adult than by those one spends time with during adulthood.

The study compared the weights of 236 pairs of adolescent siblings who lived together, and 838 pairs of adult siblings who did not live together.

In both groups, the body mass indices (BMIs) of siblings became more similar over time. Body mass index is a ratio of weight to height, considered an indicator of body fatness.

The researchers found that family factors, such as heredity and a similar upbringing, explained similarities in BMI in both the siblings who lived together and those siblings who didn't, LiveScience reported.

This suggests that behaviours formed in childhood are carried into adulthood, said study researcher Heather Brown. "The findings demonstrate the importance of early interventions to prevent obesity," she said.

The results, published in journal *Obesity*, also suggest the effect of our adult social networks on our weight may have been overestimated, the researchers said.

In the study, factors that changed over time, such as friends and opportunities for exercise, explained similarities in BMI only for adolescent siblings.

That's not to say that our larger social circles aren't important, Brown said.

Obesity

Obesity's New Culprit - Bacteria in Large Intestine (Med India: 22.12.2011)

A new study holds bacteria in large intestine responsible for spiking obesity. Bacteria living in people's large intestine may slow down the activity of the "good" kind of fat tissue, a special fat that quickly burns calories and may help prevent obesity, scientists are reporting in a new study. The discovery, published in ACS' Journal of Proteome Research, could shed light on ways to prevent obesity and promote weight loss, including possible microbial and pharmaceutical approaches, the authors said.

Sandrine P. Claus, Jeremy K. Nicholson and colleagues explain that trillions of bacteria live in the large intestine of healthy people, where they help digest food and make certain vitamins. In recent years, however, scientists have realized that these bacteria do more — they interact with the rest of the body in ways that affect the use of energy and its storage as fat and finely tune the immune system. Claus and Nicholson decided to see how intestinal bacteria might affect the activity of brown fat. The "good" fat that burns calories quickly before they can be stored as fat, brown fat exists in small deposits in the neck area and elsewhere — not like "white fat" in flab around the waist and buttocks. No one had checked to see if those bacteria could have an effect on brown fat, the researchers noted.

In experiments that compared "germ-free" (GF) mice, which don't have large-intestine bacteria, and regular mice, the scientists uncovered evidence suggesting that the bacteria do influence the activity of brown fat. Brown fat in the GF mice seemed to be more active, burning calories faster than in regular mice. Large-intestine bacteria also seemed to be linked with gender differences in weight. Normal male mice were heavier and fatter than females, but those differences vanished in the GF mice. The research also uncovered major differences in the interactions between males and females and their intestinal bacteria that might help explain why the obesity epidemic is more serious and rapidly developing in women. Those and other findings may point the way toward approaches that kick-up the activity of brown fat in humans to prevent or treat obesity.

Overweight pregnant

Overweight pregnant women 'should not eat for two'(New Kerala: 23.12.2011)

Overweight women who are pregnant should avoid 'eating for two' and should stick to healthy diet and exercise, a new study has revealed.

Experts have become increasingly concerned in recent years about the growing numbers of mothers-to-be who are overweight and obese at the start of pregnancy, the Daily Express reported.

This gives way to increased risk of complications for both mother and child and also strains the health service owing to the need for specialist equipment.

The Royal College of Obstetricians and Gynaecologists (RCOG) has issued new guidance, which says that while the majority of women who are overweight (with a body mass index greater than 25) will have a straightforward pregnancy and birth, the risk of complications goes up the heavier a woman is.

Women with a BMI over 35 are required to be under the care of an NHS consultant rather than having straightforward midwifery care, it says.

Women who are overweight or obese are also more vulnerable to having blood clots in the legs and lungs, which can potentially be life threatening.

The risk of diabetes in pregnancy is three times higher in women with a BMI over 30 compared to those who are under 30.

A BMI of 30 or above also augments the risk of developing high blood pressure, while a BMI over 35 doubles the risk of pre-eclampsia.

Obese women also have greater chances of suffering from miscarriage, have problems with the way the baby develops in the womb, have a premature birth, and have the baby's shoulder get stuck during labour.

Teen-age obesity

Mother-baby emotional bonds influence teen-age obesity (New Kerala: 27.12.2011)

How a mother handles her toddler emotionally could determine whether the latter would pile on the pounds during adolescence, says a new US study.

The lower the quality of the child's emotional security and the mother's sensitivity, the higher the risk that a child would be obese at age 15 years, according to the study.

More than a quarter of toddlers who had the lowest-quality emotional relationships with their mothers were obese as teens. This, compared to 13 percent of adolescents who had closer bonds with their mothers in their younger years.

"Childhood obesity could be influenced by interventions that try to improve the emotional bonds between mothers and children rather than focusing only on children's food intake and activity," says Sarah Anderson, assistant professor of epidemiology at Ohio State University who led the study.

Researchers analyzed data from 977 participants which included diverse families living in nine U.S. states whose children were born in 1991. (IANS)

Population

Census

Census to decide poverty benchmark behind schedule The Indian Express: 14.10.2011)

Under fire over its poverty line markers, the government had said it would identify the poor eligible for government welfare provisions on the basis of an ongoing Socio Economic and Caste Census. However, the census that is being coordinated by the Rural Development Ministry has fallen way behind schedule and is likely to be delayed beyond the launch of the Twelfth Five Year Plan in April next year.

Of the eight states/Union territories where the ministry had planned to complete the survey exercise by September — Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Puducherry, Tripura, Chhattisgarh, Andhra Pradesh and Goa — it is only Puducherry where the enumeration has been completed. Here too, though, the verification process, that is necessary to complete the census is not over.

If the data is not compiled before the launch of the next Plan, the administration of the government's schemes aimed at the poor would be hit. The Planning Commission has said it would supply subsidised foodgrains to the poor as identified in the socio-economic census, in the ratio specified under the proposed food security law.

Consumption, not population,

Consumption, not population, is the issue (The Hindu: 1.11.2011)

Population policies have little impact on the way a minority of humans use the Earth's resources.

The birth of a baby is usually an occasion for joy. The arrival, however, of the seven billionth person is being awaited with growing trepidation about the devastating impact of humans on the planet. Environmentalists are arguing in circles about who or what is to blame: the total number of people; or the amount of water, food, mineral ores or clean air each demands. Professor Paul Ehrlich, whose book *The Population Bomb* helped ignite this debate, likens the environmental impact to the area of a rectangle: one side is the size of population, the other their consumption.

Although Ehrlich's rectangle is a neat illustration, the population “problem” for the environment is more accurately described as two rectangles, each representing the number of people on the vertical and their lifestyles on the horizontal: one tall skinny quadrant encompasses billions of people who use very little of Earth's resources; the other a much shorter, extraordinarily long one for the minority of humans who use the vast majority of natural wealth. The World Bank estimates, for example, that the richest fifth of the world has more than three-quarters of the income; the poorest fifth just 1.5 per cent.

Given that populations are barely stable and sometimes falling in most of the rich world, population policy would inevitably have to make noticeable inroads into the tall-skinny many/poor rectangle. Assuming such policies were successful — and excluding the widely unacceptable coercion of China's one child policy or India's mass sterilisations in the 1970s, persuading people to have fewer babies has proved very tricky — the overall reduction in combined environmental impact would be very small.

The more troubling issue, though, is that this calculation assumes that as the tall-skinny rectangle gets shorter, it does not get wider. Experience, however, suggests that, except for extreme cases such as Zimbabwe, it will get fatter.

A better life?

Across time and geography, countries that have reduced birth rates have got richer and so more consumptive: rising incomes, better health and education give men and women the confidence that more of their children will survive into adulthood and help support their families; and as birthrates fall governments can spend more on each person's health,

education and jobs, feeding a virtuous cycle of economic development and slowing population growth.

It would be interesting to see a proper assessment of the point at which the benefit of having fewer people consuming is offset and then increasingly dwarfed by their greater consumption. There are some telling pointers. Comparison by the London-based Guardian's James Ball of the CIA World Factbook data for countries' birthrates and average purchasing power of each person shows a pretty strong correlation between the two.

Statisticians are quick to point out that because two things appear to be linked does not mean one causes the other, but on-the-ground evidence suggests rising affluence and declining fertility rates are inextricable.

Time after time descriptions of countries that have successfully reduced population growth show how they have grown notably richer at the same time, even if they are not exactly well—off: Guatemala in central America, Bangladesh in south-east Asia, and the Asian tiger of South Korea.

At the same time, study after study shows environmental damage rises — so far almost always perpetually — with income, and often more steeply as developing countries begin to industrialise. Most dramatically, these forces appear to have come together in China, whose one-child policy — albeit with massive state investment and rapid expansion of the market economy — has coincided with the country's rise to become the world's second biggest economy (and, incidentally, the biggest emitter of greenhouse gas pollution).

Technically speaking, of course, population campaigners are right: environmental degradation can be helped by reducing the number of people and what they use. Population policies are best left to those focusing on poverty and women's rights. For environmentalists, talk of too many people is a dangerous distraction for campaigners and consumers, too many of whom will find it a convenient excuse to ignore the more pressing need for changes to what and how we spend our growing riches. (Juliette Jowit is the Observer's Environment Editor.) — © Guardian Newspapers Limited, 2011

Keywords: population, seven billionth baby, environment, consumption

Mumbai most populous

Mumbai most populous, Delhi Largest (The Asian Age: 1.11.2011)

Mumbai is India's most populated city with over 1.84 crore people, followed closely by Delhi with 1.63 crore and Kolkata with 1.41 crore, making these India's "mega-cities", according to the preliminary Census 2011 results.

In terms of urban agglomeration or spread as an extended city — that

comprises built-up area of central and any suburbs or linked continuous urban areas — Delhi NCR tops the list in the country.

The NCR, with the inclusion of Delhi, Gurgaon, Faridabad, Noida and Ghaziabad, has a total population of over 2.17 crore (21.7 million). This is higher than the Mumbai Metropolitan Region with

a population of 2.07 crore (20.7 million), which incorporates areas of Thane, Navi Mumbai, VasaiVirar, Bhiwandi and Panvel, spread in Mumbai's adjoining districts of Thane and Raigad.

The preliminary results of Census-2011 were released by the Registrar

General of India, an official statement here said Monday.

Among other major cities, Bengaluru with an urban agglomeration population of 8.72 million (8.49 million, excluding Hosur) is now almost as big as Chennai with a population of 8.91 million (8.69 million, excluding Kancheepuram).

Hyderabad, which was slightly bigger than Bengaluru in 2001, has now grown to become the sixth largest city with a population of over 7.74 million, ranking after Chennai and Bengaluru.

The other important cities in the list include Ahmedabad, Pune, Surat and Jaipur, pipping Kanpur in the top 10 slot.

7 billionth baby births

UP celebrates symbolic 7 billionth baby birth (The Asian Age: 1.11.2011)

While United Nations claimed that the world's 7 billionth baby was born in Manila in Philippines on Monday, Uttar Pradesh went ahead and claimed that the symbolic 7 billionth baby was born in Mal area in Malihabad near Lucknow.

Nargis, the 7 billionth baby, was born in Mal community healthcentre on Monday to proud parents Ajay Kumar and Vinita, who belong to Danaur village.

A function was held at

the community healthcentre here in association with the children welfare NGO Plan India and the health department.

Neelam Singh, head of Vatsalya, a leading NGO which collaborated with Plan India, said the seven billionth tag is based on the law of probability and intricate set of calcula

tions by the UN.

Plan International, which conducted the exercise, said that the seven billionth baby will also embody the cause of seven lakh girls who go missing in India.

“Globally, millions of girls are either never born because of a skewed preference for sons or die in early childhood or in reproductive years. The birth of Nargis in Lucknow will mark the beginning of a movement to end injustice,” said Bhagyashree Denge, executive director of Plan India.

Pregnancy

Pregnancy

Slight Overweight Too Cuts Women's Pregnancy Chances Through IVF (Med India: 5.10.2011)

British researchers have now found that women who are even slightly overweight are less likely to conceive through IVF. Previous research found that being clinically obese is known to affect in vitro fertilization (IVF), conception, pregnancy and birth.

The researchers found that the chance of these women having a live birth through the treatment was cut by 9 percent, while the risk of miscarriage increased by 24 percent.

This is the first time that being overweight - even by just a few pounds - is clearly identified as a risk factor for the outcome of treatment that can cost as much as 5,500 pounds a cycle.

Lead researcher Dr Tarek El-Toukhy, a reproductive medicine specialist at Guy's and St. Thomas' NHS Foundation Trust in London and his colleagues looked at more than 400 women undergoing IVF.

They calculated the patients' body mass index and looked at success rates.

They found that women classed as 'overweight' had a 24 percent extra risk of miscarriage compared with a normal pregnancy, and a 9 percent lower chance of having a baby.

For 'obese' women, the risk of miscarriage was increased by 40 percent and chance of a live birth cut by 20 percent.

"The higher up the (BMI) range, the more likely it is that overall success rate will be reduced," the Daily Mail quoted El-Toukhy as saying.

"To maximise the chance of a successful pregnancy, we are now recommending that women get as close as possible to a healthy weight before starting treatment," he added. The findings, pooled with the results from 32 other studies which came to the same conclusion, are published in the Journal Human Reproduction.

Pregnancy disease

Placenta-uterus battle could help explain deadly pregnancy disease (New Kerala: 12.10.2011)

Yale scientists have suggested that a battle that brews in the mother's womb between the father's biological goal to produce the biggest, healthiest baby possible against the mother's need to live through delivery might help explain preeclampsia, an often deadly disease of pregnancy.

The fetus must be big enough to thrive yet small enough to pass through the birth canal.

In a new study, the researchers describe the mechanism that keeps these conflicting goals in balance.

The battle is waged between the mother's uterus and the baby's placenta, which is made up of cells called trophoblasts that are controlled by the father.

In the study, the researchers observed how the placenta tricks the mother so she doesn't attack the trophoblasts that are trying to increase the flow of her blood into the placenta.

If this placental deception doesn't work the mother may develop preeclampsia, a condition that results in high blood pressure and protein in the mother's urine.

Harvey J. Kliman, M.D., who led the study, explained that in a normal pregnancy, specialized invasive trophoblasts leave the placenta and invade the mother's tissues to attack and destroy the walls of her blood vessels.

This allows the most blood possible to enter the placenta, resulting in a big baby.

But the mother's own "soldiers," called lymphocytes, are constantly looking to destroy the invasive trophoblast cells. The placenta in turn appears to trick the mother by creating a diversion to occupy her lymphocytes.

The placenta creates this diversion by secreting a protein called placental protein 13 (PP13), also known as galectin 13, into the mother's blood where it travels through her veins into the uterus below the placenta.

There the PP13 leaves the veins where it triggers the mother's immune system to react and attack. The entire area around these veins becomes a mass of inflammation and dead cells, called necrosis.

"We realized that these zones of necrosis are likely occupying the mother's soldiers while the invasive trophoblasts sneak into her arteries, leading to more blood flow to the placenta and a bigger baby," said Kliman.

"We believe that maintaining this balance could be the key to a healthy pregnancy free from preeclampsia," he added.

The findings are published in the October 11, 2011 online issue of Reproductive Sciences.

Diet - in pregnancy

Diet in pregnancy (The Times of India: 9.11.2011)

Ranging from morning sickness to diabetes mellitus, pregnancy comes with its own set of problems. Read how you can beat these with dietary solutions by nutritionist Cheenu Prashar Vig

Moms-to-be need a variety of foods that are nutrient dense with more calories, iron, calcium and folate. Here are important dos and don'ts for certain health conditions common in pregnancy:

Morning sickness:

Mumto-be should eat small, frequent snacks (every two hours) instead of full meals. Have food high on carbohydrates and low on fat, such as crackers or Marie biscuits or a dry toast, before you get out of bed if you feel nauseous upon waking. Movement often makes morning sickness worse.

- Try foods that are appealing to you; have plenty of fluids between meals and nutritious shakes. Snack on food with high water content such as water melons, ice candies and sorbets
- Do not stop eating or drinking as this worsens nausea
- Do not consume caffeinated beverages (coffee, some teas and soft drinks)

- Do not stay in poorly ventilated rooms or with bothersome smells of strong perfume, cologne, cigarette smoke

Indigestion or heartburn:

Eat 5-6 small meals a day in a relaxed setting instead of 2 or 3 large ones

- Wait two hours after meals before lying down and elevate the upper body when sleeping
- Don't consume foods that cause gas, such as spicy, greasy foods
- Don't have antacids without consulting your doctor

Fluid retention or oedema:

Monitor weight gain and blood pressure; elevate your feet whenever possible

- Don't consume salty or processed foods like packaged soups, snacks rich in salt
- Don't limit fluid intake; this worsens water retention

Constipation:

Drink plenty of fluids — at least 8-10 glasses of water each day, including 1-2 glasses of fruit juice such as prune juice

- Have plenty of vegetables and fruits in all meals and snacks, whole grain cereals, and breads; exercise regularly

Gestational Diabetes Mellitus:

Eat a diet consisting of complex, high-fibre carbohydrates (for example, whole-grain breads and cereals, brown rice, legumes and fresh fruits and vegetables)

- Include in all your meals some source of protein, for example, milk, yogurt, cheese, poultry or eggs.
- Have smaller meals with appropriate snacks between meals.
- Avoid fruit juice and highly sweetened beverages and concentrated sweet foods to stay away from diabetes.

Pregnancy

Espresso Caffeine Levels Concern for Pregnant Women (MedIndia: 2 Dec. 2011)

Pregnant women who drink espresso coffee could be consuming potentially harmful levels of caffeine exceeding recommended levels, according to a Scottish study.

When researchers from Glasgow University tested the caffeine content of 20 single-shot espressos at different take-away coffee outlets in UK, they discovered that 1/5th of the samples contained more than the 200mg of caffeine, the maximum daily threshold considered safe for pregnant women by the Food Standards Agency (FSA).

Caffeine overdose can cause toxicity leading to headaches, chest pain, anxiety, increased heart rate and abdominal cramping in expectant mothers. FSA warns that too much caffeine could result in miscarriage or a low birth weight baby, which can further increase the risk of some health conditions for the baby like hypertension, type-2 diabetes and heart diseases in later life.

The findings are published in the Royal Society of Chemistry's Food and Function journal.

Pregnancy

Scheme for pregnant women fails to deliver in Mewat (The Tribune: 7.12.2011)

Health workers conduct deliveries as govt hospitals lack gynaecologists

On June 1 this year, National Advisory Council chairperson Sonia Gandhi launched a national healthcare scheme for pregnant women and infants at Mandi Khera village in Nuh (Mewat) district.

The Rashtriya Janani-Shishu Suraksha Karyakram, which came under the National Rural Health Mission, provided for institutional deliveries, including the required treatment, pick-and-drop facility, health check-up and tests, medicines, blood and diet for the woman as well as the newborn at government hospitals free of cost.

However, six months after the scheme was launched from Mewat, there is not even a single gynaecologist at any government hospital or other health facility in the district.

In the absence of a gynaecologist, the deliveries are being conducted by nurses or multi-purpose health workers (MPHWs). The cases which cannot be handled at their level are referred to the government hospitals at Gurgaon or other places.

The single Health Control Room number provided for calling an ambulance - 9254333102 - remains busy most of the time - a fact put across by callers and confirmed by this correspondent.

On being probed why a simple three-digit number - like 102 - could not be provided and kept operational for ambulance service, an even more startling fact came to light.

Sources in the Health Department maintained that all landline phone numbers at the General Hospital, Mandi Khera, had been lying dead for the past more than two years.

Miraculously, the phones started working on the day of Sonia Gandhi's visit to the place, but went non-functional a few days later. The hospital authorities' repeated requests in this regard prior to as well as after Sonia's visit have fallen on deaf ears.

Ironically, the monetary incentive provided by the Union Government on the birth of a child in a Scheduled Caste/BPL family is not being distributed as the grant has not arrived in the past few months.

For record sake, the district has got a general hospital, three community health centres, 13 primary health centres, 84 health sub-centres and several delivery huts, but none of these has any gynaecologist, radiologist or pathologist.

Due to lack of a pathologist, a blood bank has not been established at the General Hospital at Mandi Khera despite the infrastructure being available.

Of the 84 health sub-centres, 29 have no buildings or are functioning from other buildings due to their own buildings being in a dilapidated condition. Even the General Hospital is functioning from the building of Al-Afia Hospital, which was built with financial aid from Oman.

The hospital also lacks medical specialists and other staffers and more than half of the 564 sanctioned posts are lying vacant. To give the government its due, it recruited 138 doctors, including some specialists, around three years ago. However, less than half of the appointed ones joined duty in Mewat and of even those who joined, 28 have left despite lucrative incentives being offered for being posted here.

The Nuh Civil Surgeon, Dr KS Rao, admits the shortage of specialists and other hospital staffers. He, however, asserted that staffers were being recruited on contract basis.

"Two male doctors are being trained to provide emergency obstetric care at the General Hospital," he added, but refuted complaints regarding the number of ambulance vehicles

being low to cater to the local population or control room telephone number remaining unapproachable.

Pregnant women

Rs. 1,000/month for pregnant women? (The Asian Age: 13.12.2011)

The draft food bill proposes a payment of Rs. 1,000 each month for six months to pregnant and lactating women, which is already being executed in 52 districts across the nation currently, while children from the age of three months till they complete Class 8 will get nutritional food.

The ministry of women and child development has suggested breakfast for children, which has also been included in the Cabinet note, sources said. The food bill also proposes to make women as head of the family as far as food entitlement is concerned, which has been opposed by states like Mizoram and Puducherry.

The Cabinet note also seeks to cover old age persons and destitute in separate category for food entitlement, added the sources.

Another proposal regarding community kitchen has also been included in the Cabinet note, which seeks to address the issue of hunger, said the sources.

It has also been proposed in the Cabinet note that the running of the PDS and its social audit be included in the ambit of the Panchayati Raj Institutions (PRIs), said the sources.

Food Bill in Cabinet on Tuesday

The Union Cabinet, at its meeting here on Tuesday, will take up the National Food Security Bill, which seeks to make food entitlement a legal right for 75 per cent of the population in rural areas and 50 per cent in urban centres.

The Food Bill seeks an investment of Rs. 1.10 lakh crores in agriculture to make it sustainable, the food subsidy is expected to swell from the current Rs. 66,000 crores to Rs. 95,000 crores once the law is implemented.

The Food Bill, drafted largely on the recommendations of the Sonia Gandhi-led NAC, seeks to cover 46 per cent of people in rural areas and 28 per cent in urban areas in the priority group — in which a person will get 7 kg of food grains each month. Those in a wider group will get 3 kg of foodgrains per month.

People in the priority group will get rice at Rs. 3/kg, wheat at Rs. 2/ kg and millets at Rs. 1/kg, while those in the general group would have to pay 50 per cent of the minimum support price.

Stillbirth and Pregnancy

Link between Stillbirth and Pregnancy Complications (Med India: 14.12.2011)

Stillbirth is caused by pregnancy complications such as preterm labor or placental abnormalities, reveals US research.

Ten years ago, little was known about the causes of stillbirth, a term that describes when a baby dies at or after the 20th week of pregnancy

While rare in the United States, stillbirth happens in one of 160 pregnancies, at a higher rate than other developed countries.

A pair of studies published in the Journal of the American Medical Association show that about half the time, one or more pregnancy complications appear to be the cause.

Those include problems with the placenta -- which provide nutrients and blood to the fetus and removes waste -- in 26 percent of cases, said the findings led by researchers at the US National Institutes of Health.

Infections caused 14-19 percent of stillbirths, and fetal abnormalities and problems with the umbilical cord were each linked to about 10 percent of stillbirths.

Looking at data from 500 pregnant women across five states, researchers were able to identify a probable cause of stillbirth in 61 percent of cases. About a third of those were linked to one or more causes.

Often, the research was thwarted by the lack of a post-mortem analysis, which about half of families do not authorize due to the trauma of the moment or financial concerns.

The study began with a potential set of over 900 women and ended with just 500, because it focused only on those who had ordered a complete post-mortem analysis.

"Our study showed that a probable cause of death -- more than 60 percent -- could be found by a thorough medical evaluation," said Uma Reddy, one of the study authors.

"Greater availability of medical evaluation of stillborn infants, particularly autopsy, placental exam and karyotype (chromosomal analysis), would provide information to better understand the causes of stillbirth."

Researchers also found African-American women face more than twice the risk of stillbirth than white or Hispanic women.

"The consistent and persistent racial disparity in stillbirth (2.3-fold risk for non-Hispanic black compared with non-Hispanic white women in the United States remains largely unexplained," the study said.

While the gap is often attributed to less frequent prenatal care among blacks, research shows that "racial disparity for stillbirth persists, even in women with prenatal care."

Ninety-eight per cent of the 7,000 stillbirths that occur each day happen in developing countries, according to research published in the Lancet earlier this year.

Finland, with two stillbirths per 1,000 births, has the lowest rate in the world, whereas Nigeria and Pakistan, with more than 40 per 1,000, are the highest.

The US rate is 6.2 stillbirths per 1,000, or just over a half percent of all births, a rate that has remained stagnant since 2003 but which the study authors called "unacceptably high."

The second study was led by George Saade of the University of Texas Medical Branch at Galveston, and examined risk factors that could be glimpsed at the start of pregnancy.

Some factors that were strongly associated with stillbirth included black ethnicity, diabetes, age 40 or older, AB blood type and a history of drug use with addiction.

Others included cigarette smoking within three months of pregnancy, being overweight or obese and not living with a partner.

"Further research is needed to identify pregnancies at highest risk overall and for specific causes," the study added.

Pregnant Women

Pregnant Women Advised to Stay Cool for Baby's Sake: Australian Study (Scienc Daily: 22.12.2011)

Queensland University of Technology (QUT) world-first research has found a link between increases in temperature and the incidence of stillbirth and shorter pregnancies. Associate Professor Adrian Barnett of QUT's Institute of Health and Biomedical Innovation (IHBI) led a study that looked at the incidence of still and premature births in Brisbane over a four-year period from 2005.

Professor Barnett said a total of 101,870 births were recorded throughout the period and of these 653 or 0.6% were stillbirths.

"We found that increases in temperature increased the risk of stillbirth, and this was particularly true in the earlier stages of pregnancy before 28 weeks," he said.

"Our estimated numbers were at 15°C there would be 353 stillbirths per 100,000 pregnancies, as compared with 610 stillbirths per 100,000 pregnancies at 23°C.

"Increased temperatures also shortened gestation times, which means more preterm babies who often have serious long-term health problems such as cerebral palsy and impaired vision and hearing."

Professor Barnett's study recorded weekly temperature, humidity and air pollution levels for each pregnancy.

He said that the lowest risks were in the coolest weeks, and that warm temperatures with weekly means of 23°C were just as dangerous as the hottest weeks.

"This could be because most pregnant women would be more conscious of trying to remain cool on the hottest days and would generally seek air conditioning," he said.

While other studies have looked at the relationship between temperature and pre-term births the QUT study is the first to investigate the relationship between temperature and stillbirth.

Professor Barnett said as global temperatures rise, the study could have serious public health implications.

"Pregnant women should protect themselves from overheating to reduce the likelihood of pre-term or stillbirths," he said.

"Stillbirths are obviously devastating for families, and many stillbirths have an unknown cause so more research is needed to help prevent them.

"It is known that women should avoid hot tubs or Jacuzzis during pregnancy as this can cause a pregnancy termination, and that dehydration caused by heat stress and sweating could be harmful to a fetus and induce birth.

Sleep Disorder

Sleep

Lack of sleep could affect teens' brain development (The Tribune; 12.10.2011)

A University of Wisconsin-Madison study has suggested that an ongoing lack of sleep during adolescence could lead to more than dragging, foggy teens. The researchers have found that short-term sleep restriction in adolescent mice prevented the balanced growth and depletion of brain synapses, connections between nerve cells where communication occurs. "One possible implication of our study is that if you lose too much sleep during adolescence, especially chronically, there may be lasting consequences in terms of the wiring of the brain," said Dr Chiara Cirelli, associate professor in the department of psychiatry at the School of Medicine and Public Health. Mental illnesses such as schizophrenia tend to start during adolescence but the exact reasons remain unclear.

Less sleep

Less sleep among teens may cause weight gain (New Kerala: 25.10.2011)

Sleeping less than eight hours a night may cause weight gain in teenagers.

Sleep is food for the brain. When teens do not get enough sleep, they fall asleep in class, struggle to concentrate, look and feel stressed, get sick more often, and do not meet their obligations due to tiredness," said study author Lata Casturi of the Baylor College of Medicine.

"Teens who sleep less than eight hours may also consume more calories than those who sleep more than eight hours. Therefore, they have a higher risk for obesity and associated health problems, including high blood pressure, heart disease, and stroke," a college statement quoted Casturi as saying.

Casturi and colleagues, including co-author Anita Rao, presently a 10th grader at Dawson High School in Pearland, Texas, surveyed 255 teens (108 boys and 147 girls) in high school to obtain self-reported measures of height and weight and both weekday and weekend quantity of sleep.

How does lack of sleep really affect weight gain? According to researchers, the hormones leptin and ghrelin work in a "checks and balances" system to control feelings of hunger and fullness.

Ghrelin, which is produced in the gastrointestinal tract, stimulates appetite, while leptin, produced in fat cells, sends a signal to the brain when a person is full.

"When you don't get enough sleep, it drives leptin levels down, which means you don't feel as satisfied after you eat. Lack of sleep also causes ghrelin levels to rise, which means your appetite is stimulated, so you want more food," said co-author Radha Rao, DeBakey VA Medical Centre, Houston, Texas.

"The two factors combined can set the stage for overeating, which, in turn, may lead to weight gain."

These findings were presented at CHEST 2011, the 77th annual meeting of the American College of Chest Physicians (ACCP).

Sleep Deprived

Sleep Deprived Brit Teens Struggle to Stay Alert in School 9Med India: 31.10.2011)

According to the study by the School and Students Health Education Unit, 63 per cent of 12 to 13-year-olds say that they are getting enough sleep for their studies but the figure goes down, as they get older, the Scotsman reported.

Almost half (48 percent) of 14 to 15-year-old girls say they do not get enough sleep to concentrate on their schoolwork, as compared to two-fifths (41 per cent) of 14 to 15-year-old boys, who say the same.

It was also revealed that the proportion of youngsters getting eight hours or more of sleep at night drops with age.

Four-fifths of 12 to 13-year-olds got this amount of sleep, compared to 61 per cent of 14 to 15-year-old girls and 66 per cent of boys of this age.

The study is based on the data gathered by taking into consideration the point of view of 83,000 children in 2010.

And almost half (48 per cent) of the youngsters questioned said they do not normally get enough sleep for their health.

'Sleep Hormone'

'Sleep Hormone' Secrets Revealed in Breakthrough Research (Med India: 14.12.2011)

A breakthrough research which has thrown up fresh insight on the sleep hormone melatonin has led to the development of a new drug and promises more effective treatments for insomnia and other sleep disorders

A team from the Research Institute of the McGill University Health Centre (RI-MUHC) and McGill University has unraveled the inner workings of melatonin, also known as the "sleep hormone." The research, conducted in collaboration with scientists in Italy, reveals the key role played by the melatonin receptor in the brain that promotes deep, restorative sleep. This discovery led the researchers to develop a novel drug called UCM765, which selectively activates this receptor. The results, published in The Journal of Neuroscience, may pave the way for the development of new and promising treatments for insomnia, a common public health problem that affects millions of people worldwide.

"We've spent many years develop medications that act selectively on a single melatonin receptor to specifically promote deep sleep, which we believe is the key to curing insomnia," says Dr. Gabriella Gobbi, a researcher in psychiatry at the RI-MUHC and the study's principal investigator. "Deep sleep has significant restorative effects, as well as the ability to increase memory and boost metabolism, while lowering blood pressure and slowing the heart rate." To date most treatments for insomnia, such as benzodiazepines, have not been selective for deep sleep, and can lead to dependence and cognitive impairment.

The researchers became interested in melatonin because of its effect on cerebral activity, and its involvement in sleep, depression and anxiety. Melatonin is a critical hormone produced by the pineal gland (located in the brain) in the absence of light stimulation. This hormone, present throughout the animal kingdom, is responsible for regulating sleep and circadian rhythms.

The research team discovered that two principal melatonin receptors, known as MT1 and MT2, played opposite roles in sleep regulation. "We discovered that MT1 receptors act on rapid eye movement (REM) sleep and block non-REM sleep, while MT2 receptors favour non-REM sleep, also known as deep sleep," explains Dr. Gobbi, who is also an associate professor of psychiatry in the Faculty of Medicine at McGill. "Specifying the role of MT2 receptors in melatonin represent a major scientific breakthrough that may designate them as a promising novel target for future treatments of insomnia. This

discovery also explains the modest hypnotic effect of the over-the-counter melatonin pills, which act on both conflicting receptors."

Using a drug called UCM765, developed in collaboration with a group of chemists, under the leadership of Professor Tarzia in Urbino and Professor Mor in Parma, Italy which selectively binds to the MT2 receptor, the researchers observed an increase in the phases of deep sleep in rats and mice. Most importantly, UCM765 acts in a brain area called the reticular thalamus, which is the main driver of deep sleep. "This new molecule, contrary to traditional treatments for insomnia, increases deep sleep without destroying the "architecture" of sleep. In other words, it increases the duration of deep sleep while keeping the REM sleep episodes the same," says Dr. Gobbi.

"The development of this pharmacology by means of targeting deep sleep receptors to treat insomnia represents a major advancement in our ability to deal with this common health problem that affects people worldwide," concludes Dr. Vassilios Papadopoulos, Director of the Research Institute of the MUHC.

Smoking

Smoking

Smoking can kill 40 mn more people (New Kerala: 510.2011)

Smoking could cause 40 million excess deaths among smokers, who also suffer from tuberculosis (TB), by 2050, new research says.

Once smokers develop the disease, they are more likely to die from it, meaning that smoking can single-handedly undermine the goal to reduce TB mortality by half between 1990 and 2015, says the research.

The study, led by Sanjay Basu from the University of California, San Francisco, used a maths model to determine the effect of smoking on future TB rates, the BMJ (British Medical Journal) reports.

It shows that from 2010 to 2050 smoking could lead to 40 million excess TB deaths worldwide - from 61 to 101 million.

They also conclude that if current smoking trends continue, the number of excess TB cases could rise from 256 to 274 million - 18 million new cases in total.

"Aggressively lowering the prevalence of tobacco smoking could reduce smoking attributable deaths from tuberculosis by 27 million by 2050," Basu said, according to a California statement.

Nearly one-fifth of the world's population smokes and that most cigarettes are smoked in countries with high TB prevalence. Given this, the authors wanted to predict how much impact smoking will have on future TB rates.

Smokers

Smokers likely to have strokes almost 10 yrs earlier (The Tribune: 5.10.2011)

A new research, led by an Indian-origin researcher, has claimed that not only are smokers twice as likely to have strokes, they are also almost a decade younger than non-smokers when they have them. According to a study conducted at Ottawa Hospital, researchers studied 982 stroke patients — 264 smokers and 718 non-smokers — at an Ottawa prevention clinic from January 2009 to March 2011 and found that the average age of stroke patients who smoked was 58, compared to age 67 for non-smokers. “The information from this study provides yet another important piece of evidence about the significance of helping people stop smoking,” Dr Andrew Pipe, one of the authors, said.

Smoking Cigarettes

Smoking Cigarettes Simulates Cystic Fibrosis (Science Daily: 13.10.2011)

If you smoke cigarettes, you have more in common with someone who has cystic fibrosis than you think. A new research report appearing online in the FASEB Journal shows that smoking cigarettes affects the lungs in a way that is very similar to cystic fibrosis, a life threatening disease affecting the lungs and other organs.

In cystic fibrosis, improper movement of salt and water in the cells lining the lungs causes a thick and sticky mucus to form. Bacteria become trapped in this mucus and thrive, leading to life-threatening lung infections. The FASEB Journal study shows that smoking negatively affects the lungs in a similar way, leading to mucus that causes dry cough, chronic bronchitis, and chronic obstructive pulmonary disease, among other problems.

"We hope this study will highlight the importance of airway hydration in terms of lung health and that it will help provide a road map for the development of novel therapies for the treatment of smoking-related lung disease," said Robert Tarran, Ph.D., a researcher involved in the work from the Cystic Fibrosis/Pulmonary Research and Treatment Center at the University of North Carolina at Chapel Hill.

To make this discovery, Tarran and colleagues conducted multiple experiments both in humans and in laboratory-grown cells testing the effects of cigarette smoke on the

function of a protein that helps the lungs stay hydrated, called "CFTR." They found that people exposed to cigarette smoke had a 60 percent decrease in CFTR activity, compared to those exposed only to clean air. They also exposed human lung cells to either air or cigarette smoke and measured the level of liquid covering the lung cells. The cells exposed to cigarette smoke had much lower liquid levels, which remained low for at least two and a half hours. Additional studies showed that this was caused by cigarette smoke interfering with CFTR's function. Finally, the researchers found that the addition of hypertonic saline -- a treatment for cystic fibrosis -- to cells exposed to cigarette smoke caused the level of liquid above the cells to increase toward normal levels. The hypertonic saline treatment also increased mucus clearance.

"This novel finding suggests that treatments aimed at cystic fibrosis might also help people with caused smoking-related diseases -- and vice versa," said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal, "But the bottom line remains: the most effective treatment for smoker's cough, or worse, is to quit smoking, now! "

Smokers

Smokers' lungs similar to those of cystic fibrosis patients (New Kerala: 14.10.2011)

Chain smokers take note. A new study has shown that smoking cigarettes affects the lungs in a way that is very similar to cystic fibrosis, a life threatening disease affecting the lungs and other organs.

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Smoking

Smoking linked to earlier menopause: Study (world newspaper: 18.10.2011)

Women who smoke may hit menopause about a year earlier than those who don't light up, according to a study that also notes an earlier menopause may influence the risk of getting bone and heart diseases.

The study, which was carried in the journal *Menopause*, pooled data from several previous studies that included about 6,000 women in the United States, Poland, Turkey and Iran.

Non-smokers hit menopause between age 46 and 51, on average. But in all but two of the studies, smokers were younger when they hit menopause, between 43 and 50 overall.

During menopause, a woman's ovaries stop producing eggs and she can no longer get pregnant.

"Our results give further evidence that smoking is significantly associated with earlier (age at menopause) and provide yet another justification for women to avoid this habit," wrote study author Volodymyr Dvornyk, from the University of Hong Kong.

Dvornyk and his colleagues also analysed five other studies that used a cut-off age of 50 or 51 to group women into "early" and "late" menopause. Out of more than 43,000 women in that analysis, women who smoked were 43 per cent more likely than nonsmokers to have early menopause.

Both early and late menopause have been linked to health risks. Women who hit menopause late, for instance, are thought to be at higher risk of breast cancer because one risk factor for the disease is more time exposed to estrogen.

"General consensus is that earlier menopause is likely to be associated with the larger number and higher risk of postmenopausal health problems, such as osteoporosis, cardiovascular diseases, diabetes mellitus, obesity, Alzheimer's disease, and others," Dvornyk told Reuters Health in an email.

Overall, he added, early menopause is also thought to slightly raise a woman's risk of death in the years following.

There are two theories for why smoking might mean earlier menopause, said Jennie Kline, an epidemiologist from Columbia University's Mailman School of Public Health in New York.

Smoking may have an effect on how women's bodies make, or get rid of, oestrogen. Alternatively, some researchers believe certain components of cigarette smoke might kill eggs, added Kline, who was not involved in the study.

Dvornyk's team did not have information on how long women had been smoking or how many cigarettes they smoked each day, so his team could not determine how either of those factors may have affected age at menopause.

For that reason, and a lack of data on other health and lifestyle factors linked to menopause, the analysis may not be enough to resolve lingering questions on the link between smoking and menopause, they said.

Alcohol, weight and whether or not women have given birth may each also play a role in when they hit menopause, but the evidence for everything other than smoking has been mixed, Kline said.

It is also possible that the same factors that influence age at menopause may determine whether women have trouble with infertility or not, or how late they can get pregnant.

Still, Kline said, "There are way better reasons to stop smoking than worrying about menopause."

Smoking

Don't let the smoke get into your eyes (The Times of Indias: 25.10.2011)

Eyes need special care during Diwali because of the smoke and pollution. If your eyes get hurt by crackers, then you must seek immediate attention, warns eye specialist, Sanjay Teotia

During Diwali, every one lights lamps and candles, and crackers are burst all over. This produces smoke and gases which pollute the environment, and are harmful to the eyes.

Eye allergy:

The smoke might cause allergy, redness, intense itching, burning sensation, watery discharge, and photophobia to the eyes. In many cases, there may be swelling of the conjunctiva and lids. Wash your eyes with clean water and immediately consult an eye specialist. Trauma to the eyes while bursting crackers is serious and could even be vision threatening. Cracker injury to the eye causes corneal ulcer, corneal perforation, dislocation of the lens of the eye, conjunctival burn, conjunctival abrasion, retinal detachment, perforation of the eye globe, and traumatic cataract. Corneal ulcer is a painful condition. With it, there could be watering of eyes, intolerance to light, and blurred vision and redness. Delay in treatment can lead to corneal opacity and blindness. Sometimes, the cornea could perforate with a direct cracker injury or because of a corneal ulcer. Strain due to coughing or sneezing may also cause perforation. A cracker injury could displace the lens, leading to diminishing of vision. There are complications of dislocated lens like uveitis (inflammation of eye) and glaucoma. Immediate treatment is advised.

Conjunctival burns:

Cracker injury can cause conjunctival burn and abrasion. This painful condition is marked by watering of eyes, redness, and inability to open eyes. Conjunctival burn can cause symblepharon, a condition in which lids adhere to the eyeball and lid movements become difficult. Injury due to cracker burst also acts as a predisposing factor for retinal detachment. In retinal detachment, there is sudden painless loss of vision. The person usually complains of sudden appearance of a dark cloud in front of the eye. Immediate retinal reattachment surgery is advised. Perforation of the eye globe is a dreaded trauma and eyes can rarely be saved despite immediate treatment. So during Diwali, wear spectacles to prevent your eyes from smoke and injury caused by burning crackers. Take all possible precautions while bursting crackers. Ensure children do not burst crackers alone and unattended.

Quit Smoking

Quit Smoking? Impact Lingers!(Med India: 3.11.2011)

Even after one quits smoking, the aftereffects continue to impair the pancreatic duct cell function. All smokers are at a risk of compromised digestive function regardless of age, gender and alcohol intake. The study was released by the American College of Gastroenterology's (ACG) on the 76th Annual Scientific meeting in Washington, DC.

In a separate smoking-related study also released today, "Smoking Cessation and the Risk for Advanced Neoplasia: Risk for Women Persists Longer than for Men," researchers from the University of Connecticut found that the risk of advanced pre-cancerous tissue changes (neoplasia) was significantly elevated for women—even if they stopped smoking—but not for men--suggesting that the impact of smoking in women has a longer effect than in men.

In the study, "Cigarette Smoking Impairs Pancreatic Duct Cell Function," researchers from Center for Pancreatic Disease at Brigham and Women's Hospital in Boston assessed pancreatic duct cell function in smokers and non-smokers (current and past). A total of 131 subjects (74 smoked and 57 never smoked) underwent secretin-stimulated endoscopic pancreatic function testing (ePFT), for pancreatic fluid bicarbonate analysis. Cigarette smoking exposure was found to be associated with an abnormal ePFT result, and there was no statistical difference in peak bicarbonate concentration between current and former smokers, according to the results.

The risk of pancreatic duct cell dysfunction was 56.78 percent in former or current smokers and 26.32 percent in nonsmokers, according to Vivek Kadiyala, MD, who presented the findings. "Our data suggests the risk of duct cell dysfunction was doubled in patients who smoked compared to nonsmokers," said Dr. Kadiyala.

Smoke-free workplaces

Smoke-free workplaces cut sudden cardiac deaths (World Newspapers: 16.11.2011)

Mayo Clinic researchers have provided additional evidence that second-hand smoke kills and smoke-free workplace laws save lives, by reducing the incidence of heart attacks and sudden cardiac deaths.

Their research shows that the incidence of heart attacks and sudden cardiac deaths was cut in half among Olmsted County, Minn., residents after a smoke-free ordinance took effect.

Adult smoking dropped 23 per cent during the same time frame, as the rates of other risk factors such as high blood pressure, high cholesterol, diabetes and obesity remained stable or increased.

“This study adds to the observation that smoke-free workplace laws help reduce the chances of having a heart attack, but for the first time we report these laws also reduce the chances of sudden cardiac death,” said Richard Hurt, MD, director of Mayo Clinic’s Nicotine Dependence Centre.

“The study shows that everyone, especially people with known coronary artery disease, should avoid contact with second-hand smoke. They should have no - literally no - exposure to second-hand smoke because it is too dangerous to their health,” he stated.

The population-based study showed that during the 18 months before Olmsted County’s first smoke-free law for restaurants was passed in 2002, the regional incidence of heart attack was 212.3 cases per 1,00,000 residents.

In the 18 months following a comprehensive smoke-free ordinance in 2007, in which restaurants and workplaces became smoke-free, that rate dropped to 102.9 per 100,000 residents - a decrease of about 45 percent.

Additionally, during these two time periods, the incidence of sudden cardiac death fell from 152.5 to 76.6 per 100,000 residents - a 50 percent reduction.

“Our findings provide support to the life-saving effect that smoke-free legislation can have among community members affected by these laws,” said co-author Jon Ebbert, MD, associate director of Mayo Clinic’s Nicotine Dependence Center

The study will be presented to the American Heart Association’s Scientific Sessions on Monday in Orlando.

Smoking

So, what’s common between a fat man and a smoker? Surcharge (The Financial Express: 18.11.2011)

More and more employers are demanding that workers, who smoke, are overweight or have high cholesterol shoulder a greater share of their healthcare costs, a shift toward penalising employees with unhealthy lifestyles rather than rewarding good habits.

Policies that impose financial penalties on employees have doubled in the last two years to 19% of 248 major American employers recently surveyed. Next year, Towers Watson, the benefits consultant that conducted the survey, said the practice — among employers with at least 1,000 workers — was expected to double again.

In addition, another survey released on Wednesday by Mercer, which advises companies, showed that about a third of employers with 500 or more workers were trying to coax them into wellness programmes by offering financial incentives, like discounts on their insurance. So far, companies including Home Depot, PepsiCo, Safeway, Lowe's and General Mills have defended decisions to seek higher premiums from some workers, like...

Wal-Mart's recent addition of a \$2,000-a-year surcharge for some smokers. Many point to the higher healthcare costs associated with smoking or obesity. Some even describe the charges and discounts as a "more stick, less carrot" approach to get workers to take more responsibility for their well-being. No matter the characterisations, it means that smokers and others pay more than co-workers who meet a company's health goals.

But some benefits specialists and health experts say programmes billed as incentives for wellness, by offering discounted health insurance, can become punitive for people who suffer from health problems that are not completely under their control. Nicotine addiction, for example, may impede smokers from quitting, and severe obesity may not be easily overcome.

Earlier this year, the American Cancer Society and the American Heart Association were among groups that warned federal officials about giving companies too much latitude. They argued in a letter sent in March...

that the leeway afforded employers could provide "a back door" to policies that discriminate against unhealthy workers.

Kristin M Madison, a professor of law and health sciences at Northeastern University in Boston, said, "People are definitely worried that programmes will be used to drive away employees or potential employees who are unhealthy."

Current regulations allow companies to require workers who fail to meet specific standards to pay up to 20% of their insurance costs. The federal health care law raises that amount to 30% in 2014 and, potentially, to as much as half the cost of a policy.

When Wal-Mart Stores, the nation's largest employer, recently sought the higher payments from some smokers, its decision was considered unusual, according to benefits experts.

Smoking

Smoking Prior to or After Breast-Lift Surgery can Cause Women's Nipples to Fall Off (Med India: 9.12.2011)

A doctor has warned that women who smoke regularly before or after a breast lift surgery are at great risk of seeing their nipples turn black and fall off.

When the blood supply is inadequate, which occurs with smoking, the tiniest veins often fail. This insufficiency results in a backup of old (venous) blood in the body part, causing it to turn purple.

If the backup of old blood is serious enough, the purple color may eventually turn black, indicating that the body part is dead.

"The nicotine in cigarettes and the carbon monoxide contained in cigarette smoke can diminish blood flow to various parts of the body," CNN.com quoted Dr Anthony Youn, a surgeon in the Detroit metropolitan area in the US as saying in his memoir 'In Stitches'.

"These toxins act as a virtual tourniquet. If the blood flow to a particular body part becomes greatly reduced or halted, that body part dies," he said.

"I now offer the Plastic Surgeon's Warning to all my patients who smoke: If you are having a breast lift or reduction and you smoke, your nipples could turn black and fall off," he added.

Quit smoking

Quit smoking - feel happier, healthier (World Newspapers: 16.12.2011)

Some smokers have concerns that their quality of life may deteriorate if they stop smoking but research shows that those who kick the butt feel more satisfied and healthier than those who continue with the habit.

A new research by Megan Piper from the University of Wisconsin School of Medicine and Public Health and her team looks at whether quitting smoking can improve psychological well-being.

"Our findings suggest that, over the long-term, individuals will be happier and more satisfied with their lives if they stop smoking than if they do not," says Piper.

Positive experiences of quitting smoking, including improved well-being, could be used by clinicians to educate and motivate individuals to stop smoking, reports the journal *Annals of Behavioural Medicine*.

The authors assessed quality of health, positive versus negative emotions, relationship satisfaction and stressors among 1,504 smokers taking part in a smoking cessation trial. They were assessed at one year and three years, according to a university statement.

The authors found that smokers who quit successfully, long-term, see some noticeable improvements.

Smoking

Butt of course (The Times of India: 19.12.2011)

Why watching others smoke is injurious to health

I'm not supposed to smoke anymore. Oh, yes, i know. I was never ever supposed to smoke. Smoking causes cancer, arterosclerosis, thrombosis, emphysema, Crohn's disease, impotence and brown teeth.

I think i blame Biggles. Adults in Enid Blyton books smoked pipes and cigarettes, but as adults in Blyton books had lower IQs than Buster or Timmy or Loony or whatever the team pet was, their smoking never was very attractive. Biggles, Biggles was a different matter. A 17-year-old who would fly out across enemy lines in his Camel (the plane, not the cigarette) shooting down a brace of Fokkers and escape Baron Richthofen for a bet? When he lit up, it was awesome. And underage! And inspirational!

But it will now be just a matter of time before Biggles books come out with statutory warnings that reading may lead to emphysema and lung cancer. Or worse, the cigarette bowdlers would replace all scenes featuring tobacco with lollipops.

Giving up cigarettes while loving them has all kinds of consequences. There is a tendency to look longingly at other people smoking. Yesterday, after an excellent lunch, i found myself staring hungrily at a respectable gentleman deep in the blissful enjoyment of an especially tempting Classic. He noticed me about halfway through his smoke. His expression turned alarmed before twothirds of his cigarette was done and then the cigarette was crushed beneath an agitated heel and the smoker fled. I wiped the saliva from my chin.

My fellow 10 o'clockers – other employees who would land up outside our non-smoking office building for their first smoke of the working day at that time – turn away from me as i prowl the sidewalks, an outcast among my kind. My co-workers – the ones who

smoke, regard me with a mixture of pity and contempt – as they sidle past my desk, refusing to meet my eye.

Those who have trodden the hard road of smoked cold turkey tell me that each pang i have for a cigarette lasts just eight seconds. That may be the case, but some of those eight seconds seem to follow each other without a break.

But the worst thing, undeniably, is the total lack of tact of the non-smoker. There are the people who will congratulate you on something that you consider a bereavement. There are the smug monsters who tell you that they had always told you so, that the cigarette habit would cause me serious problems, and i should have listened to those who knew better. There are those who will tell you with repulsive cheerfulness, “Oh, but you are not going to smoke anymore, so that’s alright.” And there are those – slightly more human than the others on this list – who will ask you about nicotine patches.

Nicotine patches! I ain’t got no patches! I don’t need no stinking patches! Why don’t people realise that the nicotine is irrelevant? It’s the pleasure in taking that paper cylinder out of its cardboard case, putting it in your mouth, settling it in a comfortable position, lighting it – a matchbox is better than a lighter; you can use it with more flair – and taking that first lovely lungful. Can a patch replicate that experience?

So now my only safe outlet is watching movies – i can’t smell the stuff, but i can watch and watch to my lungs’ content. Amitabh playing cards while smoking in Don. Rajinikanth flipping a cigarette into his mouth with inimitable ease in any of his 150-plus movies. Bogey rasping out “Of all the gin joints in all the towns...” Sean Connery as James Bond lighting his Morland specials while playing Blackjack with Eunice Gayson, a prelude to seduction. And Joseph Cotten blowing amazing smoke rings in The Third Man.

Tobacco

Tobacco industry studies on cigarette additives safety may be misleading (New Kerala: 23.12.2011)

Scientific research published by the tobacco industry on the safety of cigarette additives cannot be taken at face value, a new study has suggested.

In analysis led by Stanton Glantz from the Center for Tobacco Control Research and Education at the University of California in San Francisco, the authors reanalysed data from “Project MIX” in which chemical analyses of smoke, and the potential toxicity of 333 cigarette additives were conducted by scientists from the tobacco company Philip Morris.

The authors of the independent analysis used documents made public as a result of litigation against the tobacco industry to investigate the origins and design of Project MIX, and to conduct their own analyses of the results.

Internal documents revealed post-hoc changes in analytical protocols after the industry scientists found that the additives increased cigarette toxicity by increasing the number of particles in the cigarette smoke

Crucially, they also found that in the original Project MIX analysis, the published papers obscured findings of toxicity by adjusting the data by Total Particulate Matter concentration, when the authors conducted their own analysis by studying additives per cigarette, they found that 15 carcinogenic chemicals increased by 20 percent or more.

They also found that the failure to identify many toxic biological effects was because the studies Philip Morris carried out were too small to reliably detect toxic effects.

The authors concluded that their independent analysis provides evidence for the elimination of the use of the studied additives, including menthol, from cigarettes on public health grounds.

“The results demonstrate that toxins in cigarette smoke increase substantially when additives are put in cigarettes, including the level of Total Particulate Matter. In particular, regulatory authorities, including the Food and Drug Administration and similar agencies elsewhere, could use the Project MIX data to eliminate the use of these 333 additives including menthol from cigarettes,” the authors said.

Smoking

Smoking

Smoking can kill 40 mn more people (New Kerala: 510.2011)

Smoking could cause 40 million excess deaths among smokers, who also suffer from tuberculosis (TB), by 2050, new research says.

Once smokers develop the disease, they are more likely to die from it, meaning that smoking can single-handedly undermine the goal to reduce TB mortality by half between 1990 and 2015, says the research.

The study, led by Sanjay Basu from the University of California, San Francisco, used a maths model to determine the effect of smoking on future TB rates, the BMJ (British Medical Journal) reports.

It shows that from 2010 to 2050 smoking could lead to 40 million excess TB deaths worldwide - from 61 to 101 million.

They also conclude that if current smoking trends continue, the number of excess TB cases could rise from 256 to 274 million - 18 million new cases in total.

"Aggressively lowering the prevalence of tobacco smoking could reduce smoking attributable deaths from tuberculosis by 27 million by 2050," Basu said, according to a California statement.

Nearly one-fifth of the world's population smokes and that most cigarettes are smoked in countries with high TB prevalence. Given this, the authors wanted to predict how much impact smoking will have on future TB rates.

Smokers

Smokers likely to have strokes almost 10 yrs earlier (The Tribune: 5.10.2011)

A new research, led by an Indian-origin researcher, has claimed that not only are smokers twice as likely to have strokes, they are also almost a decade younger than non-smokers when they have them. According to a study conducted at Ottawa Hospital, researchers studied 982 stroke patients — 264 smokers and 718 non-smokers — at an Ottawa prevention clinic from January 2009 to March 2011 and found that the average age of stroke patients who smoked was 58, compared to age 67 for non-smokers. “The information from this study provides yet another important piece of evidence about the significance of helping people stop smoking,” Dr Andrew Pipe, one of the authors, said.

Smoking Cigarettes

Smoking Cigarettes Simulates Cystic Fibrosis (Science Daily: 13.10.2011)

If you smoke cigarettes, you have more in common with someone who has cystic fibrosis than you think. A new research report appearing online in the FASEB Journal shows that smoking cigarettes affects the lungs in a way that is very similar to cystic fibrosis, a life threatening disease affecting the lungs and other organs.

In cystic fibrosis, improper movement of salt and water in the cells lining the lungs causes a thick and sticky mucus to form. Bacteria become trapped in this mucus and thrive, leading to life-threatening lung infections. The FASEB Journal study shows that smoking negatively affects the lungs in a similar way, leading to mucus that causes dry cough, chronic bronchitis, and chronic obstructive pulmonary disease, among other problems.

"We hope this study will highlight the importance of airway hydration in terms of lung health and that it will help provide a road map for the development of novel therapies for the treatment of smoking-related lung disease," said Robert Tarran, Ph.D., a researcher involved in the work from the Cystic Fibrosis/Pulmonary Research and Treatment Center at the University of North Carolina at Chapel Hill.

To make this discovery, Tarran and colleagues conducted multiple experiments both in humans and in laboratory-grown cells testing the effects of cigarette smoke on the function of a protein that helps the lungs stay hydrated, called "CFTR." They found that people exposed to cigarette smoke had a 60 percent decrease in CFTR activity, compared

to those exposed only to clean air. They also exposed human lung cells to either air or cigarette smoke and measured the level of liquid covering the lung cells. The cells exposed to cigarette smoke had much lower liquid levels, which remained low for at least two and a half hours. Additional studies showed that this was caused by cigarette smoke interfering with CFTR's function. Finally, the researchers found that the addition of hypertonic saline -- a treatment for cystic fibrosis -- to cells exposed to cigarette smoke caused the level of liquid above the cells to increase toward normal levels. The hypertonic saline treatment also increased mucus clearance.

"This novel finding suggests that treatments aimed at cystic fibrosis might also help people with caused smoking-related diseases -- and vice versa," said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal, "But the bottom line remains: the most effective treatment for smoker's cough, or worse, is to quit smoking, now! "

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Smoking

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During menopause, a woman's ovaries stop producing eggs and she can no longer get pregnant.

"Our results give further evidence that smoking is significantly associated with earlier (age at menopause) and provide yet another justification for women to avoid this habit," wrote study author Volodymyr Dvornyk, from the University of Hong Kong.

Dvornyk and his colleagues also analysed five other studies that used a cut-off age of 50 or 51 to group women into "early" and "late" menopause. Out of more than 43,000 women in that analysis, women who smoked were 43 per cent more likely than nonsmokers to have early menopause.

Both early and late menopause have been linked to health risks. Women who hit menopause late, for instance, are thought to be at higher risk of breast cancer because one risk factor for the disease is more time exposed to estrogen.

"General consensus is that earlier menopause is likely to be associated with the larger number and higher risk of postmenopausal health problems, such as osteoporosis, cardiovascular diseases, diabetes mellitus, obesity, Alzheimer's disease, and others," Dvornyk told Reuters Health in an email.

Overall, he added, early menopause is also thought to slightly raise a woman's risk of death in the years following.

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Dvornyk's team did not have information on how long women had been smoking or how many cigarettes they smoked each day, so his team could not determine how either of those factors may have affected age at menopause.

For that reason, and a lack of data on other health and lifestyle factors linked to menopause, the analysis may not be enough to resolve lingering questions on the link between smoking and menopause, they said.

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It is also possible that the same factors that influence age at menopause may determine whether women have trouble with infertility or not, or how late they can get pregnant.

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Smoking

Don't let the smoke get into your eyes (The Times of Indias: 25.10.2011)

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Eye allergy:

The smoke might cause allergy, redness, intense itching, burning sensation, watery discharge, and photophobia to the eyes. In many cases, there may be swelling of the conjunctiva and lids. Wash your eyes with clean water and immediately consult an eye specialist. Trauma to the eyes while bursting crackers is serious and could even be vision threatening. Cracker injury to the eye causes corneal ulcer, corneal perforation, dislocation of the lens of the eye, conjunctival burn, conjunctival abrasion, retinal detachment, perforation of the eye globe, and traumatic cataract. Corneal ulcer is a painful condition. With it, there could be watering of eyes, intolerance to light, and blurred vision and redness. Delay in treatment can lead to corneal opacity and blindness. Sometimes, the cornea could perforate with a direct cracker injury or because of a corneal ulcer. Strain due to coughing or sneezing may also cause perforation. A cracker injury could displace the lens, leading to diminishing of vision. There are complications of dislocated lens like uveitis (inflammation of eye) and glaucoma. Immediate treatment is advised.

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Quit Smoking

Quit Smoking? Impact Lingers! (Med India: 3.11.2011)

Even after one quits smoking, the aftereffects continue to impair the pancreatic duct cell function. All smokers are at a risk of compromised digestive function regardless of age, gender and alcohol intake. The study was released by the American College of Gastroenterology's (ACG) on the 76th Annual Scientific meeting in Washington, DC.

In a separate smoking-related study also released today, "Smoking Cessation and the Risk for Advanced Neoplasia: Risk for Women Persists Longer than for Men," researchers from the University of Connecticut found that the risk of advanced pre-cancerous tissue changes (neoplasia) was significantly elevated for women—even if they stopped smoking—but not for men--suggesting that the impact of smoking in women has a longer effect than in men.

In the study, "Cigarette Smoking Impairs Pancreatic Duct Cell Function," researchers from Center for Pancreatic Disease at Brigham and Women's Hospital in Boston assessed pancreatic duct cell function in smokers and non-smokers (current and past). A total of 131 subjects (74 smoked and 57 never smoked) underwent secretin-stimulated endoscopic pancreatic function testing (ePFT), for pancreatic fluid bicarbonate analysis. Cigarette smoking exposure was found to be associated with an abnormal ePFT result, and there was no statistical difference in peak bicarbonate concentration between current and former smokers, according to the results.

The risk of pancreatic duct cell dysfunction was 56.78 percent in former or current smokers and 26.32 percent in nonsmokers, according to Vivek Kadiyala, MD, who presented the findings. "Our data suggests the risk of duct cell dysfunction was doubled in patients who smoked compared to nonsmokers," said Dr. Kadiyala.

Smoke-free workplaces

Smoke-free workplaces cut sudden cardiac deaths (World Newspapers: 16.11.2011)

Mayo Clinic researchers have provided additional evidence that second-hand smoke kills and smoke-free workplace laws save lives, by reducing the incidence of heart attacks and sudden cardiac deaths.

Their research shows that the incidence of heart attacks and sudden cardiac deaths was cut in half among Olmsted County, Minn., residents after a smoke-free ordinance took effect.

Adult smoking dropped 23 per cent during the same time frame, as the rates of other risk factors such as high blood pressure, high cholesterol, diabetes and obesity remained stable or increased.

“This study adds to the observation that smoke-free workplace laws help reduce the chances of having a heart attack, but for the first time we report these laws also reduce

the chances of sudden cardiac death,” said Richard Hurt, MD, director of Mayo Clinic’s Nicotine Dependence Centre.

“The study shows that everyone, especially people with known coronary artery disease, should avoid contact with second-hand smoke. They should have no - literally no - exposure to second-hand smoke because it is too dangerous to their health,” he stated.

The population-based study showed that during the 18 months before Olmsted County’s first smoke-free law for restaurants was passed in 2002, the regional incidence of heart attack was 212.3 cases per 1,00,000 residents.

In the 18 months following a comprehensive smoke-free ordinance in 2007, in which restaurants and workplaces became smoke-free, that rate dropped to 102.9 per 100,000 residents - a decrease of about 45 percent.

Additionally, during these two time periods, the incidence of sudden cardiac death fell from 152.5 to 76.6 per 100,000 residents - a 50 percent reduction.

“Our findings provide support to the life-saving effect that smoke-free legislation can have among community members affected by these laws,” said co-author Jon Ebbert, MD, associate director of Mayo Clinic's Nicotine Dependence Center

The study will be presented to the American Heart Association's Scientific Sessions on Monday in Orlando.

Smoking

So, what’s common between a fat man and a smoker? Surcharge (The Financial Express: 18.11.2011)

More and more employers are demanding that workers, who smoke, are overweight or have high cholesterol shoulder a greater share of their healthcare costs, a shift toward penalising employees with unhealthy lifestyles rather than rewarding good habits.

Policies that impose financial penalties on employees have doubled in the last two years to 19% of 248 major American employers recently surveyed. Next year, Towers Watson, the benefits consultant that conducted the survey, said the practice — among employers with at least 1,000 workers — was expected to double again.

In addition, another survey released on Wednesday by Mercer, which advises companies, showed that about a third of employers with 500 or more workers were trying to coax them into wellness programmes by offering financial incentives, like discounts on their insurance. So far, companies including Home Depot, PepsiCo, Safeway, Lowe’s and

General Mills have defended decisions to seek higher premiums from some workers, like...

Wal-Mart's recent addition of a \$2,000-a-year surcharge for some smokers. Many point to the higher healthcare costs associated with smoking or obesity. Some even describe the charges and discounts as a "more stick, less carrot" approach to get workers to take more responsibility for their well-being. No matter the characterisations, it means that smokers and others pay more than co-workers who meet a company's health goals.

But some benefits specialists and health experts say programmes billed as incentives for wellness, by offering discounted health insurance, can become punitive for people who suffer from health problems that are not completely under their control. Nicotine addiction, for example, may impede smokers from quitting, and severe obesity may not be easily overcome.

Earlier this year, the American Cancer Society and the American Heart Association were among groups that warned federal officials about giving companies too much latitude. They argued in a letter sent in March...

that the leeway afforded employers could provide "a back door" to policies that discriminate against unhealthy workers.

Kristin M Madison, a professor of law and health sciences at Northeastern University in Boston, said, "People are definitely worried that programmes will be used to drive away employees or potential employees who are unhealthy."

Current regulations allow companies to require workers who fail to meet specific standards to pay up to 20% of their insurance costs. The federal health care law raises that amount to 30% in 2014 and, potentially, to as much as half the cost of a policy.

When Wal-Mart Stores, the nation's largest employer, recently sought the higher payments from some smokers, its decision was considered unusual, according to benefits experts.

Smoking

Smoking Prior to or After Breast-Lift Surgery can Cause Women's Nipples to Fall Off (Med India: 9.12.2011)

A doctor has warned that women who smoke regularly before or after a breast lift surgery are at great risk of seeing their nipples turn black and fall off.

When the blood supply is inadequate, which occurs with smoking, the tiniest veins often fail. This insufficiency results in a backup of old (venous) blood in the body part, causing it to turn purple.

If the backup of old blood is serious enough, the purple color may eventually turn black, indicating that the body part is dead.

"The nicotine in cigarettes and the carbon monoxide contained in cigarette smoke can diminish blood flow to various parts of the body," CNN.com quoted Dr Anthony Youn, a surgeon in the Detroit metropolitan area in the US as saying in his memoir 'In Stitches'.

"These toxins act as a virtual tourniquet. If the blood flow to a particular body part becomes greatly reduced or halted, that body part dies," he said.

"I now offer the Plastic Surgeon's Warning to all my patients who smoke: If you are having a breast lift or reduction and you smoke, your nipples could turn black and fall off," he added.

Quit smoking

Quit smoking - feel happier, healthier (World Newspapers: 16.12.2011)

Some smokers have concerns that their quality of life may deteriorate if they stop smoking but research shows that those who kick the butt feel more satisfied and healthier than those who continue with the habit.

A new research by Megan Piper from the University of Wisconsin School of Medicine and Public Health and her team looks at whether quitting smoking can improve psychological well-being.

"Our findings suggest that, over the long-term, individuals will be happier and more satisfied with their lives if they stop smoking than if they do not," says Piper.

Positive experiences of quitting smoking, including improved well-being, could be used by clinicians to educate and motivate individuals to stop smoking, reports the journal *Annals of Behavioural Medicine*.

The authors assessed quality of health, positive versus negative emotions, relationship satisfaction and stressors among 1,504 smokers taking part in a smoking cessation trial. They were assessed at one year and three years, according to a university statement.

The authors found that smokers who quit successfully, long-term, see some noticeable improvements.

Smoking

Butt of course (The Times of India: 19.12.2011)

Why watching others smoke is injurious to health

I'm not supposed to smoke anymore. Oh, yes, i know. I was never ever supposed to smoke. Smoking causes cancer, arterosclerosis, thrombosis, emphysema, Crohn's disease, impotence and brown teeth.

I think i blame Biggles. Adults in Enid Blyton books smoked pipes and cigarettes, but as adults in Blyton books had lower IQs than Buster or Timmy or Loony or whatever the team pet was, their smoking never was very attractive. Biggles, Biggles was a different matter. A 17-year-old who would fly out across enemy lines in his Camel (the plane, not the cigarette) shooting down a brace of Fokkers and escape Baron Richthofen for a bet? When he lit up, it was awesome. And underage! And inspirational!

But it will now be just a matter of time before Biggles books come out with statutory warnings that reading may lead to emphysema and lung cancer. Or worse, the cigarette bowdlers would replace all scenes featuring tobacco with lollipops.

Giving up cigarettes while loving them has all kinds of consequences. There is a tendency to look longingly at other people smoking. Yesterday, after an excellent lunch, i found myself staring hungrily at a respectable gentleman deep in the blissful enjoyment of an especially tempting Classic. He noticed me about halfway through his smoke. His expression turned alarmed before twothirds of his cigarette was done and then the cigarette was crushed beneath an agitated heel and the smoker fled. I wiped the saliva from my chin.

My fellow 10 o'clockers – other employees who would land up outside our non-smoking office building for their first smoke of the working day at that time – turn away from me as i prowls the sidewalks, an outcast among my kind. My co-workers – the ones who smoke, regard me with a mixture of pity and contempt – as they sidle past my desk, refusing to meet my eye.

Those who have trodden the hard road of smoked cold turkey tell me that each pang i have for a cigarette lasts just eight seconds. That may be the case, but some of those eight seconds seem to follow each other without a break.

But the worst thing, undeniably, is the total lack of tact of the non-smoker. There are the people who will congratulate you on something that you consider a bereavement. There are the smug monsters who tell you that they had always told you so, that the cigarette habit would cause me serious problems, and i should have listened to those who knew better. There are those who will tell you with repulsive cheerfulness, "Oh, but you

are not going to smoke anymore, so that's alright." And there are those – slightly more human than the others on this list – who will ask you about nicotine patches.

Nicotine patches! I ain't got no patches! I don't need no stinking patches! Why don't people realise that the nicotine is irrelevant? It's the pleasure in taking that paper cylinder out of its cardboard case, putting it in your mouth, settling it in a comfortable position, lighting it – a matchbox is better than a lighter; you can use it with more flair – and taking that first lovely lungful. Can a patch replicate that experience?

So now my only safe outlet is watching movies – i can't smell the stuff, but i can watch and watch to my lungs' content. Amitabh playing cards while smoking in Don. Rajinikanth flipping a cigarette into his mouth with inimitable ease in any of his 150-plus movies. Bogey rasping out "Of all the gin joints in all the towns..." Sean Connery as James Bond lighting his Morland specials while playing Blackjack with Eunice Gayson, a prelude to seduction. And Joseph Cotten blowing amazing smoke rings in The Third Man.

Tobacco

Tobacco industry studies on cigarette additives safety may be misleading (New Kerala: 23.12.2011)

Scientific research published by the tobacco industry on the safety of cigarette additives cannot be taken at face value, a new study has suggested.

In analysis led by Stanton Glantz from the Center for Tobacco Control Research and Education at the University of California in San Francisco, the authors reanalysed data from "Project MIX" in which chemical analyses of smoke, and the potential toxicity of 333 cigarette additives were conducted by scientists from the tobacco company Philip Morris.

The authors of the independent analysis used documents made public as a result of litigation against the tobacco industry to investigate the origins and design of Project MIX, and to conduct their own analyses of the results.

Internal documents revealed post-hoc changes in analytical protocols after the industry scientists found that the additives increased cigarette toxicity by increasing the number of particles in the cigarette smoke

Crucially, they also found that in the original Project MIX analysis, the published papers obscured findings of toxicity by adjusting the data by Total Particulate Matter concentration, when the authors conducted their own analysis by studying additives per cigarette, they found that 15 carcinogenic chemicals increased by 20 percent or more.

They also found that the failure to identify many toxic biological effects was because the studies Philip Morris carried out were too small to reliably detect toxic effects.

The authors concluded that their independent analysis provides evidence for the elimination of the use of the studied additives, including menthol, from cigarettes on public health grounds.

“The results demonstrate that toxins in cigarette smoke increase substantially when additives are put in cigarettes, including the level of Total Particulate Matter. In particular, regulatory authorities, including the Food and Drug Administration and similar agencies elsewhere, could use the Project MIX data to eliminate the use of these 333 additives including menthol from cigarettes,” the authors said.

Social Problem

Poverty

Pak better than India on poverty (Hindustan Times: 3.11.2011)

Despite its high economic growth, India has been ranked lower than its neighbours Pakistan and Sri Lanka on the multi-dimensional poverty index (MPI) and gender inequality index (GII) by the United Nations Development Programme.

The global Human Development Report released on Wednesday, however, ranks India 134 among 187 countries, higher than Pakistan but lower than Sri Lanka in the human development index (HDI).

Norway is top and Congo at the bottom of the index that measures healthy life, access to knowledge and a decent standard of living.

WORRISOME India ranks lower than Pak on gender equality too

India has been ranked lower than neighbour Pakistan in the United Nations multidimensional poverty index (MPI) and gender equality index even though it has been able to maintain its 134th rank in the overall Human Development Index (HDI).

The MPI evaluates deprivations in education, health and standard of living.

The UN Development Programme's HDI report says that 53.7% of Indians suffer from multi-dimensional poverty compared to 49.4% in Pakistan and 57.8% in Bangladesh.

Even in absolute poverty terms, measured for those earning less than \$1.25 (Rs61) a day, Pakistan fares better than India.

Around 41.6% of Indians in 2005 were earning less than \$1.25 a day compared to 22.6% of Pakistanis.

India has however, been placed at the 'medium' level of human development with a rank of 134 out of 187 countries on the HDI while neighbours such as Pakistan and Bangladesh have been ranked in the 'low' category with positions of 145 and 146, respectively.

When it comes to gender equality, India ranks lower than most of its neighbouring countries, including Pakistan, Bangladesh and Sri Lanka. This is primarily on account of India's adolescent fertility rate, fewer women in Parliament and poor participation of women in the workforce.

Releasing the report, Sustainability and Equity: A Better Future for All, rural development minister Jairam Ramesh said apart from inequality between nations, inequalities within nations was also very important.

He highlighted the finding of recent India Human Development Report, which said Gujarat, despite a high economic growth, had a large deprived population of backwards and Kerala, with low economic growth, had less inequality.

“A more disturbing fact is that actually economic development may lead to retrogression of social indices,” he said.

Country	HDI rank	GII rank	MPI
Sri Lanka	97	74	5.3%
INDIA	134	129	53.7%
Bhutan	141	98	27.2%
Pakistan	145	115	49.4%
Bangladesh	146	112	57.8%
Nepal	157	113	64.7%

Figures are from UNDP's HDI (human development index) Report, 2011. The rankings are out of a total of 187 nations. **GII** is the gender inequality index. **MPI** is the multi-dimensional poverty index (in percentage of the population), defining deprivations in education, health and living standard.

Tribal hungry

Tribal hungry as state, centre squabble (Hindustan Times: 3.11.2011)

UNEASY PORTENT R72 crore for Rajasthan's malnourished Sahariyas unspent or used for welfare of govt staff DUE TO THE STATE GOVT'S FAILURE TO SHOW UTILISATION CERTIFICATES, THE CENTRE DIDN'T TRANSFER ANY MONEY UNDER THE SCHEME TO THE STATE IN 2009-10

The consequences of careless, uncaring governance in Jaipur and Delhi -both ruled by the Congress -are proving deadly to India's poorest tribals and providing a warning to the dangers inherent in India's upcoming multi-billion dollar social-security scheme.

At a time when the Congress-led United Progressive Alliance (UPA) is finalising a food security act that will cost India more than R1 lakh crore and party general secretary Rahul Gandhi champions the tribal cause, the Hindustan Times has found how the central and state government, each blaming the other, have either not spent or diverted to the

bureaucracy R72 crore meant to stop chronic malnutrition and hunger deaths among R a j a s t h a n 's 90,000 Sahariya tribals.

The R72 crore constitutes the Sahariya Welfare Fund for the 11th plan period, 2007-2012. It didn't stop seven Sahariya children dying of hunger-related causes in 2009, before which more than 100 tribals had died similarly, according to records of NGOs working at Baran.

HT's investigations reveal how over a the years the funds were either not h released in time by the Union government or not used in time by the state R government. When some of the money l was indeed used, the state diverted pora tions of it to construct homes or on b other needs. o "The Rajasthan government cannot k possibly utilise the remaining sance tioned funds" in the remaining months l of the 11th Plan period, said an official a of the Planning Commission, on condition of anonymity. "These funds will lapse in March 2012." f A 2004 survey by the Delhi-based b Centre for Equity Studies found all the boys and 93% of the girls in five Sahariya-dominated villages of Baran district, 300 km southwest of Jaipur, suffering from chronic nutrition deficiency.

A study in 2010 by Doosra Dashak, a voluntary organisation, in Brahmpura village found 42.59% of the children of 1-5 years malnourished; 25.93% severely malnourished and 1.85% suffering severe, acute malnourishment, with little hope for survival. A 2004 study by Delhi's Centre for Equity Studies had found chronic nutrition deficiency in all the boys and 93% of girls in the five Sahariya villages.

The core of the Sahariya aid programmes -running 'ma-baari' (mother-child) centres that run pre-schools children from the tribe, and stocking primary health centres with medicines and nutritional supplements, among other things -are aimed at addressing the widespread undernourishment crippling the community.

But money hasn't helped to do this.

Of the R72 crore set aside for Sahariya welfare, the Centre has released only R23 crore. Of this, the Rajasthan government has used about half.

So far, the state has furnished utilisation certificates for only R11 crore, said Prabhu Dayal Meena, joint secretary in the Union ministry of tribal affairs.

State governments do not become eligible to receive further instalments of Central funds until they submit utilisation certificates or proof of implementation.

When the Rajasthan government has actually used the money, here's what happened.

Three years ago, the state sanctioned R12 crore from the fund to construct 1,500 houses for the Sahariya tribals at a cost of R80,000 each. Only 52 were built. Worse, in 1994-95, the state hived off funds from the Sahariya welfare kitty to construct 16 dwellings for

government employees at a cost of R27.80 lakh, according to several state officials and civil society activists.

Rajasthan's tribal affairs minister Mahendrajit Singh Malviya admitted funds from the Sahariya fund were being diverted for the welfare of government employees.

“I do not have specific information, but it is likely that the houses were constructed. The state government is providing incentives to employees willing to take a posting to tribal areas. Even at Kotraa (Udaipur district), a residential hostel is being constructed from tribal area funds for the state government employees,” he said in an interview.

Because of the Rajasthan government's failure to generate utilisation certificates, the Centre did not transfer any money under the Sahariya welfare scheme to the state in 2009-10, official documents show.

In the year to March 31, 2010, the state government used only one-third of the R12 crore given by the Centre under the programme. Official documents show it transferred the balance R8 crore to its public deposit account -an account created by the Rajasthan government to park Central and state government funds that remain unused in a financial year. The state government claims this is a non-lapsable account.

Sahariya funds transferred by the Rajasthan government to the public deposit account have been growing: From R6.22 crore in 2007 to R8.22 crore in 2008 and R20.21 crore the next year.

The figure dipped to R8.88 crore in 2010 but has risen alarmingly since. As on 1 April, the balance of unspent Sahariya funds in the public deposit account was R14.21 crore. “The blame game between the Centre and state governments is routine and large amount of funds are surrendered each year,” said Naresh Chandra Saxena, member of the National Advisory Council. In 2009-10, state governments utilised R1,996.79 crore against budgetary estimates of R3,205.5 crore for tribals across India.

Another aberration is the infrastructure focus of the Sahariya welfare fund, say non-profit organisations working on tribal welfare.

In 2010-11, Rajasthan used R8 crore of the total R12 crore of Central funds for Sahariyas on buildings. For this fiscal year, it intends to spend R17 crore of the R18.79 crore received from Delhi on infrastructure, including schools and hostels.

“The administration raises huge buildings and then spends huge amounts on their upkeep,” said Moti Lal, convenor of an organisation called Sankalp that works for the welfare of Sahariya tribals. “It is a big farce.”

Baran additional district magistrate Ram Prasad Meena lays the blame on Delhi. “The programmes are designed by the Centre,” he said.

“That is incorrect,” said Prabhu Dayal Meena of the Union tribal affairs ministry. “Schemes are designed in consultation with state governments, not unilaterally by the Central government.”

Shortly after the regime change in Rajasthan in December 2008, the Sahariya development committee that supervises and monitors implementation of tribal welfare schemes was disbanded by the new Congress government. Disagreements over nominated candidates have prevented the formation of a new committee.

“The government's rhetoric is right but its intentions remain ambiguous,” said Komal Srivastava of Bharat Gyan Vigyan Samiti, a voluntary organisation that works for Sahariya welfare.

Baran district magistrate Navin Jain admits “gaps in implementation” of the welfare scheme but claims progress.

“It is a tremendous achievement,” he said, “that the Sahariyas have now stopped dying from hunger.” Tomorrow: Among the Sahariyas, India collapses. The ‘Tracking Hunger’ series is a nationwide effort to track, investigate and report India's struggle against hunger and malnutrition. This special report on malnutrition is the result of a fellowship jointly awarded by Save The Children and Hindustan Times.

MORE ON WEB Read previous stories at www.hindustantimes.com/trackinghunger See the video ‘Among the Sahariyas’ at www.hindustantimes.com/rajasthanbondage

FUND MATTERS	
₹72 crore	Money set aside since 2007 by the Centre as Sahariya Welfare Fund
₹23 crore	Money released by Delhi to Rajasthan since 2007
₹12 crore	Money transferred to Rajasthan for Sahariya welfare in 2010-11
₹8 crore	Money for Sahariyas deposited in Rajasthan account for unused funds

UN Human Development Index,

On UN Human Development Index, India is languishing at 134th position

Aditi Tandon/TNS (The Tribune: 3.11.2011)

India is ranked 134th among the 187 countries assessed for their performance in three key areas of human development - education, health and income. The UNDP Global Human Development Index (HDI) 2011 released today places Norway, Australia and The Netherlands on top of the charts, while Congo, Niger and Burundi fare the worst in the annual rankings.

India's place remains unchanged because the index includes 18 new countries this time as against just 169 in 2010 when India stood at rank 119. This year, though, India is placed behind all its partners in BRICS where The Russian Federation is the leader at number 66, followed by Brazil at 84; China at 101 and South Africa at 123.

Within the South Asian Region, too, India is not in the lead, whereas Iran, at 88th position, fares at the top. Bhutan, Pakistan, Bangladesh, Nepal and Afghanistan are placed below India in HDI rankings and values.

On Gender Inequality Index (GII), India is ranked a poor 129th in the world. It is ahead of only Afghanistan in South Asia on an indicator which measures gender parity in education, reproductive health (maternal mortality and adolescent fertility rate), representation of women in national parliaments and participation of women aged above 25 years in the country's labour force.

On the inequality adjusted indices for education and health, India fares poorly in BRICS nations and South Asia's Sri Lanka and Bangladesh. It loses substantial HDI value -28.3 per cent -- when internal inequalities in health, education and income are calculated.

VITAL STATISTICS

RANK	COUNTRY	HDI	VALUES	LIFE EXPECTANCY (IN YRS)
TOP 3				
1	NORWAY	0.943		81.1
2	AUSTRALIA	0.929		81.9
3	NETHERLANDS	0.910		80.7
BOTTOM 3				
187	CONGO	0.286		48.4
186	NIGER	0.295		54.7
185	BURUNDI	0.316		50.4
134	INDIA	0.547		65.4

Basics Right

Getting the Basics Right (The Times of India: 5.12.2011)

We urgently need universal health coverage to provide a safety net for the common man. After so many wrongs, the Planning Commission may have just got it right. According to leaked accounts, its universal health coverage proposal may become reality as early as the next five-year Plan. Once this policy is in place, India can legitimately enter the club of welfare states through the front door. Now, at last, it has a scheme that is truly inclusive for it includes us all.

When implemented, this measure will reduce private health expenditure across categories, especially from the high middle class down to the poorest. Because the coverage is 'universal', hence inclusive, and not just for the deprived as NREGA and Rashtra Swasthya Bima Yojana are, it is bound to do well.

Universal health coverage will have a better run for it will be pressured by a broad band of the non-poor who can make a noise and also a difference. The very poor are nearly always mute spectators of a process outside their control. Except for the ultra-rich, health costs are a serious concern for everybody. Yet, from the beginning of time, most Indians have had little option but to groan and bear it.

If, as has been envisaged, state expenditure in health is raised to roughly 3% of our GDP by 2020, that would mean a stupendous three-fold increase. This would let the sick

concentrate on getting well rather than scrambling for money to pay medical bills. Most of all, as this policy would also draw in the middle classes, it would get a fighting chance of staying alive.

Health statistics in India are grim beyond belief. About half the admissions in rural hospitals are paid for with borrowed money. According to development economist and national advisory council member A K Shiva Kumar, a little less than a third of the sick in rural India do not seek medical help at all because they cannot afford it. Go to a public hospital, one might say, but because those are meant for the poor, the services there are, predictably, poor as well.

As nobody, not even the economically deprived, want to chance with health, roughly 71% of the sick go to private health providers. The Indian Human Development Survey slices this statistic further to show that the trend remains the same for both long and short-term illnesses. This tells us why the private purchases of drugs and medical advice account for as much as 78% of the country's total health bill. It is often supposed that if hospital beds are free, that is all that the poor need. What is forgotten is that 72% of out of pocket private expenditure is on account of drugs.

In contrast, the average private expenditure on health in OECD countries is a mere 26.9%; the rest is picked up by the state. In Britain, this figure is even lower, just 12.7%, which is truly remarkable. In Norway it is 16.4%, in France 21.3%, and so on. This should not be seen as a rich versus poor contest. Even a developing economy like Mexico does better than us when it comes to state support of healthcare. The one country we should not imitate is the US.

Even after the Planning Commission's proposal is accepted, we will still have a long way to go before we are world class. Of course, the poor would be the first to access such services, but if specialists are paid well and facilities up to the mark, then that would attract the middle classes too.

It is really not a question of money, but of political will. First, there is enough money going around as all these scams have amply demonstrated. But on a more fundamental level, there have been countries that have thought of universal coverage for health and education even when poor.

Sweden's unemployment rate was around 25% in 1932 when it established the "folkhemmet" (home of the people) programme guaranteeing universal welfare. This gradually grew to become a model for the world. Today, when we talk health and education, we think of Sweden first.

Basque Spain introduced Osakidetza in 1982 when its economy was still recovering from the depredations of the Franco era. It did not take long for this region to prosper and now it has the best health service in Spain with a ratio of 4.5 doctors for every 1,000 patients.

The Canadian province of Saskatchewan introduced healthcare in 1947 even though it had fared badly during the war years. This was the poorest region of Canada, but that did not deter it from doing remarkable things on the medical front. Britain, likewise, implemented the National Health Scheme in 1946 when it was reeling under the burden of war expenses and needed food parcels from America to survive. It was so poor that it could not even hold on to India. Today, Britain leads the pack in terms of universal health coverage the world over.

We can get there too, but we need the political resolve. The Planning Commission has provided the compass, but politics must have the strength to undertake the journey. The writer is a social scientist.

Survey of child labour

Survey of child labour in five U.P. districts ordered (The Hindu: 19.12.2011)

The National Commission for Protection of Child Rights (NCPCR) has ordered a survey of child labour in five districts of Uttar Pradesh, where a large number of children are employed in carpet industry and other labour intensive units. The survey will include data on the number of children rescued and action taken for their rehabilitation.

The survey directive was given by a jury of the NCPCR during a public hearing in Varanasi on Saturday. The study would be conducted in Varanasi, Bhadohi, Mirzapur, Sonbhadra and Maharajganj.

The district administration will submit a report to the child rights panel within three months and the jury will constantly monitor the survey's progress.

A case citing the injustice of a U.P. circular issued in 1998, which allowed for only two inspections a year for any industry in the organised sector, was heard by the Commission. This law allowed child labour to go unchecked in several places. The Commission ordered a policy revision and stated that laws should change with time.

“Free and compulsory education and total abolition of child labour are central to human development and fundamental for enhanced citizenship. There has to be zero tolerance of children being out of school and child labour laws and policies have to be in sync with the Right to Education Act 2009,” said NCPCR chairperson Shantha Sinha.

Thirty six cases from the five districts, selected through the Shambhunath Singh Research Foundation (SRF) — an NGO working in close coordination with NCPCR in the area — were heard by the jury comprising Dr. Sinha; Himachal Pradesh High Court Judge R.B. Mishra; NCPCR members Yogesh Dube and Vinod Kumar Tikoo; member-secretary of NCPCR Shri Lov Verma; and chairperson of the Bihar State Commission for Protection of Child Rights Nisha Jha.

In each case, the jury ordered swift and targeted action, set a time line for the authority in question to follow and asked the authority to send in a report of its progress to the Commission, which will constantly monitor the progress and action taken in each case.

Another case heard was that of a young orphan living with his grandfather. He was forced to work because his grandfather was not receiving aid from any of the government security schemes. The Commission ordered immediate action and told the authority concerned that the grandfather should receive his pension within four days and a report of this should be sent to the central body.

Other issues that came up were those of child labour, child trafficking, malnutrition, denial of birth registration, immunisation, absence of Integrated Child Development Services centres and improper functioning of the Anganwadi system.

A case came up on child labour in the carpet industry in Bhadohi district, where the rescued children were not ensured entitlement of their rights. The jury immediately ordered the authority concerned to set up a task force in Bhadohi and submit a copy of the report to the Commission within a week.

The jury also heard cases of violation of right to education, including denial of admission, corporal punishment, absence of infrastructure, and even absence of schools in clusters, where a large number of out- of-school children were identified.

Child Labour

45% fewer children exploited as workers (Business Standard; 20.12.2011)

A combination of the mid-day meal scheme and the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) has brought down the number of working children in India by almost half in five years.

Figures from the National Sample Survey Office (NSSO) show a decline of 45 per cent in the use of children in the age group of 5-14 as workers. In 2009-10, there were 4.9 million children employed as workers, down from about nine million in 2004-05.

Child labour in India has long been the stick used by human rights activists and international trade hawks to beat India with. But, the problem now seems less severe than perceived.

Although a 45 per cent cut in child labour is the highest in recent years, the number of child labourers has been on a declining trend. According to the 2001 census figures, there were 12.6 million child workers, 11.3 million according to the 1991 census figures and 13 million according to the 1981 census figures. The increase from 1991 to 2001 is usually not attributed to the increase in child workers, but because the total population of children went up from about 200 million in 1991 to about 250 million in 2001.

The NSSO data has been categorised under four parameters: rural male, rural female, urban male and urban female. Under all the categories, the worst performing state is Uttar Pradesh, which has the highest child labourers under all four categories. The total child labour number in Uttar Pradesh is around 1.8 million, followed by West Bengal with 550,000 and Rajasthan with 400,000.

Though Gujarat has a considerably lower total child labour population of around 390,000, it has the highest worker population ratio. In Gujarat, there are 240 child workers for every 1,000 workers. Gujarat is followed by Uttar Pradesh with 234 child workers for every 1,000 workers. As compared to this, the national average is considerably lower at 129 child workers for 1,000 workers.

The maximum employment of children as workers is in rural India, with over 85 per cent of the total child workers being put to work in the fields. The data suggest that around 2.5 million male children and 1.7 million female children work as labourers in rural India. On the other hand, in urban areas, around 582,000 and 186,000 male and female children are employed.

Senior officials in the labour ministry, analysing the data, said various government schemes including MNREGA, the mid-day meal scheme and the Integrated Child Protection Scheme under the ministry of women and child development were key reasons for the fall in child labour numbers. They said the government would introduce incentive schemes for officials at the district level to encourage action against people who employ child labour.

Stress

Stress hormone

Stress hormone cortisol may up cardiovascular risks for shift workers New Kerala: 510.2011)

Previous studies have shown that long-term elevated cortisol levels lead to increased abdominal obesity, hypertension, diabetes and cardiovascular risk.

Now, a new study has found that shift work at a young age is associated with elevated long-term cortisol levels and increased BMI.

This is the first study that shows that working in shifts leads to changes in long-term cortisol levels, suggesting that the stress hormone cortisol might be one of the factors contributing to the increased cardiovascular risks of shift workers.

Researchers at Erasmus MC in Rotterdam, The Netherlands, collected hair samples from 33 shift workers and 89 day-workers, extracted cortisol from the hair samples with methanol and measured cortisol levels using an ELISA cortisol kit.

They found that long-term cortisol levels were significantly increased in individuals working in shifts, especially in study participants younger than 40 years.

“Our findings show that cortisol might play an important part in the development of obesity and increased cardiovascular risk for those working in shifts,” said lead author Laura Manenschijn, MD.

“Unraveling the role of cortisol in the health problems found in shift workers could result in new approaches to prevent cardiovascular damage in this specific group,” she said.

The study is accepted for publication in The Endocrine Society’s Journal of Clinical Endocrinology and Metabolism.

Stress

Life in the stress lane (The Tribune: 14.10.2011)

Does a suicide in IIT mean it's because of IIT? Tanya Thomas thinks other factors are at play.

It's very difficult to fail in the IITs. We allow a lot of leniency here because we know we've got the best students. But once they receive their job offers in the final year, some students ignore projects that need to be completed on time. So extensions become necessary. We have about 7,000 students here, and 95-98% of them finish their work satisfactorily.

Four. That was the number of times he had attempted suicide, he said, jogging down a verdant track on the Indian Institute of Technology, Madras (IIT-M) campus.

As spotted deer galloped ahead in the fading evening light, he described how the mind goes blank in those tense seconds. He had calculated with scientific precision the exact moment when death would arrive, and how it would shut down his senses. The farewell arrangements were already in place – a terse message to his family, a suicide note, and a bitter Facebook status message.

Mercifully, his courage failed him in those crucial moments, and he lived to tell the tale.

But others haven't. Like V.Anoop (February), Nitin Kumar Reddy (May) and Gowri Shankar (August) who took their lives on the IIT-M campus this year. A blog called Suicides at IIT's (sic) maintains a veritable death toll, listing news reports on a little less than 40 suicides in all IITs combined since 1981.

Attributing all these cases to academic pressure would only be simplifying a layered issue, say academicians and psychiatrists. The reasons for these deaths appear to be very different, and in some cases, even unexplained, they point out.

Some suicide notes blamed project extensions and low grades as the final straw. But Gowri Shankar's suicide, on the other hand, baffled those who knew him. A post-graduate student, he had excellent academic scores, a seemingly happy family life with his wife and two children and a 10-year-old job with HAL. He didn't leave a suicide note.

A first-year student said that suicides were usually played down, with the management unwilling to examine the issue in public glare. This unwillingness has led to most of the causes being shrouded in mystery and "knee-jerk responses."

For instance, the internal committee probing the November 2010 suicide of IIT-Kanpur student Madhuri Sale (who had hung herself from a ceiling fan) famously decided to

replace all ceiling fans with pedestal fans, and to reduce the speed of internet connectivity in hostels. But this didn't deter Mehtab Ahmed, a first-year undergraduate student of Material and Metallurgical Engineering at IIT-Kanpur, from ending his life less than a week ago. (The case is under investigation.)

Inordinate project extensions in the final year of a course don't just damage a student's future plans, but are also hugely taboo in the institution's self-contained environment. However, the institution defends the practice, clarifying that the IITs cannot compromise on quality norms and give passing grades to a student who hasn't completed course requisites satisfactorily.

Many within IIT's walls are angered by the media's "one-sided reporting" of student deaths on campus, "headlining" them as cases of academic pressure even before investigations are through. This, without mentioning the support network built around student and faculty bodies. Parents are often informed when a student's grades nosedive, or when social withdrawal has been observed.

The support network at IIT-M is the Guidance and Counselling Unit (GCU). A vast body headed by a single faculty member and some faculty volunteers, it has a male and female student-in-charge under whom work an infinite number of counsellors – college students who watch out for each other.

The drive to succeed, to get to the top of the pecking order, can make mediocrity hard to digest here. Students spend most of their non-class time "sitting alone in rooms, surfing the internet or watching movies all day" with little peer interaction.

A sentiment echoed by a former faculty head of the GCU, who criticises the lack of social connection in a student population which would rather vent frustrations on online networks than speak to a friend next door.

In response to the recent suicides, a 24/7 helpline involving the alumni was set up. And since early September, a Chief Happiness Officer with Happiness envoys has been instated, who students can approach to talk their problems through.

Another advocate for the campus support system is the student who had attempted suicide four times. "It's a strong network", he explains, alluding to his otherwise lonely life at IIT. His problems were both academic and familial. Senior faculty members had assisted him through his period of terrible mood swings, and he now takes psychiatric treatment, which includes a course of anti-depressants, sedatives and mood elevators.

The visiting psychiatrist at the campus hospital, Dr. Vasantha Jayaram is reluctant to speak on an issue she calls 'controversial'. But she categorically states that most cases of depression and suicide are multi-factorial, where all stakeholders (parents, professors and the student) play a part.

Another unexplored aspect is the increased likelihood of mental health difficulties in the higher academia, with many confessional blogs by depressed academics. An article in the American Journal of Psychiatry states that there is no relation between higher mental capacity and psychic illness. But it does concede that a higher incidence of mental illness is indeed reported among this population.

But does this let institutions like the IITs off the hook? Some professors feel if students are determined to take their lives, the institution cannot be held responsible. A position contested by Shankar, a volunteer at a Chennai-based suicide helpline, Sneha. From his experience with suicidal callers, he believes that nobody is determined to die and there is no specific category of people prone to commit suicide.

“It is a reaction to prolonged stressors”, and can be successfully dealt with in all cases by identifying triggers and keeping them at bay.

*Names withheld to protect privacy.

Tanya Thomas is a student at the Asian College of Journalism, Chennai.

Parents need to be proactive

"Sometimes students feel helpless, especially in a society like ours which lays emphasis on just a few conventional careers. Furthermore, we also place too much emphasis on the men being the bread winner. Being born in a society where keeping the family happy is paramount over individual happiness, and an acute fear of failure in our ultra-competitive society makes many teenagers opt for the subjects for which they lack the aptitude. They deny their own identity and while some can take it, others crack up.

They are the quiet ones who never confide in anyone. Parents have a responsibility to constantly remind their kids that there are viable options out there that go beyond being mere engineers. In fact, parents need to be proactive and change their own viewpoint before they start putting pressure on a child to pick up a career. Finally, picking a career that utilises an individual's strengths will always be useful. I have come across a case where a teenager having a talent for languages went on to do engineering like any 'good' Indian kid despite her distaste for it. After four wasted years, no job and no motivation left to live, she finally discovered that translators for foreign investors and for UN can make upwards of \$100 an hour.

Doing homework on your child's strengths and options available is most important. Being there to listen and show that you are with them no matter how they perform or what they decide is most important."

— Dr Kanu Priya, formerly practising psychologist, presently Assistant Professor at Arkansas State University (as told to Vipul Grover)

Obviously the pressure to succeed is very high in the IITs, more so than in most other academic institutions. However, IITs (at least the older ones) have a counselling in place, the effectiveness of which may be in question now.

Stressed women

Stressed women more likely to have baby girls (New Kerala: 18.10.2011)

Women who are stressed while trying for a baby could be more likely to have girls, according to new research.

In the first of its kind, a study found high levels of the stress hormone cortisol were associated with the birth of more girls than boys.

Some 338 British women who were trying to get pregnant recorded how stressed they felt.

Levels of cortisol and the enzyme alpha-amylase – an indicator of adrenalin – were measured for up to six months or until they fell pregnant. Cortisol is linked to long-term stress, while adrenalin is linked to short-term stress.

A team from the Department of Public Health at Oxford University found women with the highest cortisol levels were up to 75 per cent less likely to have a boy. No link was found with alpha-amylase.

The experts say more research is needed to see if the link between stress and sex ratio is genuine.

The study will be presented at the American Society for Reproductive Medicine conference in Orlando.

Mindfulness

Mindfulness is the best antidote to stress (World Newspapers: 2.11.2011)

The best antidote to stress is mindfulness, existing in the here and now, not in the past or future, suggest meditation gurus. Researchers have now drawn a framework of four key components to help explain these positive effects.

Mindfulness, an essential part of Indian yoga traditions, has entered the mainstream as people try to find ways to combat stress and improve their quality of life. It is suggested the meditation can have benefits for health and performance, including improved immune function, reduced blood pressure, and enhanced cognitive function.

But how is it that a single practice can have such wide-ranging effects on well-being? The study draws on the existing scientific literature to build a framework on explanation, reports the journal *Perspectives on Psychological Science*, citing a Harvard University statement.

Study author Britta Hölzel, of Justus Liebig University and Harvard Medical School, suggests the goal is to "unveil the conceptual and mechanistic complexity of mindfulness, providing the 'big picture' by arranging many findings like the pieces of a mosaic".

Hölzel and co-authors point out that what we think of as mindfulness is not actually a single skill, but rather a multi-faceted mental practice that encompasses several mechanisms.

They specifically identify four key components of mindfulness that may account for its effects: attention regulation, body awareness, emotion regulation, and sense of self.

Together, these components help us attend to and deal with the mental and physiological effects of stress in ways that are non-judgmental.

Although these components are theoretically distinct, they are closely intertwined. Improvement in attention regulation, for example, may directly facilitate our awareness of our physiological state. Body awareness, in turn, helps us to recognise the emotions we are experiencing.

Effective mindfulness meditation requires training and practice and it has distinct measurable effects on our subjective experiences, our behaviour, and our brain function.

Baby Stress

Baby Separated From Mother Suffers Stress (Med India: 4.11.2011)

Separating babies from their mothers is stressful to the baby, research published in Biological Psychiatry provides new evidence.

A woman goes into labor, and gives birth. The newborn is swaddled and placed to sleep in a nearby bassinet, or taken to the hospital nursery so that the mother can rest. Despite this common practice, the new research shows that babies thus separated suffer stress.

It is standard practice in a hospital setting, particularly among Western cultures, to separate mothers and their newborns. Separation is also common for babies under medical distress or premature babies, who may be placed in an incubator. In addition, the American Academy of Pediatrics specifically recommends against co-sleeping with an infant, due to its association with Sudden Infant Death Syndrome, or SIDS.

Humans are the only mammals who practice such maternal-neonate separation, but its physiological impact on the baby has been unknown until now. Researchers measured heart rate variability in 2-day-old sleeping babies for one hour each during skin-to-skin contact with mother and alone in a cot next to mother's bed. Neonatal autonomic activity was 176% higher and quiet sleep 86% lower during maternal separation compared to skin-to-skin contact.

Dr. John Krystal, Editor of Biological Psychiatry, commented on the study's findings: "This paper highlights the profound impact of maternal separation on the infant. We knew that this was stressful, but the current study suggests that this is major physiologic stressor for the infant."

Stress

New sign of too much stress: Sleep-texting (The Times of India: 25.11.2011)

Number of People Sending Out Incoherent Messages While Asleep Is Rising Rapidly

Day-to-day stress has triggered an unusual habit of sleep texting — where people text messages even while sleeping, according to researchers.

People with this peculiar condition send incoherent messages while asleep to their friends and family — completely unaware of doing it, said researcher Frank Thorne, the Daily Mail reported. "Patients reported incidents of sleep texting — were advised to

leave their mobile phones outside the bedroom, it is one of those things that happen, but it is very rare, and certainly not a common trend,” said sleep specialist David Cunningham. He described sleep texting as the result of having too much to do during daytime.

“People are doing so much during a normal day that it makes them feel like they’re on call even at night,” he explained. “It’s so easy to receive emails constantly and get notifications from smartphones, that it becomes difficult for us to separate our waking and sleeping time,” he added.

According to him, people struggling to get a quality night’s sleep should keep their phones’s out of the bedroom.

“If your phone is on the nightstand, then it will be more difficult to have a good night’s sleep without feeling compelled to reply to a message or check your Facebook account,” he said.

“The key point is that people need to respect their sleep, and make an effort to switch off at night,” he added.

Sleep-texting reportedly seems to be the latest fad among today’s youth, with increasing numbers of cell phone users text messaging friends while asleep.

Sleep experts said the phenomenon was a natural extension of the younger generation’s reliance on modern technology. But they disagree on whether it is possible to send a text while technically being asleep. AGENCIES

Oxidative stress

Oxidative stress may not be all that harmful (New Kerala: 8.12.2011)

Anti-oxidants play a critical role in protecting cells but could also damage them or cause their deaths if they are malfunctioning, a study reveals.

This damage known as oxidative stress is believed to be tied with Alzheimer's, Parkinson's disease, coronary heart disease, diabetes and is also implicated in aging.

For the first time, scientists of the German Cancer Research Centre (known as the Deutsches Krebsforschungszentrum or simply DKFZ in German) have been able to directly observe oxidative changes in a living organism.

Basing their study on fruit flies, researchers found no evidence that the life span is limited by the production of harmful oxidants, according to a statement by DKFZ.

"However, up to now, nobody was able to directly observe oxidative changes in a living organism and certainly not how they are connected with disease processes," said Tobias Dick, researcher at the DKFZ.

"There were only fairly unspecific or indirect methods of detecting which oxidative processes are really taking place in an organism," said Dick.

For the first time, Tobias Dick and his co-workers have been able to observe these processes in a living animal. Jointly with Aurelio Teleman (also of DKFZ), they introduced genes for biosensors into the genetic material of fruit flies.

These biosensors are specific for various oxidants and indicate the oxidative status of each cell by emitting a light signal -- in realtime, in the whole organism and across the entire life span.

Many scientists have assumed that the aging process is associated with a general increase in oxidants throughout the body.

However, this was not confirmed by the observations made by the investigators across the entire life span of the adult animals.

Even though comprehensive studies have failed to provide proof until the present day, anti-oxidants are often advertised as a protection against oxidative stress and thus health-promoting.

Stress

Stress reduction and mindful eating may help curb weight gain(World Newspapers; 9.12.2011)

Mastering simple mindful eating and stress-reduction techniques could help prevent weight gain even without dieting, according to a new study.

UCSF researchers found that women in the study who experienced the greatest reduction in stress tended to have the most loss of deep belly fat.

To a greater degree than fat that lies just under the skin, this deep abdominal fat is associated with an elevated risk for developing heart disease or diabetes.

"You're training the mind to notice, but to not automatically react based on habitual patterns" to not reach for a candy bar in response to feeling anger, for example," said UCSF researcher Jennifer Daubenmier, PhD, from the Osher Center for Integrative Medicine.

“If you can first recognize what you are feeling before you act, you have a greater chance of making a wiser decision,” she stated.

The women who participated in the study were not on calorie-counting diets. Instead, 24 of the 47 chronically stressed, overweight and obese women were randomly assigned to mindfulness training and practice, and the other 23 served as a control group.

Although no diets were prescribed, all participants attended one session about the basics of healthy eating and exercise.

The training included nine weekly sessions, each lasting 2 1/2 hours, during which the women learned stress reduction techniques and how to be more aware of their eating by recognizing bodily sensations " including hunger, fullness and taste satisfaction. At week six they attended an intensive seven-hour, silent meditation retreat.

Those who had greater improvements in listening to their bodies' cues, or greater reductions in stress or cortisol, experienced the greatest reductions in abdominal fat.

Among the subset of obese women in the study, those who received the mindfulness training had significant reductions in cortisol after awakening and also maintained their total body weight, compared to women in the waitlist group, who had stable cortisol levels and continued to gain weight.

“In this study we were trying to cultivate people's ability to pay attention to their sensations of hunger, fullness and taste satisfaction as a guide for limiting how much they eat,” Daubenmier explained.

“We tried to reduce eating in response to emotions or external cues that typically drive overeating behaviour,” she added.

Daubenmier said the small study is preliminary and must be confirmed in ongoing, follow-up research.

The study has been published online in the Journal of Obesity

Stress

Work-related Stress Felt Even in Dreams (Med India: 13.12.2011)

Nowadays, even dreams are filled with the stress of work, a new study has found.

According to the survey of 2,000 people conducted by One Poll for Premier Inn hotels, one in three dream about work when they are stressed in their job and a quarter stated that they dream about a colleague if there was a conflict with them earlier that day.

More than 20 percent polled admitted that they regularly dream about their boss, while another 20 percent dreamed more if they were under pressure or stressed.

The poll found that the average person dreams most nights, with only 12 percent saying they never dream.

"This poll shows that whether we are asleep or awake a problem with a colleague or stress at work can really affect us," the Daily Mail quoted Davina MacKail, dreams expert as saying.

"More than half of the nation stated that their dreams don't make sense so I have worked with Premier Inn to compile a Dream Dictionary to help dreamers to understand why they dream what they do and what those dreams mean," MacKail added.

Stress

The Leading Edge of Stress: New Genomic, Optogenetic and Epigenetic Findings (Science Daily: 14.12.2011)

Scientists are discovering promising approaches to treating pain, one of the most common and debilitating neurological complaints, according to research released November 15 at Neuroscience 2011, the annual meeting of the Society for Neuroscience and the world's largest source of emerging news about brain science and health. Studies show that "mirror box therapy" can help reduce arthritis-related pain, and that a new opioid-like drug may be able to relieve acute pain without the euphoric effects that can lead to dependency. Additional research also identifies the possible neurobiological source of common side effects of morphine.

Specifically, today's new findings show that:

- Two of morphine's most common side effects, itch and headache, may be due to the drug's activation of immune cells in the membrane surrounding the brain and spinal cord (Julie Wieseler, PhD, abstract 178.12, see summary attached).
- A visual feedback technique called mirror box therapy can help alleviate hand pain in patients with arthritis (Laura Case, abstract 72.03, see summary attached).
- In an animal study, a novel drug relieves acute pain without the dangerous side effects associated with opioid painkillers such as morphine (Stephen Harrison, PhD, abstract 178.10, see summary attached).

Other recent findings discussed show:

- A gene therapy treatment reduced pain in 10 people in a Phase I clinical trial that tested for treatment safety (David Fink, MD, see attached speaker's summary).

- A naturally occurring protein that supports the survival and growth of neurons in the brain and spinal cord may be a potential therapeutic intervention to prevent chronic pain following spinal cord injuries, according to animal research (Ching-Yi Lin, PhD, see attached speaker's summary).

"Pain is one of the most intransigent and difficult symptoms to treat," said Allan I. Basbaum, PhD, FRS, of the University of California, San Francisco, press conference moderator and expert on the neurobiology of pain. "These studies and others are helping us better understand the complex neural pathways involved in pain and the long-term consequences of injury. With this, researchers will be better poised to develop approaches to alleviate pain and aid in recovery from injuries."

Stress

Stress, free babies develop fewer allergies (World Newspapers: 16.12.2011)

Infants with low concentrations of cortisol, a stress-related hormone, in their saliva develop fewer allergies.

The incidence of allergies in children has increased over the past few decades. In Sweden, 30 to 40 percent of children have some kind of allergy.

A combination of environmental and lifestyle factors during pregnancy and early infancy are thought to be responsible for the sharp rise in allergic diseases, suggests a study from Karolinska Institutet in Sweden.

Hopefully this new knowledge will be useful in future allergy prevention, the Journal of Allergy and Clinical Immunology reports.

"Psycho-social factors and the stress hormone cortisol are associated with allergic diseases," says Fredrik Stenius of South General Hospital, Stockholm, according to a Karolinska Institutet statement.

"Our study found that children with low salivary cortisol levels as infants have a lower prevalence of allergies during the first two years of life, compared to other children."

The researchers believe that factors related to stress regulation also influence the development of infant allergies.

Anxious

The ‘anxious’ v a t a personality (The Times of India: 26.12.2011)

Ayurveda explains the three main d o s h a s or body types but no single human being belongs to only one group, points out Kaity Cama, alternative medicine practitioner

From a biological viewpoint, some people are more worried, more afraid and anxious at times. That’s because according to ayurveda, we are one of three body types or doshas — v a t a, pit t a or k a p h a and exhibit certain traits in our personality. We may be dominated by one particular d o s h a, but all three prevail in some ratio or the other in our systems.

Typical traits:

We’ll take a look here at the v a t a dominated person, which, governed by air and space, denotes movement. Va t a dominated people do everything in quick movements. They walk fast, talk fast and quickly absorb new information; they are lively people, lively, airy and enthusiastic. Their bodies are slim, and muscles, long and slender. They have erratic sleep and eating habits, so if you have a slim, slender child at home who doesn’t eat at mealtimes, but suddenly tells you he is hungry, do not insist on the child following disciplined eating patterns; that stresses out the child. When Va t a dominated people are stressed, they become extremely anxious, full of fears and anxiety; their sleeping and eating patterns go haywire and they are filled with negative thoughts created by anxiety. When these children grow up and begin a self-discipline regime, things become better as they follow sensible eating and sleeping patterns, particularly if they are working.

Pacifying v a t a foods:

In such people, v a t a gets imbalanced through any type of stress but they can be “de-stressed” by pacifying v a t a foods which would be sweet, salty and sour. When stressed, some of the physical dysfunctions include menstrual cramps (for women), and over a long period of stressful living and osteo-arthritis.

But we know that positive thoughts attract more positive thoughts, and negative thoughts and emotions attract more of the same, so when a v a t a dominated person is worried and anxious, everything around seems chaotic. But the v a t a-dominated person now also has the knowledge that they can change negative emotions — stress is something we bring upon ourselves when we see something as a threat to our well-being. Stressed out v a t a-dominated people should have more of sweet food like potato, (not sugar), salty and sour foods with their meals. Iced cold drinks are not advised for all, particularly for v a t a-dominated people at meal times.

Vaccines

Lung Cancer Vaccine

Lung Cancer Vaccine Shows Promise in Initial Trials (Med India: 25.10.2011)

A new study published in the journal Lancet Oncology suggests that researchers may be close to developing a vaccine that could make body's own immune system to attack the most common type of lung cancer.

The vaccine, known as TG4010, is made up of a modified form of pox virus and has been developed by researchers at University of Strasbourg. Trials have been conducted on 148 patients and while the vaccine does show promise, experts believe that its effect on the survival chances was limited.

According to the trials, while the six month progression free survival period in patients who were vaccinated by TG4010 was 43 percent, compared to 35 percent among chemotherapy patients, its overall survival period was 10.7 months. This was only marginally higher than the 10.3 months in chemotherapy patients.

Cancer Research UK's Professor Peter Johnson said that more research was needed to ascertain the effect on the overall survival chances. "This early-stage study shows that combining a vaccine with chemotherapy is possible, and may have some benefits for some people with lung cancer. But this study leaves a lot of unanswered questions - further research is needed to see whether the vaccine will actually improve survival for lung cancer patients", he said.

Vaccine

Vaccine to stop progression of HIV virus comes closer to reality (New Kerala: 9.11.2011)

Scientists have moved a step closer to understanding how one of our body's own proteins helps stop the human immunodeficiency virus (HIV-1) in its tracks, paving the way for new therapeutic approaches to the disease and even vaccine development.

The study, carried out by researchers at the University of Manchester and the Medical Research Council's National Institute for Medical Research, provides a blueprint for the design of new drugs to treat HIV infection, say the researchers.

Scientists in the United States and France recently discovered that a protein named SAMHD1 was able to prevent HIV replicating in a group of white blood cells called myeloid cells.

Now, crucially, the teams from Manchester and the MRC have shown how SAMHD1 prevents the virus from replicating itself within these cells, opening up the possibility of creating drugs that imitate this biological process to prevent HIV replicating in the sentinel cells of the immune system.

"HIV is one of the most common chronic infectious diseases on the planet, so understanding its biology is critical to the development of novel antiviral compounds," said Dr Michelle Webb, who led the study in Manchester's School of Biomedicine.

"SAMHD1 has been shown to prevent the HIV virus replicating in certain cells but precisely how it does this wasn't known. Our research has found that SAMHD1 is able to degrade deoxynucleotides, which are the building blocks required for replication of the virus.

"If we can stop the virus from replicating within these cells we can prevent it from spreading to other cells and halt the progress of the infection," she added.

The study has been published in the journal Nature.

Anti-vaccine

Anti-vaccine parents give kids lollies infected with chickenpox(The Indian express: 18.11.2011)

The offer — lollipops infected with chickenpox — appeared on Facebook last month and circulated among parents who oppose vaccination against diseases. “I have PayPal and plenty of spit and suckers,” it read. “It works because that’s how we got it! Ours was FedEx’d from Arizona. We’ve spread cooties to Cookeville, Knoxville and Louisiana!”

Other parents on the same message board posted requests for shipments of a variety of chickenpox-infected items — towels, clothes, rags. By getting their children to touch the contaminated items or suck on tainted candy, they believe their children will get the stronger immunity that surviving a full-blown natural infection of chickenpox affords, without the hazards they say come with vaccines.

“I think it’s an incredibly bad idea, whether you’re getting it from a lollipop or somewhere else,” said Dr Rafael Harpaz, a medical epidemiologist at the Centers for Disease Control and Prevention. “Chickenpox can cause severe disease and death. Before the vaccine was available, we were approaching 100 children who died every year in the US. You’re basically playing a game of Russian roulette.”

Jerry E Martin, an attorney in Nashville, where the lollies were advertised at \$50 for overnight delivery, issued a warning last week that sending infected items “through the flow of commerce” was a federal crime, punishable by up to 20 years in jail.

So-called pox parties, where parents would arrange play dates with infected children, were practiced before the introduction of the varicella, or chickenpox, vaccine in 1995. Now some parents are turning to Facebook and other social media sites, using the Web to facilitate exposure of their children to chickenpox, measles, mumps and rubella. They say they would rather their children acquire the disease and develop natural immunity than suffer from vaccine side effects.

Kari Campbell Soto, a mother of four young children in San Bernadino County, founded one of the groups, “Chicken Pox Party - Southern California,” about six months ago. Campbell Soto said she recently took her children to a play date at the home of a young girl who had chickenpox, but her children did not get sick. She then noted on the group’s page that she was looking for another infected child in the area, or an adult with shingles, which is caused by the same virus, varicella zoster.

Although she works in the medical field, Campbell Soto said she became distrustful of vaccines after one of her children, who was vaccinated regularly, developed a

neurological disorder as a toddler. "I feel that I have a vaccine-injured child; that's what led me to go down this road," she said. ANAHAD O'CONNOR

Vaccine targeting latent TB enters 1st phase of clinical testing (New Kerala:2 Dec. 2011)

Statens Serum Institut and Aeras have announced the initiation of the first Phase I clinical trial of a new candidate TB vaccine designed to protect people latently infected with TB from developing active TB disease.

The trial is being conducted by the South African Tuberculosis Vaccine Initiative (SATVI) at its field site in Worcester, in the Western Cape province of South Africa. "Two billion men, women and children live with latent TB infection," Jim Connolly, President and Chief Executive Officer of Aeras, said.

"It's daunting to comprehend that there is a vast reservoir of people with a 5-10 percent lifetime risk of becoming sick with TB. A vaccine that prevents TB disease in this population could save millions of lives, and this trial is a first step in assessing a vaccine candidate designed for this purpose," he said.

The candidate TB vaccine (SSI H56-IC31) is a subunit vaccine containing recombinant TB proteins formulated in a proprietary adjuvant IC31 from Intercell. It is being developed under a consortium of researchers led by Peter Andersen at the Statens Serum Institut (SSI) based in Copenhagen.

"The development of urgently needed new TB vaccines requires a global effort," Prof. Peter Andersen, the Vice President of Vaccine Research and Development at SSI, said. "The advancement of this candidate from an idea to the clinic working in collaboration first with the Grand Challenges consortium and now with Aeras and SATVI is an important and exciting milestone for all the researchers involved," he said.

This clinical trial will be the first to test this vaccine candidate in people. It will assess the safety and immunogenicity of SSI H56-IC31 in 25 adults, including participants with and without latent TB infection.

Single vaccine

Single vaccine shot protects pregnant women, infants against H1N1 (New Kerala: 9.12.2011)

A single shot of H1N1 flu vaccine boosts immune response in pregnant women and at the same time protects neonatal babies via the antibodies that get transferred through the placenta, a new study has revealed.

The researchers studied the immune response of 107 pregnant women after they were injected with a single dose of non-adjuvant H1N1 vaccine.

The team led by Odile Launey, the Director of vaccinology at the Centre for Clinical Investigation at Cochin Pasteur, carried out a vaccination study in order to demonstrate the immunogenicity, in other words the immune response in terms of the production of antibodies, after a single injection of a nonadjuvant A strain (H1N1) into women at 21 days and 42 days of gestation and to measure the transplacental transfer of the mother's antibodies to neonatal babies.

This study concerned women between 22 and 32 weeks of amenorrhea who were monitored in five French neonatal clinics after being injected into the arm with an injection of H1N1 A strain vaccine.

Blood tests were carried out in order to measure the antibody counts protecting against the influenza virus.

On delivery, a blood sample was taken from the umbilical cord in order to measure the quantity of influenza antibodies transmitted to the newly born. All events observed in mothers and babies during the study were recorded.

Prior to vaccination, 19 percent of the patients already presented H1N1 strain antibodies at levels considered to be protective. Three and six weeks after vaccination, 98 percent of the patients presented blood antibody counts considered being protective.

On delivery and 3 weeks after delivery, the proportion of patients with antibody counts considered to be protective was between 92 percent and 90 percent. The umbilical cord samples of newly born babies showed antibody counts considered to be protective in 95 percent of cases.

“These results show that the influenza vaccine boosts the immune system in pregnant women and also protects newly-borns via transplacental transfer,” said Launey.

The study has been recently published in the review Annals of Internal Medicine.

Super Vaccine

Super vaccine could knock out 70 percent of cancers (New Kerala: 14.12.2011)

A super shot that could knock out seven out of 10 lethal cancers is on the way.

It shrunk breast tumours by 80 percent during tests and could also tackle prostate, pancreatic, bowel and ovarian cancers, according to researchers.

Even tumours that resist treatment with the best medicines available, including the 'wonder drug' Herceptin, may give in to the vaccine, the Daily Mail reports.

Said study co-author Sandra Gendler, professor of molecular biology at the Mayo Clinic: "Cancer cells have a special way of thwarting the immune system by putting sugar on the surface of tumour cells so they can travel around the body without being detected."

"To enable the immune system to recognise the sugar, it took a special vaccine that had three parts to it. That turned out to be a winning combination," she added.

Her co-author Geert-Jan Boons, a professor, said: "This vaccine elicits a very strong immune response. It activates all three components of the immune system to reduce tumour size by an average of 80 percent."

The experiments were based on mice but researchers hope a trial on people within two years. If successful, the vaccine, could be available by 2020.

The search for cancer vaccines has until now been hampered by fears that healthy tissue would be destroyed with tumours.

Accordingly, Gendler with associates from the University of Georgia focused on a protein called MUC1 that is made in bigger amounts in cancerous cells than in healthy ones.

Not only is there more of it, but a sugar that it is 'decorated' with has a distinctive shape. The vaccine 'trains' the immune system to recognise the rogue sugar and declare war against the cancer. (IANS)

Vaccine

‘Vaccine for breast cancer in 3 years’ (The Times of India: 14.12.2011)

Here’s some good news for millions of women worldwide! Coming in just three years: A vaccine for breast cancer, say scientists.

In fact, an international team, led by the University of Georgia, has already developed the vaccine, but the scientists are now beginning tests on human cells before it’s launched in the market, ‘The Sun’ reported.

Till date, the jab, that trains immune systems to destroy tumours, worked in 90 per cent of cases in lab tests, say the scientists, who claim the vaccine forces antibodies to zoom in on the coating that surrounds cancers and kills them off. In tests on mice, it was particularly successful on breast and pancreatic tumours. The team are now beginning to experiment with human cells. And, clinical trials could begin on humans by 2013.

Prof Geert-Jan Boons, who led the team, said: “The vaccine elicits a very strong immune response. It activates all three components of the immune system to reduce tumour size.” Prof Sandra Gendler said: “This is the first time a vaccine has been developed that trains the immune system to distinguish and kill cancer cells based on their sugar structures.” PTI

A vaccine

A vaccine neutralizes all malaria parasite strains in animals (The Hindu: 22.12.2011)

A new candidate malaria vaccine with the potential to neutralise all strains of the most deadly species of malaria parasite has been developed by a team led by scientists at the University of Oxford.

Results confirmed

The results of this new vaccine independently confirm the utility of a key discovery reported last month from scientists at the Wellcome Trust Sanger Institute who had identified this target within the parasite as a potential ‘Achilles’ heel’ that could hold significant promise for vaccine development.

The most deadly form of mosquito, *Plasmodium falciparum*, is responsible for nine out of ten deaths from malaria.

Vaccinating against malaria is likely to be the most cost-effective way of protecting populations against disease; however, no licensed vaccine is currently available.

Another vaccine for malaria is also achieving promising but incomplete levels of protection in clinical trials in Africa; scientists believe a new and more effective vaccine will be required to eradicate the disease.

Tested in animal models

In a paper in the journal *Nature Communications*, a team of scientists from the Jenner Institute at the University of Oxford led by Dr Simon Draper, working with colleagues from the Wellcome Trust Sanger Institute and the Kenyan Medical Research Institute-Wellcome Trust Programme in Kilifi, Kenya, demonstrate that a vaccine they have developed induces an antibody response in animal models capable of neutralising all the tested strains of the *P. falciparum* parasite.

“Our initial finding, reported last month, was unexpected and completely changed the way in which we view how the malaria parasite invades red blood cells,” Wellcome Trust press release quoted Dr Gavin Wright, a co-author as saying.

Achilles' heel attacked

He is from the Wellcome Trust Sanger Institute. “It revealed what we think is the parasite's Achilles' heel in the way it invades our cells and provided a target for potential new vaccines.”

Dr Sandy Douglas, a Wellcome Trust Clinical Research Training Fellow from the University of Oxford and first author on the new study, adds: “We have created a vaccine that confirms the recent discovery relating to the biology of RH5 antigen, given it can generate an immune response in animal models capable of neutralising many — and potentially all — strains of the *P. falciparum* parasite, the deadliest species of malaria parasite.”

Our next step will be to begin safety tests of this vaccine.

If these prove successful, clinical trials in patients may begin within the next two to three years.

Keywords: malaria vaccine, malaria parasite

Women Health

Women Health

4 or more babies could prevent heart disease in women (The Tribune:30 Nov. 2011)

London: Mothers who have four or more children are one-third less likely to die from stroke, a new study suggested. Research involving 1300 women in California suggested those who had more children were one-third less likely to die from cardiovascular disease. The majority of the effect seemed to result from the prevention of stroke, as mothers of large families were almost 50 per cent less likely to die of a stroke. "In conclusion, women in this study had less CVD mortality risk if they had more than four pregnancies, with the strongest association observed for non-CHD CVD mortality," The Telegraph quoted the study's lead author Marni Jacobs of the University of California as saying.

Women

Women in powerful positions are turning into bullies and are throwing their weight around at the workplace (9.12.2011)

According to the survey conducted by the British Association of Anger management, while such bullying behaviour is more commonly associated with male bosses, a fifth of female bosses admit to shouting or being verbally abusive at work.

10 percent of women executives admit to blaming and shaming colleagues when things go wrong.

However, almost 90 percent of those surveyed said they had experienced an increase in stress, with more than 60 percent citing poor management as the reason for their anxiety.

Mike Fisher, the association's director, said high-flying women are now encountering the psychological problems that have historically blighted the lives of men at the top.

"The main reason for an increase in anger is the inability to deal with stress. Women tend to pay more attention to detail than men so they sweat over the small things," the Daily Mail quoted Fisher as saying.

"They can be short-tempered and abrupt, and make underhanded critical remarks. It can be interpreted by colleagues as bullying," he added.

Yoga and Physical Fitness

Exercising

Exercising with your own body weight (The Times of India: 5.10.2011)

Fitness expert J K Francis says exercising with your own body weight can help you stay fit at home, and within your budget. These exercises can be done anywhere, at any time, and require no equipment

Body weight exercises can help you stay fit at home and within your budget. You can do them any time with no equipment — while travelling, and during home workouts. They add variety to your regular routine. Warm up for a few minutes to get your blood circulating and your body temperature rising to prepare for high-intensity exercise. Perform each exercise for 30 seconds to two minutes depending on your fitness level. Move to the next exercise smoothly, but quickly. You can do these exercises for up to one hour. Cool down with five or more minutes of stretching.

Body weight workouts

Push-ups:

Begin with push-up position, on knees or toes. Perform 3 to 5 push-ups, abs in and back straight. On the fifth push-up, lower halfway down and hold for 4 counts. Push back up and repeat the series — 4 regular push-ups and 1 halfway — 5 or more times.

Pull-ups:

The pull-up exercise requires creativity. Go to a playground or find a low hanging and sturdy tree branch that you can grab with your hands. Now pull yourself up.

Abdominal crunches:

Lie on your back with your knees bent and feet flat on the floor. Place your fingertips to the side of your head just behind your ears. Push your lower back into the floor flattening the arch and hold. Curl up slowly so both your shoulders lift off the floor a few inches. Hold for a count of three and return to the start position. Don't tuck your chin to your chest; keep your head up.

Superman:

Lie on your stomach with your arms and legs stretched out. Raise your arms and legs off the ground a few inches, hold for a few seconds, and then bring them down. Raise alternate arms and legs as an option. Repeat the same.

Reverse crunch:

Lie on your back with your hands out to your sides; bend your knees. Bring your knees toward your chest. Hold one second and repeat. All these own bodyweight exercises should be done after consulting your family doctor. Exercise comfortably and never overdo anything beyond your strength and stamina. Increase the intensity only gradually.

Yoga

Yoga is best antidote to stress, says Dr Hasmukh Adhia (World Newspapers: 10.10.2011)

In modern times, stress has emerged as a major cause of ailments and nothing is more effective in reducing stress than yoga, said Dr Hasmukh Adhia, principal secretary, education department, Gujarat, on Friday.

Adhia was speaking on 'Yoga for Wellness' before a jam-packed hall at Ahmedabad Management Association (AMA). He said stress could be caused by external factors such as family worries, financial problems or calamities.

It can also be caused by internal factors unique to the individual, such as hypersensitivity, high ambition and unrealistic targets, Adhia said. But yoga restores harmony between body and mind so that the body can beat the stress, he added.

Explaining how yoga works, Adhia said that human self is enveloped by five koshas (sheaths): Annamaya kosha (body), pranmaya (life force), manomaya (emotional existence), vijanmaya (conscience) and anandamaya (bliss) kosha.

"Yoga involves gaining mastery over the perturbations of the mind. It teaches you how to calm your mind because health and happiness are all that we need. Most diseases are born of stress," said Adhia.

He further said that yoga consists of body postures, breathing techniques, meditation and logical understanding of meaning of life, among others.

He also listed four aspects of asana that differentiate them from any form of physical exercise. "Asanas are different from physical exercise as they are generally done slowly, maintaining body posture, and with awareness. They also include relaxation, coordinated with breathing, after every posture. If you do Surya Namaskar (it has 12 asanas), it helps the body a lot," he said.

According to Adhia, meditation is the relaxation of the body, rhythmic breathing with awareness, sitting in silence, and trying to be without thoughts by focusing on some object.

Referring to the Puranas, he said they teach us how to have the right attitude towards life, friendship for all, compassion for the less privileged, feeling happy for those who are ahead of us and avoiding people who are difficult to handle.

Exercise

Exercise as good as drugs in staving off migraines (New Kerala: 12.10.2011)

The belief that exercise may be as good as drugs in staving off migraines -- the excruciating headaches -- seems to be validated by latest research.

A typical migraine affects half of the head and is pulsating in nature, lasting from four to 72 hours. Symptoms include nausea, vomiting, photophobia (over sensitivity to light) and phonophobia (increased sensitivity to sound).

Researchers from the Sahlgrenska Academy in Sweden analysed how well exercise works as a preventative treatment for migraines, relative to relaxation exercises and drug topiramate, reports the journal Cephalalgia.

"Our conclusion is that exercise can act as an alternative to relaxations and topiramate when it comes to preventing migraines," said Emma Varkey, physiotherapist and doctoral student at the Sahlgrenska Academy who carried out the study.

It involved 91 migraine patients, a third of whom were asked to exercise for 40 minutes thrice weekly under supervision, with another third doing relaxation exercises, and the final third given topiramate, according to an academy statement.

The study lasted three months during which the patients' migraine status, quality of life, aerobic capacity and level of physical activity were evaluated before, during and after their treatment.

The results showed that the number of migraines fell in all three groups. Interestingly, there was no difference in the preventative effect between the three treatments.

Regular Exercise

Regular Exercise Prevents Migraine Attacks (Med India: 13.10.2011)

Regular workouts help prevent migraines just as effectively as relaxation therapy and a common prescription drug, scientists have found

All three treatments reduced the frequency of some women's migraine attacks by as much as three quarters - although the average reduction was more modest.

Scientists from the University of Gothenburg in Sweden were surprised to find using an exercise bike three times a week could have such a potent effect.

The team, led by Dr Emma Varkey, studied 91 women aged between 18 and 65 years old from a single headache clinic in Sweden.

They had neurologist-diagnosed migraine, with or without aura, and got headaches two to eight times per month.

Previous studies have shown that both relaxation therapy and the prescription drug topiramate are able to prevent migraines. The latest study found exercise is just as effective.

"It was a bit surprising and very interesting that the change in number of migraine attacks was almost similar in all three groups," the Daily Mail quoted Dr Varkey as saying.

"This non-pharmacological approach may therefore be an option for the prophylactic treatment of migraine in patients who do not benefit from or do not want daily medication," she added.

Dr Varkey said topiramate was best at reducing the intensity of migraines when they did come. However, the drug can cause side effects such as numbness, vertigo and depressed mood.

None of the women in the relaxation group or exercise group reported side effects, but eight women making up a third of the topiramate group did and three withdrew from the study as a result.

Exercise and physiotherapy

Importance of food, exercise and physiotherapy (The Tribune: 13.10.2011)

According to the Arthritis Foundation there is no specific "arthritis diet". However, if one notices that certain food items worsen RA symptoms and others help to improve, it makes sense to make some adjustments in the diet e.g. People with inflammatory arthritis, such as rheumatoid arthritis, may benefit by taking the omega-3 fatty acids that are in the oils of fish, particularly salmon. Sometimes minimising salt intake can reduce swelling in the tissues of the hands and feet that can aggravate inflammatory arthritis. Studies also suggest that regular exercise helps in reducing inflammation; these should be done under the supervision of a qualified physiotherapist. The various types of exercises include:

Range-of-Motion exercises (dance) help maintain and increase mobility.

Strengthening exercises (weight training) help maintain and increase muscle strength.

Aerobic or endurance exercises (bicycle riding) improve cardiovascular fitness, help control weight as extra weight puts extra pressure on joints which worsens the symptoms of RA.

Juvenile arthritis

It may come as a surprise to a lot of people that arthritis can occur in children. It may not be a disease as such but it is a manifestation of internal disorder, like it occurs in viral fever to life threatening diseases. Among these Juvenile Idiopathic Arthritis is a common rheumatic disease in children. JIA of unknown cause begins before the child turns 16 and will persist for at least six weeks. It occurs in one to ten per 10,000 children.

Manifestations may not be obvious in early disease. Incessant cry when somebody carries and holds the baby around the hip, inability to get up from the bed, especially in the morning, inability to brush teeth and perform other usual activities may be indications of joint involvement. Fever may also be a part of disease.

The treatment should be given by a rheumatologist and the aim of the treatment is to give a child a better life. The goal is to control inflammation and to preserve joint function, thus preventing joint deformity as much as possible.

Even though there is no cure despite advances in therapy like methotrexate and biological agents, long remission of the disease activity can be achieved. The cooperation and the

involvement of the whole family especially parents go a long way in the long term prognosis of the children suffering from JIA.

Exercise

Exercise Before and During Early Pregnancy Increases Two Beneficial Proteins for Mothers-To-Be (Science Daily: 17.10.2011)

Although exercise is generally considered to be a good thing for people with high blood pressure, it has traditionally been considered too risky for women who are also pregnant. Some studies suggest that exercise has benefits such as decreasing the risk of women developing preeclampsia, a condition that raises blood pressure to dangerously high levels but how this might happen has remained unknown. New research using an animal model falls into the "pro-exercise" camp: It suggests that exercise before conception and in the early stages of pregnancy may protect a mother-to-be by stimulating the expression of two proteins thought to play a role in blood vessel health.

The study was led by Jeffrey Gilbert of the University of Oregon's Department of Human Physiology, while he was with the University of Minnesota Medical School. Dr. Gilbert will present the research at the Physiology of Cardiovascular Disease: Gender Disparities conference, October 12-14 at the University of Mississippi in Jackson. The conference is sponsored by the American Physiological Society with additional support from the American Heart Association. His presentation is entitled, "Exercise Training Before and During Pregnancy Improves Endothelial Function and Stimulates Cytoprotective and Antioxidant Pathways in the Pregnant Rat."

VEGF

In the study, female rats were separated into two groups, the exercise group and the control group, and later impregnated. The exercise group ran voluntarily on an activity wheel for six weeks prior to and during pregnancy, with running times and distances monitored weekly. The control group did not exercise. The team analyzed tissue samples taken from both groups late in their pregnancies.

The researchers found that the rats in the exercise group had higher levels of a circulating protein called vascular endothelial growth factor (VEGF) than those in the control group. VEGF and a pregnancy specific version of the protein called placental growth factor (PlGF) are important because not only do they stimulate the development of new blood vessels, they also maintain normal vessel function which in turn promotes good cardiovascular health.

According to Dr. Gilbert, finding increased VEGF in the exercise group has important implications for understanding, and perhaps preventing, preeclampsia. He noted that clinical and experimental studies have found that high levels of a protein called sFlt-1 can bind up the mothers' circulating levels of PlGF and VEGF and can lead to preeclampsia.

The researchers also saw that when VEGF increased, endothelial function increased. The endothelium is a thin layer of cells that line the inside of blood vessels. It reduces turbulence in blood flow, which allows blood to be pumped further with each heartbeat, thus taking stress off the heart.

Heat Shock Proteins

The team also found that the rats in the exercise group had increased amounts of heat shock proteins (HSPs) compared to those that did not exercise. One HSP in particular, HSP 90, is thought to play a vital role in maintaining the blood vessels of the heart. It works in sync with VEGF and nitric oxide to dilate blood vessels so that blood flows more freely, which lowers blood pressure. Increased expression of HSPs as a result of exercise could provide a preconditioning effect that may help protect against cellular damage in the placenta during pregnancies complicated by high blood pressure.

"There have been many studies about exercise and pregnancy, but not at the molecular level," said Dr. Gilbert. "We hope to learn whether stimulating these proteins with exercise before pregnancy or early during pregnancy can lower a woman's risk for preeclampsia."

Lifestyle

Lifestyle can affect our eyes (The Tribune: 19.10.2011)

Lifestyle activities have been linked to many human illnesses — lung cancer with smoking; food-borne infection due to partially cooked food; obesity, heart disease, diabetes, etc, due to overeating and inactive life. Similarly, your eye-vision can also be affected from unhealthy lifestyle — smoking and drinking can bring about early cataract and macular degeneration. Dietary protein, vitamin A, niacin, thiamin, and riboflavin appeared to be protective against cataract in many studies.

Diabetes as a leading cause of blindness in India is well known. Eating lots of sweets on Diwali and other occasions can worsen diabetes/vision status. Good control of glycemia, blood pressure and possibly lipid levels and early detection and treatment of proliferative diabetic retinopathy and clinically significant macular edema remain the most important approach for preventing the loss of vision from diabetic retinopathy.

Similarly, arrow or cracker injuries are related to a particular behaviour in children and adolescents, and are entirely preventable. Dry eye can be prevented to a great extent by taking precaution and care, and changing your lifestyle.

How can you eliminate unhealthy lifestyle choices?

Quit smoking

When you smoke a cigarette you speed up the aging process of your cells by letting free radicals enter the body. These free radicals are highly unstable atoms that cause cellular damage and death. One way to combat free radicals is by eating a diet rich in antioxidants. However, the best way to protect your eyes is to quit smoking.

Limit alcohol intake

Binge drinking or adulterated alcohol can lead to eye problems. If you choose to drink alcohol, make sure that you drink not more than one peg a day and that there is no possibility of adulteration with methyl alcohol or other toxic agents .

Avoid sugar and salt

Sugary and starchy foods can lead to a spike in your blood sugar levels. These blood sugar highs can lead to the damage of your blood vessels in the retina as in uncontrolled diabetes mellitus. Studies have shown that diets that are low in starchy and sugary foods and high in healthy foods like leafy green vegetables can lead to lower rates of macular degeneration which is the leading cause of blindness in the elderly, besides diabetes. Similarly taking excessive salt puts load on your system and can lead to high blood pressure, which in turn can affect your retina.

Spend time away from your computer and TV set

Spending hours and hours in front of a computer screen can lead to eye-strain and fatigue. Your eyes aren't meant to focus on objects up close for hours at a time. Take breaks from the computer every half an hour and focus on other things to reduce eye-strain.

Lower stress levels

Many people don't realise that stress can have a negative impact on their eyesight. Stress increases the body's production of adrenaline which can raise the pressure in your eyes. If the pressure in your eyes is too high it can lead to various eye problems, including glaucoma.

Reduce fat intake

Diets high in fat can lead to clogged blood vessels in the eyes as well as in the rest of the body. This can make it harder for blood to pass through your vessels into your eye and

can deprive your eye of nutrients. This can greatly increase your risk of macular degeneration and block in the vessels of the retina and eventually blindness.

Eat plenty of antioxidants

Diets rich in antioxidants — lutein and zeaxanthin — can result in healthier eyes. You can find these eye-friendly antioxidants in leafy green vegetables like spinach and broccoli. If your diet doesn't have the antioxidant levels that you need, consider using a supplement under the supervision of your eye doctor. Reduce the intake of sugary and fatty foods.

Wear protective glasses

The sun is very damaging to the delicate tissues inside the eye. When you go outside, make sure that you take your sunglasses along and that you wear them since this will help to protect your eyes from harmful ultraviolet rays. Similarly, use of eye protective glasses among workers in the unorganised and industrial sectors can provide valuable protection against injury/infection, etc.

Get regular eye examination done

One of the best ways to care for your eyes is to get them examined regularly. Regular eye examinations aren't just important for those that use corrective spectacles. They can help your doctor to find and diagnose potentially blinding conditions like diabetes early which can help in better prevention and reduce the risk of blindness. Generally, it is recommended that an eye examination is conducted at least once annually.

The writer is a Chandigarh-based eye specialist.

Exercises

Exercises to avoid urinary incontinence (The Tribune; 19.10.2011)

In this day and age more and more people are becoming aware as regards the importance of physical fitness. However, this is still in its nascent stage in our country. Even individuals who are aware miss out on the intricate nuances. Attention is paid to strengthening upper and lower limbs as also to crunches to trim the belly, but pelvic floor muscles are left to fend for themselves. Strengthening the pelvic floor muscles is of great importance. If these are left weak these can lead to urinary incontinence — loss of bladder control. This may pose problems, hampering various activities (which are otherwise taken for granted).

Symptoms may vary from mild leaking to uncontrollable wetting. Anyone could be afflicted, although its incidence is higher in old age. The myth is that dribbling/incontinence of urine is part of aging. The fact is that incontinence is never normal at any age except during infancy.

The pelvic floor is a broad sling of muscles, ligaments and tissues which supports the bladder, bowel and uterus.

Certain factors that affect these muscles are:

Aging of the bladder muscles reduce the bladder's capacity to store urine. Bladder control problems occur when muscles are too weak/too active. When bladder muscles which keep the bladder closed are weak, incontinence occurs while sneezing, laughing or lifting weight. This is called stress incontinence. When muscles become overactive, there is a strong urge for urinating, though there is very little urine in the bladder. This is known as urge incontinence or overactive bladder.

Pregnant women too experience stress incontinence. This is the result of increased weight of an enlarged uterus. Stress encountered during vaginal delivery also weakens the muscles which control bladder. Weakness of the pelvic floor affects the vaginal muscles thereby reducing sexual pleasure.

Enlarged prostate, prostate/bladder cancer can also lead to incontinence.

Neurological disorders like Parkinson's disease, stroke, brain tumour and spinal injury too can interfere with nerve signals involved during bladder control, causing urinary incontinence.

Obesity — Being overweight lays undue pressure on the bladder and surrounding muscles weakening them. This causes the leaking of urine while coughing, sneezing, etc.

Complications of chronic urinary incontinence include:

Skin problems — constantly wet skin causes rashes, itching, skin infections, etc.

Incontinence is a common cause for recurrent urinary tract infections.

Individuals afflicted by urinary incontinence start shying away from attending social gatherings. This could disrupt their concentration at work or keep individuals awake at night, leading to fatigue.

TREATMENT

Bladder training entails learning to delay urination after the urge to do so. Initially hold off for 10 minutes every time one feels an urge to urinate. The primary goal is to lengthen the time between the trips to the washroom. This process should be continued till one is

able to urinate every two to four hours. Bladder training may also involve double voiding — urinating, then waiting a few minutes and trying again. This exercise helps to empty the bladder more completely, avoiding overflow incontinence.

Scheduled toilet trips means timed urination — going to the toilet clocking time rather than waiting for the urge/need to go, usually every two to four hours.

Avoiding alcohol, caffeine too facilitates bladder control.

Pelvic floor exercises strengthen pelvic floor and sphincter muscles thereby reducing stress leakage. Ideally, one should start exercises in a comfortable lying down position to get a feel of pelvic muscles. Once comfortable and aware of the technique, performing the same exercise in a sitting down position is the next step. The recommended practice is to exercise eight to ten times, three times a day (2006). If having problems with leaking urine, it's a good idea to do as many as times daily and make pelvic floor exercises a part of life forever.

Method — Imagine that one is trying to stop passing wind and flow of urine mid-stream at the same time without holding breath, tightening the abdomen or buttock muscles and squeezing legs.

Fast and slow contractions

Slow contractions help to increase the strength of pelvic floor. Lift pelvic floor muscles to a count of 10. Relax and rest for a count of 10. Repeat 10 times.

Fast contractions help pelvic floor to cope with pressure — for example, while coughing, laughing, etc. This works the muscles that quickly shut off the flow of urine. Lift your pelvic floor muscles quickly. Hold the contraction for one second. Relax the muscles and rest for one second. Repeat 10 times.

The writer is a former doctor/physiotherapist, Indian cricket team.

Willpower

Our willpower depends on blood sugar levels (The Tribune: 10.10.2011)

London: A new book has suggested that our levels of willpower are directly linked to our consumption of glucose (in other words, sugar). It promises not only to help people learn

self-control, but also to explain why so many of us find it so difficult to say no. The book, titled "Willpower: Rediscovering The Greatest Human Strength", by Roy F. Baumeister and John Tierney is a bestseller in the U.S, the Daily Mail reported. "Ask people to name their greatest strengths and they'll often credit themselves with honesty, kindness, humour, creativity and even modesty - but not self-control," wrote the authors. — ANI

Happiness Peaks for Brits At 38

People in Britain are at their happiest and content with life at the age of 38, a new survey has suggested.(Med India: 1.11.2011)

The new poll conducted on 2,000 British adults, aged 18 and above, also revealed that Britons better about themselves in their thirties than when younger, suggesting that it's "not just wisdom that comes with age".

Twenty somethings were also more likely to care more about money than their health, and to look enviously at their friends' lifestyles. They even spent more time fretting about getting old.

"In a time when the anti-ageing industry reigns supreme, it is refreshing to see evidence that maturity, far from being a negative state, is rather the key to true contentment and inner wellbeing," the Telegraph quoted Georgia James, Editor of The Huffington Post as saying.

"Career, friends and relationships all play a huge part in contributing to our overall wellbeing, so in many ways it's no surprise to see that it's only once we begin to find resolution in these areas of life that we can really start to make the most of living."

According to the survey, happiness reached its peak at 48 "reinforcing a belief that age and experience provide a wealth of benefits".

Those who were married told the new study that they felt happiest at 42, but single people said "true contentment" came at just 27.

Similarly, couples enjoyed social situations the most at 38 while those who never married felt most confident at 27.

Health and fitness

Taking a professional trainer helps (The Times of India: 3.11.2011)

A good personal trainer is a worthwhile investment for your health and fitness, as it prevents slothfulness from setting in and helps you stick to a routine, writes fitness expert J K Francis

People train for many reasons —to lose weight, to tone the body, in preparation for a wedding, rehabilitation from illness or injury, participation in a marathon, post-pregnancy fitness — the list is long. And what could be better than to do it under professional guidance. So hiring a personal trainer becomes necessary. The advantages are many: you get regular, dedicated time with the trainer that makes you focused on your health and fitness objectives. Motivation is a big issue with exercise and over 95% of gym memberships eventually lapse because of lack of this vital element. By hiring a personal trainer, you can be assured of personal attention — a big motivating factor — a customized exercise regimen, and professionally monitored progress and scale-up programme. What a trainer does: And how much does all this cost? Not much if you consider the benefits. There are trainers to suit all pockets depending on where you choose to work out and the regimen you opt for. Your trainer designs a programme especially for you and suited for your goals, ability and health needs. Your weights are set up for you. The trainer demonstrates each exercise and refreshes your memory in case you forget how to do them. Your progress, practice and weights are monitored and increased as you pick up strength. Your trainer pays close attention to your physical form, workout routine, nutrition plan, motivation and adherence. Everything is meticulously planned and there is no scope for guesswork on your part. So a qualified personal trainer is a good health investment.

Purpose of personal training:

A personal trainer's job is to improve the fitness of his clients and thereby contribute to a healthier society. Proper exercise prescription results in improved physical performance and better health outcomes. There are studies which show that hiring a personal trainer leads to positive change in exercise behaviour patterns: greater confidence in the benefits of exercising and continuing with the regimen despite lack of time. Personal training results in greater strength, improved workout intensities and higher perceived exertion during exercise in women. Although women working with personal trainers do self-select heavier loads than women who do not, the loads used are still below the recommended training load.

Exercise

Exercise Provides Clue to Deadly Ataxia (Science Daily: 4.11.2011)

When Dr. John Fryer and Dr. Huda Zoghbi prescribed mild exercise for mice with a neurodegenerative disorder called spinocerebellar ataxia 1 (SCA1), they did not know what to expect.

Fryer, then a postdoctoral associate in the lab of Zoghbi who co-discovered the gene for the disorder, was disappointed when the exercise did not affect the mice's gait or walking ability. However, he and Zoghbi decided to put them back in their cages and see what would happen. What they found was the mice that exercised lived longer than those that had not. A report on their research appears online in the journal Science.

The result was important because spinocerebellar ataxia 1 is a devastating inherited disorder with no cure. The disease occurs when a mutation in the gene for a protein called ataxin1 causes numerous repeats of the DNA sequence CAG (cytosine, adenine, guanine), the genetic code for an amino acid called glutamine. SCA1 first affects gait and motor skills, then swallowing, speech and cognition and eventually kills the person who has it.

Brief period of exercise

"What surprised us was that a brief period of exercise in early life had a long-term effect on survival," said Zoghbi, professor of molecular and human genetics, pediatrics, neurology and neuroscience and director of the Jan and Dan Duncan Neurological Research Institute at Texas Children's Hospital.

"That exercise extended the mice's survival surprised me," said Fryer, now an assistant professor of molecular neuroscience at the Mayo Clinic in Jacksonville, Fla. The finding sparked Fryer's interest and he then began to explore what happened within the neurons.

Protein partner

Exercise increased a growth factor that in turn dampened a particular pathway that involves a protein partner of ataxin1 called capicua. When capicua levels are decreased in mice carrying mutant ataxin1, several symptoms were improved including motor coordination and memory deficits. In SCA1 mice, certain neurons of the cerebellum called Purkinje cells are usually destroyed, but many of these were spared when capicua was reduced. Additionally, SCA1 mice with reduced levels of capicua were less likely to lose weight and they lived longer -- just as the exercised mice did.

"This opens up the possibility for many more studies," said Zoghbi, who is also a Howard Hughes Medical Institute researcher. "Would more rigorous exercise be more helpful or would it hurt them?"

Might translate to humans

"It might translate to humans," said Fryer. "What we don't know yet is what kind of exercise would we recommend? We are not sure what we should tell an ataxia patient at this point but know that with more research we will have answers."

"Having shown that decreasing capicua improves symptoms begs the question if separating mutant ataxin1 and capicua would also suppress symptoms," said Zoghbi. "This work got us to a molecular pathway that might help us subdue the disease. It's like an onion. We are peeling away the layers to get to the core that will help understand all the details that contribute to this disease."

Dr. Harry Orr, a long-time collaborator and co-discoverer of the SCA1 gene with Zoghbi and director of the Institute of Translational Neuroscience at the University of Minnesota, said, "This is the first time in our collaboration that we found something that will have a direct impact on patients sooner rather than later. This could open additional strategies for treatment. Exercise, however, may not help everyone, particularly those who are far into the disease."

"The path to this finding has been long," said Orr.

It started with finding the families and getting their help in finding the gene. They since developed mouse models that enabled them to study the disease and have looked at several molecular pathways involved.

Turning the corner

"We are starting to turn the corner to go back to the patients," said Orr. "These people have been very courageous and understanding."

"When one is looking at a disease, one cannot look at just one aspect of it," said Zoghbi. "We had to look at many changes in the neurons and mice to reach the conclusion in this paper. It's almost like detective work."

Others who took part in this study include Peng Yu, Hyojin Kang, Caleigh Mandel-Brehm, Angela N. Carter, Juan Crespo-Barreto, Yan Gao, Adriano Flora and Chad Shaw, all of BCM.

Funding for this work came from the National Institutes of Health and the Howard Hughes Medical Institute.

Vertigo

Vertigo: Exercises for improving balance(The Tribune: 9.11.2011)

Vertigo is a common complaint encountered by physicians during their day-to-day practice. Dizziness or giddiness is the feeling of light headedness/confusion/fainting associated with the loss of balance. Vertigo is also a feeling of dizziness where there is a feeling of whirling/spinning on motion. This is usually associated with the fear of falling. At times this could be alarming as it induces fear, loss of confidence and lack of independence. Vertigo/dizziness could thus turn out to be a leading cause for cases of injuries, especially hip fracture, in people over 65 years of age.

Diagnosis of vertigo can be made from the duration of the attack.

1 Vertigo lasting seconds suggests that the person concerned has benign positional vertigo. If it continues for minutes then the conclusion can be drawn that it is a case of transient cerebrovascular is chemia.

1 Vertigo lasting hours can be due to Meniere's disease, and if it is there for hours/days it will suggest vestibular neuritis or post-circulation stroke.

Dizziness occurs due to decreased blood flow to the brain, causing light-headedness. Poor blood circulation can be blamed as narrowing of arteries occurring in individuals suffering from high blood pressure, diabetes or high blood fat levels.

Vertigo occurs due to a problem in the vestibular system in the ear. This leads to headache with nausea, vomiting and anxiety of falling with the movement of the head or the eyes.

The conditions affecting the vestibular system and causing vertigo indicate Meniere's disease. There is usually swelling in the inner ear leading to an attack of spinning/whirling on motion and losing of balance. Vertigo may last from 20 minutes to around two hours or longer. There may be associated temporary hearing loss, feeling of fullness and tinnitus or ringing in the affected ear.

Benign positional vertigo: There is sudden feeling of spinning while the head is rotated/moved when the person is in bed. Pressure builds up in the inner ear due to the blockage of the flow of liquid. The culprit could be a small stone of calcium carbonate crystals in the semi-circular canal of the inner ear. In this particular condition the person experiences spinning with or without nausea on moving the head. Positional vertigo usually does not last more than a minute. This situation is in no way dangerous.

Treatment is usually conservative.

Repositioning manoeuvre provides immediate relief but this can only be performed by an expert as it entails movement of the head in different positions in order to effectively treat patients suffering from positional vertigo instantly.

Home remedy: Sit straight up in your bed and then move to a side in a lying position with the head angled upwards. Return to the sitting position. Repeat this on the other side. This should be performed three times per day for two to three weeks.

Home exercise programme

Exercises should always be initiated slowly while sitting. As dizziness decreases, these could be taken up in a standing position.

Sitting position

1. Eye exercises should be first slow, then quickly — up and down; side to side.
2. Head exercise — head movements in the forward/backward sideways direction at first slowly and then quickly.
3. Rotate your head, shoulders and trunk with the eyes opened, then closed.

Walking

Walk seven steps, stop abruptly, wait for 10 seconds and repeat for a distance of 20 feet.

Walk seven steps then, pivot and walk back.

Walk and turn head from the right to the left for about 25 feet.

Treatment in all cases of vertigo/dizziness, irrespective of the cause, should be initiated at the earliest. If not done so, an individual can develop a fear psychosis as he/she is unable to pursue daily chores, loses self-confidence and may also suffer from depression.

The writer was earlier associated with the Indian cricket team as a doctor and physiotherapist.

Meditation

Meditation can help improve women's sex lives (New Kerala: 18.11.2011)

Women who are able to train their thoughts while love-making, experience more pleasure between the sheets, a new study has revealed.

Researchers from the Brown University in Rhode Island monitored the behaviour of 44 students, 30 of whom were female, and half of whom had taken a 12-week meditation course.

According to MyHealthNewsDaily.com, the participants were shown a slideshow of “erotic” images and were then asked to describe their reaction as either “calm”, “excited” or “aroused”.

They found that the women who had been meditating were quicker at registering sexual arousal.

The study also revealed that women who meditate demonstrate increased self-compassion, less anxiety and improved attention span.

“It’s interesting, the women who took longer to register feelings of sexual arousal at baseline were also the ones who were the harshest self-judgers,” the Daily Mail quoted Gina Silverstein, the lead author as saying.

““Rather than feeling it, they get caught up in their heads. So it’s definitely a correlated effect,” she said.

The study has been published in the Journal of Psychosomatic Medicine.

Yoga

Yoga n i d r a for relaxation (the Times of India: 21.11.2011)

Yoga expert Nemchand Rawat shows you how to relax with simple deep-breathing exercises and with yoga n i d r a, a relaxation exercise that brings your stress levels down to zero

Paying attention to our mental health is very important as emotional imbalances cause disturbances in our nervous system and body. Negative emotions like anger, hatred, regret, worry, greed, obsessions, disappointments, deception, jealousy, and anxiety can eventually take a toll on our bodies and cause baldness, early greying, gastrointestinal disease, blood pressure, arthritis, diabetes and even nervous breakdowns. People say stress is natural in today's world, but yoga can help cure both physical and mental health issues. Ashtangyoga says yoga has eight parts. Asanas and pranayama are vital, but we must understand the other parts too. Ashtangyoga talks about aprigraha. It tells you to limit your material wealth and objects. Keeping your desires within limits reduces stress. It also tells you to put in your best, but leave the rest to God. Do the following kriyas to keep you stress-free:

Deep breathing:

Emotions like fear, anxiety, and anger create stress and affect your breathing. Do deep-breathing exercises five to six times a day, at home or even as you work. Feel and visualize that you are inhaling cool and positive air and exhaling hot, stressful and negative air out of your body. As you breathe in air, think you are inhaling positive energy. This brings peace.

Yoga n i d r a:

Stress builds up over time, so make it a practice to bring your stress levels to zero daily. It might build up again, but keep releasing it this way. Practise yoga n i d r a preferably just before sleeping. Lie on your back with your palms facing upwards. Let your index finger touch your thumb. Think you are in a garden or beach and focus on your breathing and feel that you are cleansing yourself with your own breath. Inhale fresh air and feel all the heaviness in your body flowing out as you exhale the stale air out of your body. Breathe this way for two minutes. As you breathe, loosen up each part, thinking of your body spread out on the floor like water. Focus on each part, making it feel loose and stress-free. Begin with the toes, move up to the heart and finally your head and mind. This is rejuvenating.

Meditation

Meditation can help school students beat stress (The Tribune: 22.11.2011)

Transcendental Meditation (TM) technique can significantly decrease psychological distress in public school students, according to a new study. The finding suggests a simple stress-reducing meditation technique could be a viable solution to increasing stress among students.

The study, conducted with at-risk minority secondary school students, showed a 36 per cent reduction in overall psychological distress. Significant decreases were also found in trait anxiety and depressive symptoms.

A total of 106 secondary school students took part in the study. Results showed that over a four-month period, students practising Transcendental Meditation as part of their schools' Quiet Time programme exhibited significant reductions in psychological distress factors compared to controls.

"It is vital that we start addressing the high levels of emotional stress being reported by high school and college students. Decreased stress can have a positive impact on mental health, and can also reduce the risk for hypertension, obesity, and diabetes-major risk factors for heart disease," said Dr Charles Elder, MD, lead author of the TM study, and investigator at Kaiser Permanente Centre for Health Research Educational Research. He has also linked student stress to negative school behaviour and poor academic performance.

"These new findings on reduced stress, along with the recent research on academic achievement gains, hold tremendous promise for public education," said Sanford Nidich, EdD, principal investigator, and Professor of education at Maharishi University of Management.

"There is a growing body of evidence showing Transcendental Meditation to be an easy to implement, value-added educational program that promotes emotional health and increases academic achievement in at-risk students," added Dr Nidich.

The study has been published in the Journal of Instructional Psychology

Exercise

Exercise can make it easier to eat healthy (New Kerala: 25.11.2011)

The tendency towards a healthy diet and the right amount of physical exercise are interlinked and often go hand in hand, a new study has suggested.

According to researchers from Harvard University, an increase in physical activity is linked to an improvement in diet quality.

"Understanding the interaction between exercise and a healthy diet could improve preventative and therapeutic measures against obesity by strengthening current approaches and treatments," Miguel Alonso Alonso, a researcher at Harvard University, said.

The researchers also found that exercise also brings benefits such as an increase in sensitivity to physiological signs of fullness. This not only means that appetite can be controlled better but it also modifies hedonic responses to food stimuli.

“Physical exercise seems to encourage a healthy diet. In fact, when exercise is added to a weight-loss diet, treatment of obesity is more successful and the diet is adhered to in the long run,” Alonso Alonso said.

Physical Activity

Physical Activity Impacts Overall Quality of Sleep (Science Daily: 25.11.2011)

People sleep significantly better and feel more alert during the day if they get at least 150 minutes of exercise a week, a new study concludes.

A nationally representative sample of more than 2,600 men and women, ages 18-85, found that 150 minutes of moderate to vigorous activity a week, which is the national guideline, provided a 65 percent improvement in sleep quality. People also said they felt less sleepy during the day, compared to those with less physical activity.

The study, out in the December issue of the journal *Mental Health and Physical Activity*, lends more evidence to mounting research showing the importance of exercise to a number of health factors. Among adults in the United States, about 35 to 40 percent of the population has problems with falling asleep or with daytime sleepiness.

"We were using the physical activity guidelines set forth for cardiovascular health, but it appears that those guidelines might have a spillover effect to other areas of health," said Brad Cardinal, a professor of exercise science at Oregon State University and one of the study's authors.

"Increasingly, the scientific evidence is encouraging as regular physical activity may serve as a non-pharmaceutical alternative to improve sleep."

After controlling for age, BMI (Body Mass Index), health status, smoking status, and depression, the relative risk of often feeling overly sleepy during the day compared to never feeling overly sleepy during the day decreased by 65 percent for participants meeting physical activity guidelines.

Similar results were also found for having leg cramps while sleeping (68 percent less likely) and having difficulty concentrating when tired (45 percent decrease).

Paul Loprinzi, an assistant professor at Bellarmine University is lead author of the study, which was conducted while he was a doctoral student in Cardinal's lab at OSU. He said it is the first study to examine the relationship between accelerometer-measured physical activity and sleep while utilizing a nationally representative sample of adults of all ages.

'Our findings demonstrate a link between regular physical activity and perceptions of sleepiness during the day, which suggests that participation in physical activity on a

regular basis may positively influence an individual's productivity at work, or in the case of a student, influence their ability to pay attention in class," he said.

Cardinal said past studies linking physical activity and sleep used only self-reports of exercise. The danger with this is that many people tend to overestimate the amount of activity they do, he said.

He added that the take-away for consumers is to remember that exercise has a number of health benefits, and that can include helping feel alert and awake.

"Physical activity may not just be good for the waistline and heart, but it also can help you sleep," Cardinal said. "There are trade-offs. It may be easier when you are tired to skip the workout and go to sleep, but it may be beneficial for your long-term health to make the hard decision and get your exercise.

Physical fitness

Physical fitness, not weight loss, key to longevity: Study (World Newspapers: 7.12.2011)

Being physically fit is more important than losing weight, when it comes to reducing death risks, a new study has suggested.

In a study of 14,345 adult men, mostly white and middle or upper class, researchers found that maintaining or improving fitness was associated with a lower death risk even after controlling for Body Mass Index (BMI) change.

Every unit of increased fitness (measured as MET, metabolic equivalent of task) over six years was associated with a 19 percent lower risk of heart disease and stroke-related deaths and a 15 percent lower risk of death from any cause.

Becoming less fit was linked to higher death risk, regardless of BMI changes.

"This is good news for people who are physically active but can't seem to lose weight," said Duck-chul Lee, the study's lead researcher.

"You can worry less about your weight as long as you continue to maintain or increase your fitness levels."

According to the researchers, results of the study underscore the importance of physical inactivity as a risk factor for death from heart disease and stroke.

Researchers also found no association between changes in body fat percentage or body weight and death risk.

Participants, who were an average 44 years old, were part of the long-term, large-scale Aerobics Center Longitudinal Study. They underwent at least two comprehensive medical exams.

Researchers used maximal treadmill tests to estimate physical fitness (maximal METs), and height and weight measurements to calculate BMI.

They recorded changes in BMI and physical fitness over six years. After more than 11 years of follow-up, researchers determined the relative risks of dying among men who lost, maintained or gained fitness over six years.

The study has been published in *Circulation: Journal of the American Heart Association*.

Healthy people

Now, healthy people may be tagged as mentally ill! (The Tribune: 7.12.2011)

Sydney: Proposals to categorise any condition a normal person is facing, under the umbrella term 'disorder', has sparked an international outcry, with psychiatrists fearing that it may mislabel millions of healthy people as mentally ill and lead to increased stigma and medication. The repercussions may include categorising what was once considered an unruly child's temper tantrum as 'disruptive mood dysregulation disorder'. If a widow's grief lasts longer than a fortnight then she might be diagnosed with 'major depressive disorder'. When the mother in a bitter custody battle tries to turn a child against the father, it might create 'parental alienation disorder', the Sydney Morning Herald reported.

These are some of the new conditions proposed for the fifth edition of the psychiatrist's bible, the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), which is due to be finalised next year.

Breast implant surgery

Breast implant surgery: Cancer fear looms large (The Tribune: 7.12.2011)

London: The fear of breast cancer is looming among more than 50,000 women in Britain following the death of a French woman who had implants with silicone gel "made for mattresses". Tens of thousands of women who went under the knife are now being urged

to have medical check-ups amid fears that they are at a heightened risk of cancer, the Daily Mail reported.

Almost 50,000 British women, including some breast cancer survivors, have the French-made implants, which are fragile and more likely to leak than other brands. — ANI

Red-coloured dye obtained from Lichens may combat Alzheimer's

Washington: A red-coloured dye derived from Lichens, which has been used for centuries to colour fabrics and food, may help to reduce the abundance of small toxic protein aggregates in Alzheimer's disease, a new study has claimed. The dye, a compound called orcein, and a related substance, called O4, bind preferentially to small amyloid aggregates that are considered to be toxic and cause neuronal dysfunction and memory impairment in Alzheimer's disease.

Protein misfolding is considered to be the cause of Alzheimer's, Parkinson's and also Huntington's disease. In a multistep process, proteins misfold and accumulate into large extra-or-intracellular plaques.

Spirituality

Greater role for spirituality in Mumbai health care stressed (World Newspaper: 13.12.2011)

With science and technology not being able to keep pace with the newer subtle lifestyle-related problems, doctors and spiritual organisations addressed the need for greater role of spirituality in the field of health care.

Calling it the 'Fourth dimension of health' (care), the Association of Medical Consultants along with the Bhakti Vedanta Hospital on Sunday conducted a lecture and debate on the 'Role of Spirituality in Medicine'.

The lecture was attended by over 200 doctors and spiritual leader of ISKCON His Holiness Radhanath Swami Maharaj. Among the people who pitched for spirituality were doctors who wanted their peers to approach the subject with an open mind.

"There has to be an outer and an inner world that need to go together. Both have to co-exist and only then can there be a proper integrated health care. While the outer world can be dealt with through science, the inner world of a person needs to be approached through spirituality," suggested Dr KP Misra, senior consultant cardiologist.

The speakers believed that medicine should not be treated as a profession.

“Emotional and spiritual aspect need to be given as much care. And only when a person is loving and compassionate can that be achieved. This can happen only when a person is spiritual. Medicine should not just be looked at as a profession, but as a way for improving people’s life. When the Association of Medical Consultants approached us, we were happy to be a part of this thinking,” said Radhanath Swami.

Though science and spirituality have often been seen as two different approaches, doctors said they needed to be looked as one.

“Studies have shown that people are happier in poor countries compared to rich nations. In developed countries, people are not happy because of mental and stress-related problems. This largely happens because there is no spiritual connect,” said Dr Kavitha Chintala, a paediatric cardiologist.

Fitness

How to stay fit without hitting the gym (World Newspapers: 22.12.2011)

Apart from hitting the gym, there are other ways too, which a person can resort to in order to lose weight and get in shape.

According to ABC News, hiding remote is one of them. If a person wishes to watch TV, he or she should make an effort to at least stand up to change the channel and should also preset the timer on TV to turn off after an hour as a reminder of doing something more active.

Others recommended tips include ditching the hand mixer and using a wooden spoon instead while cooking or baking. Hand-washing dishes instead of using the dishwasher can also help you break a sweat.

It is also recommended that when tidying up, things should be put away in multiple small trips rather than one big haul and individuals should help their kids clean their rooms.

Walking up stairs is also a great way to stay fit if an individual cannot get to a gym. Rather than yelling at family members in other rooms, walk over to talk. Also, walking around your home, yard, or neighbourhood while on the phone can help you lose that extra flab.

Using your dancing skills in the kitchen while cooking is also a sure shot way to keep you fit.

Chopping fresh vegetables instead of buying frozen ones, taking a shower instead of a bath, giving dog a bath instead of paying someone else to do it, round off the best ways to lose weight in the comforts of your home.

Exercise

Young Adults Drop Exercise with Move to College or University (Science Daily: 20.12.2011)

Regular exercise tends to steeply decline among youth as they move to university or college, according to a study by researchers at McMaster University.

Researchers found a 24 per cent decrease in physical activity over the 12 years from adolescence to early adulthood. The steepest declines were among young men entering university or college.

The research recently appeared in the American Journal of Preventive Medicine. The study, based on Statistics Canada's National Population Health Survey, followed 683 Canadian adolescents 12 to 15 years old, who were interviewed twice a year until they were 24 to 27 years of age.

While the children were most active, the research suggests that this advantage quickly disappears.

"This is a critical period, as the changes in physical activity during the transition from late adolescence to early adulthood represents the most dramatic declines in physical activity across a person's life," said Matthew Kwan, the principal investigator for the study and a postdoctoral fellow of the Department of Family Medicine of the Michael G. DeGroote School of Medicine.

"In particular, the transition into post-secondary is a one-time period when individuals become much less active."

Risk estimates suggest 20 per cent of premature deaths could be prevented with regular physical activity. Yet, recent data show 85 per cent of Canadian adults are not active enough to meet the recommended 150 minutes of moderate-to-vigorous physical activity a week.

Public health campaigns encourage Canadians to be more active but the McMaster researchers say little work has been done to prevent the decline in physical activity and they suggest this issue should be made a priority.

For the study, physical activity was measured by estimating the amount of total energy used during leisure activities over a three-month period during the transition from adolescence into early adulthood, including the move to college or university.

The researchers found the rate of decline in physical activity was greater for men than for women, who showed only a modest 1.7 per cent decrease in their overall activity levels; however, the women were less active in high school.

"It may be that girls experience the greatest declines in physical activity earlier in their adolescence," said Kwan.

For comparative purposes, the researchers also examined other health-risk behaviours of smoking and binge drinking. While both increased through adolescence, the researchers found the behaviours began to plateau or decrease in early adulthood; suggesting that individuals may be maturing out of these health-risk behaviours.

Conversely, Kwan added, physical activity decline does not appear to revert itself, but continues on a downward trajectory into adulthood.

Fitness

TAKE CARE... (The Times of India: 23.12.2011)

Old age is inevitable and so is health complexities associated with this age. But one can always take precautionary measures to lead a happy and healthy old age

Old age is that phase of our life which we are all scared of. But if one plan out things meticulously, this part of life can be lived with ease and happiness. All we need to do is incorporate some healthy habits. Here are just few of them:

Fitness after 50

Exercising is a physical activity which keeps people of all ages physically active and mentally strong. It is imperative to exercise in old age. Even a daily walk may suffice but the continuity should be maintained. Regular exercise provides a plethora of health benefits in older people, including improvements in blood pressure, diabetes, osteoarthritis and osteoporosis. Exercise can help older people feel better and enjoy life all the more.

Keep it in check

Prevention is better than cure. Vigilance is the key to early diagnosis. Regular health check ups are important as it helps us to diagnose the problem early and treat it on time.

Eat and drink right!

A balanced diet comprising of essential nutrients and vitamins is an essential part of an elderly's diet. It's a known fact that older people can not eat as much food at a single sitting, so include more nutritious snacks in between meals to maintain nutrient intake. Increase your intake of water and other fluids as your system needs proper hydration.

The 'extra' edge

It has been widely observed that the less time older people spend engaged in social activity, the faster their motor function tends to decline. One can find his/her type of social activity. The activities range from laughter clubs and book clubs to classes in painting, drawing, pottery, gardening or yoga. Santi Bhattacharjee, 65, got the opportunity to strike up conversations and form friendship when she started going to evening walk. She says, "My evening walk sessions are an integral part of my daily routine as it provides me quality time to connect with the people of my age. After the walk, we sit down in the society park and chit-chat to our heart's content."

Chakras

The science of the c h a k r a s (The Times of India: 27.12.2011)

Physicist-writer Amit Goswami explores ancient Indian wisdom with love for scientific exploration. Here, he describes the c h a k r a s and maps their connection with our health

Each chakra is near important organs of our body. Here is a description of their vital functions, corresponding physical organs, and emotional feelings:

Root chakra:

The body function is elimination and the organs are kidneys, bladder, and large intestines (rectum and anus). The feelings are selfish rootedness and survival-oriented competitiveness when energy moves in, and fear when energy moves out.

Sex chakra:

The body function is reproduction and the organs are uterus, ovaries, prostate and testes. The feelings are sexuality and amour when energy is inward (increasing); when energy is outgoing, there is unfulfilled lust.

Navel chakra:

The body function is maintenance or anabolism and the organs are stomach, small intestine, liver, gall bladder, and pancreas. Upsurge of energy at this chakra gives pride and anger; when energy moves out, unworthiness and resentment result.

Heart chakra:

The body function is self-distinction (between me and not-me). The organs are the heart and thymus gland of the immune system whose job is to distinguish 'me' from 'not me.'

There is romance when energy moves in and loss, grief, hurt and jealousy when it moves out. You feel romance here when you meet an appropriate partner and the me extends to include a partner. When the self-distinction extends to everyone, compassion enters.

Throat chakra:

Self-expression is the function and organs are lungs, throat and speech organs, hearing organs and thyroid gland. There is freedom of speech when energy moves in and frustration when the opposite happens.

Brow/third eye chakra:

The function is evolution. This is the chakra of intuitive energy. The organs are the middle and hind brain, eyes, and pituitary gland. As energy moves in, there is clarity and confusion with depletion of energy.

Crown chakra:

The function is self-knowledge and it is associated with the pineal gland. There is satisfaction when energy is gained and despair as it gets depleted. An endocrine gland is associated with each chakra. These communicate with the brain where the mind is mapped. In this way, the mind gets control of vital energies. —Excerpt from Quantum Doctor by Amit Goswami, Jaico Publishing House