DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE Day

Wednesday 20170315

NPPA

National Pharmaceutical Pricing Authority (NPPA) (The Times of India: 20170315)

Price cap on stents will help patients save Rs 4,450cr in a yr(The Times of India: 20170315)

http://epaperbeta.timesofindia.com/Article.aspx?eid=31808&articlexml=Price-cap-on-stents-will-help-patients-save-15032017016063

The government on Tuesday said the price control of stents would result in annual savings of about Rs 4,450 crore for patients in the country. “Reduction of prices of stents by the National Pharmaceutical Pricing Authority (NPPA) on February 12, 2017 will result in approximate annual savings of about Rs 4,450 crore to patients,“ minister of state for chemicals Mansukh L Mandaviya said in the Lok Sabha.

He said, “Price regulation has brought down the prices of bare metal stent by 74% and that of drug-eluting stents by 85%“.

The NPPA had notified the ceiling price of coronary stents at Rs 7,260 for bare metal stent and Rs 29,600 for drug eluting ones. The corresponding average MRPs before the notification stood at Rs 45,100 and Rs 1.21 lakh.

Children

Having children could make you live longer (The Times of India: 20170315)

http://epaperbeta.timesofindia.com/index.aspx?eid=31808&dt=20170315#

Having children may be key living longer, particularly in older age, when health and capacity start to decline, a new study has claimed. By the age of 60, the difference in life expectancy may be as much as two years, the findings suggest.

Researchers from Karolinska Institute in Sweden tracked the lifespan from the age of 60 onwards of all men (704,481) and women (725,290) with a birth date between 1911 and 1925 and living in Sweden. The study ran until the end of 2014. Age-specific risks of death were calculated and compared for each calendar year for people who had at least one child and for those who were childless. After taking account of influential factors, such as educational attainment, the risks of death were lower among those who had at least one child than among those who were childless -and more so among men than among women. “Our finding that the association grew stronger when parents became older is further in agreement with research suggesting that childless people face support deficits only towards the end of life,“ the researchers said.

National Academy of Medicine

National Academy of Medicine (NAM), (The Indian Express: 20170315)

http://indianexpress.com/article/technology/science/india-prepares-to-discuss-breakthrough-technology-designer-humans-science-ethics-of-germline-editing-4569430/

India prepares to discuss breakthrough technology: Designer humans— science, ethics of germline editing

India, which has not squarely addressed the issue yet at the level of policy, is slated to begin a round of meetings to discuss the social and ethical dimensions of human genome editing next month.

Last month, a scientific advisory group formed in the US by the National Academy of Sciences and the National Academy of Medicine, backed a potentially pathbreaking proposal to genetically modify human embryos.

Last month, a scientific advisory group formed in the United States by the National Academy of Sciences (NAS) and the National Academy of Medicine (NAM), two independent, influential groups of scholars and professionals, backed a hugely controversial — and potentially pathbreaking — proposal to genetically modify human embryos to treat hereditary defects and disabilities. The endorsement, which came with the rider that genome editing

could be permitted “only for serious conditions under stringent oversight”, puts the world’s scientific community at an ethical crossroads, even though some countries are reported to be already pursuing such research.

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What exactly is human genome editing?

A genome is the genetic makeup of an organism — the full set of its DNA, which is the chemical compound that contains all the information that the organism needs to function. Each molecule of DNA is made up of two strands twisted around each other. Each strand is constituted of four ‘nucleotide bases’, called A, T, G, C — and bases on the two strands pair in an A-T, G-C formation. The human genome has 3 billion of these base pairs, which reside in 23 pairs of (or a total 46) chromosomes in the nucleus of each cell. Between the years 1990 and 2003, all 23 pairs were sequenced by an international research project called the Human Genome Project.

‘Genome editing’ is the addition, removal or replacement of DNA base pairs to change an organism’s genome structure. This is commonly used in agriculture, but editing the human germline — which essentially means creating genetically modified humans through the the manipulation of their genes — is an altogether different ball game, and is specifically prohibited in over 30 countries. While germline editing is focussed on editing the genes — or traits — that pass on from parents to children, it runs the risk of affecting even non-targetted genes.

What techniques are available for genome editing?

In recent years, a technique known as CRISPR-Cas9 has provided a new dimension to genome editing. It is faster, cheaper and more accurate than earlier techniques, and can precisely target a sequence of DNA, extract, edit or replace it even in the embryo stage. The technique can prevent hereditary diseases such as sickle cell, thalassaemia, HIV, cancer, and Huntington’s disease from passing on to children.

Another popular method is Somatic Cell Gene Therapy (SCGT) which affects only an individual and not his or her future generations. The technique targets a group of cells, and can be used clinically to treat diseases such as thalassaemia and haemophilia that are single gene disorders. Research and clinical trials are currently ongoing.

What does the American panel say on human genome editing?

A 22-member international committee of researchers, lawyers and ethicists have come out with a 261 page report on Human Gene Editing: Scientific, Medical and Ethical Consideration that encourages research in human germline editing but only to correct disabilities and hereditary defects, and not for “human enhancement” — that is, to build up traits and capacities such as physical strength, or to improve intelligence. “While it could be

used to treat muscular dystrophy, genes could also be manipulated to get muscles enhanced for sports. There is a very thin line there," said Richard Hynes, cancer researcher at Massachussets Institute of Technology, and a member of the committee.

The report has also called for public discussion and accessibility for both rich and poor before gates are thrown open for genome editing. It has recommended genome editing only in cases where no other "reasonable alternative" is available. Gary Merchant, professor of Law at Arizona State University and another member, said a standard set of guidelines to command ethics in genome editing must be put together by various countries.

Where does India stand on this matter?

India has not permitted trials of CRISPR-Cas9 technology to edit the human germline. The Department of Biotechnology and Indian Council of Medical Research (ICMR) will meet with Inserm, the French National Institute of Health and Medical Research, in April to discuss the social and ethical implications of genome editing in India, after which the government plans to issue broad guidelines for researchers.

"Our main concern is that this technology should not be used for human enhancement," ICMR Director General Dr Soumya Swaminathan said. Meanwhile, several countries, including the US, UK, China and a few European countries will meet in China later this year to take forward discussions on genome editing. There is no clarity yet on India's participation.

Nobel Prize winning biochemist Dr Venkatraman 'Venki' Ramakrishnan, president of London's Royal Society, said India has a long way to go before it can consider germline editing. "The technology they (India) need to develop will be first used to correct defects in somatic cells. Germline correction is distant future for India," he has said.

According to Professor Merchant, ethical concerns are "a little more (important) in India (than in many other countries), but strict laws can help regulate it". Prenatal sex determination was banned by The Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994, and The Surrogacy (Regulation) Bill, 2016, which has been introduced in Parliament, seeks to prohibit commercial surrogacy — in India's ethical-legal environment, germline editing is unlikely to have easy passage. The technology can be used by the rich to 'customise' a baby with desired traits, and allowing human genome editing could make India a hub for a certain kind of medical tourism, rather like surrogacy has done, experts point out.

"The concept of gene editing can slip into prenatal testing, foetal management and IVF. Developing and underdeveloped countries that face social barriers such as preference for male children need to tread carefully," said Josephine Johnston, research director at The Hastings Center, the world's first bioethics research institute.

What is the situation in other countries?

In 2015 in London, 16-month-old Layla Richards became the first-ever recipient of gene therapy to cure her of ‘incurable’ leukaemia. A 11-month-old baby was also treated subsequently for the same cancer using gene editing technology. The UK has moved fast on research and clinical use of CRISPR-Cas9, and the NAS-NAM paper has encouraged cautious research in the US. In Germany, where strict laws exists for assisted reproduction, research in the human embryo is restricted. Austria, Italy, Spain and the Netherlands have banned human germline editing, while ambiguous guidelines are in place in Mexico, Canada and Argentina.

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Durgs drug haul mandrax syrup addiction

Udta Delhi: Capital is new drug hub with maximum seizures in 2016(Hindustan Times: 20170315)

http://www.hindustantimes.com/delhi/udta-delhi-highest-drug-haul-in-capital-in-2016/story-1XO4Gx2iHJY1KD9l4Jw7fP.html

Not Punjab but Delhi is high on drugs. The year 2016 saw the national capital emerging as Udta Delhi with the highest drug haul for any state in the country, data tabled in Lok Sabha on Tuesday shows.

The information collated from investigating agencies — federal and states — on drugs banned under the Narcotic Drugs and Psychotropic Substances (NDPS) Act showed that Delhi had the highest seizure of chemical based intoxicants such as mandrax, syrup and tablets.

The anti-drug agencies caught 23,519 kg mandrax, 98,480 kg syrup and 1.77 lakh tablets in Delhi in 2016, the government informed the lower house. But, unlike Punjab and Haryana, Delhi was low on seizure of hashish, cannabis, poppy husk and heroin.

The drug haul in recent years show rising seizures in Delhi, which the investigating agencies said indicated at two trends — increase in demand and Delhi emerging as the main transit point for illegal drug trade. Experts estimate that seizures account for not more than 20% of the business.

Special commissioner Dependra Pathak said the high recovery was because of Delhi Police’s “zero-tolerance” towards sale and supply of narcotics. “Our anti-narcotics unit, crime branch, special cell and even local police make continuous and collective efforts to contain drugs supply menace,” he said.

Overall, there has been a five-fold increase in confiscation of drug in India since 2012 with highest in the decade being in 2016 — 5 lakh kg of drugs and 7.93 lakh banned tablets — estimated to be over Rs 50,000 crore in the international market.

A World Drug Report 2016 identified India as prime market for illicit opiates originating from south-east and south-west Asia because of its young aspiring population. About 60% of India's population is less than 35 years of age.

The report also identified India as one of the most frequently mentioned countries of departure and transit of drugs after Thailand, Malaysia, and Philippines. India was one of the eight countries worldwide on high seizures of chemical based drugs like ketamine between 2009 and 2014, the report said.

A survey of United Nations with the ministry of social justice and empowerment estimated that 11.7 million people in India — more than the population of Portugal — were addicted to drugs. Punjab, north-eastern states like Mizoram and Nagaland had large number of drug users.

Many state governments have identified drug use as a rising problem among youth with Rajasthan, Madhya Pradesh and Gujarat banning sale of poppy husk to addicts from licensed shops in 2016. In addition, the ministry of youth affairs has created a special fund for north-east states and Punjab to deal with rising drug problem among youth. Delhi had so far not figured in the list.

Narcotic substance use among youth have been an electoral issue.

Both Congress and the Aam Aadmi Party accused the Akali Dal of spread drug use in the recently concluded polls in Punjab whereas Bihar chief minister Nitish Kumar promise of prohibition helped him get women votes, clinching victory for the grand alliance in 2015 assembly polls.

In the recent past, states like Madhya Pradesh and Haryana have announced steps to control sale of liquor without going for prohibition.

In its reply, the Home Ministry said the Narcotics Control Bureau has taken various several steps to check illegal drug trade including cooperation with neighbouring countries and sharing of information with law enforcement agencies including para-military forces and state police.

Drugs drug haul mandrax syrup addiction

Electrical brain stimulation

Electrical brain stimulation found to improve working memory (Medical News Today: 20170315)

http://www.medicalnewstoday.com/articles/316370.php

Scientists may have found a way to improve brain connectivity. The findings may boost short-term working memory, and in the future, they may help to repair brain damage in patients with traumatic brain injury, stroke, or epilepsy.

[different brain scans]Different brain scans from the study show that synchronous stimulation increases brain activity in the regions involved in task performance, while 'out of sync' stimulation activates brain areas linked with rest.

Image credit: Ines Violante

Our brains are complex machines capable of processing an impressive amount of information. For the brain to work properly, however, it must connect all of its many components into one coordinated effort.

Scientifically, the brain has been divided into four main regions, each with its own subsections and specialized functions. Some of the brain's areas deal with speech, some with memory, and others with spatial thinking or movement.

Some cognitive functions are the result of intercommunication between different areas. The so-called working memory emerges from the interaction of different networks, and new research investigates the role of brainwaves in synchronizing and streamlining this communication.

Scientists from Imperial College London (ICL) in the United Kingdom used electricity to stimulate the brain into synchronizing its waves of electrical activity. As the researchers - led by Dr. Ines Ribeiro Violante, a neuroscientist in the Department of Medicine at ICL - explain, brain waves occur when various neurons send signals at the same time. The exact rhythm in which these cells synchronize may hold the key to performing more elaborate tasks.

The new study, published in the journal eLife, reveals that applying weak electrical stimulation to the brain helped to harmonize different parts of the brain, improving the participants' memory.

Studying the effects of electrical brain stimulation

Violante and team used a noninvasive technique called transcranial alternating current stimulation (TACS) to interfere with the brain's rhythm. In TACS, alternating electrical current is applied through the skull to modify the brain's cortical oscillations.

The researchers used TACS to target two brain regions involved in working memory: the middle frontal gyrus and the inferior parietal lobe.

While their brains were electrically stimulated, 10 participants were asked to perform a set of memory tasks that gradually increased in difficulty. The electrical stimulation was alternately applied in an unsynchronized fashion, in a synchronized fashion, or in quick bursts.

The participants performed memory tasks in which they had to remember numbers flashing across the screen or match numbers with previous ones. More complex tasks involved having to keep two strings of numbers in mind, as the new number had to be matched with that of two numbers before.

Synchronized stimulation found to improve working memory

Overall, the scientists found that when the brain was stimulated in a synchronous way, the participants had better reaction time on the memory tasks. Their performance particularly improved during the more complex tasks, which required the participants to remember two sets of numbers in order to match them with the current number.

The synchronized brain waves seemed to improve the performance of the working memory - the brain's ability to retain small bits of information in a form that is easy to access when performing certain tasks. The working memory is responsible for remembering daily information such as grocery lists or telephone numbers.

"What we observed is that people performed better when the two waves had the same rhythm and at the same time [...] The classic behavior is to do slower on the harder cognitive task, but people performed faster with synchronized stimulation and as fast as on the simpler task [...] The results show that when the stimulation was in sync, there was an increase in activity in those regions involved in the task. When it was out of sync the opposite effect was seen."

Dr. Ines Ribeiro Violante

Brain stimulation could be used to treat brain injury in the future

In the future, the scientists hope to use this form of brain stimulation as a treatment for patients with traumatic brain injury.

Dr. Violante explains that such a technique is very cheap, so using it in clinics would be advantageous in this sense. However, the specificities of each individual's brain may be an obstacle in using this form of electrical stimulation as a widely accessible therapy.

"The next step is to see if the brain stimulation works in patients with brain injury, in combination with brain imaging, where patients have lesions which impair long-range communication in their brains," Dr. Violante says.

"The hope is that it could eventually be used for these patients, or even those who have suffered a stroke or who have epilepsy," Dr. Violante adds.

David Sharp, professor of neurology in ICL's Department of Medicine and senior author on the paper, also weighs in on the findings:

"We are very excited about the potential of brain stimulation to treat patients. I work with patients who often have major problems with working memory after their head injuries, so it would be great to have a way to enhance our current treatments, which may not always work for them. Our next step is to try the approach out in our patients and we will see whether combining it with cognitive training can restore lost skills."

Learn how migraine could be treated with an electrical stimulation patch.

Craving chocolate

Craving chocolate? Psychological technique could help you resist (Medical News Today: 20170315)

http://www.medicalnewstoday.com/articles/316357.php

ocolate lovers know only too well the difficulties of resisting a cocoa-filled treat; once the thought of chocolate enters the mind, it can be near impossible to ignore. However, new research suggests that a two-stage psychological technique could help to abolish those chocolate cravings.

[A woman trying to resist chocolate]

A study suggests that cognitive defusion and guided imagery may help us to resist chocolate cravings.

Researchers from Flinders University in Australia reveal how cognitive defusion and guided imagery helped to lower the desire for chocolate among young women who were craving the indulgent treat.

Lead researcher Sophie Schumacher, of the School of Psychology at Flinders, and colleagues recently reported their findings in the journal Appetite.

Chocolate is undoubtedly one of the nation's favorite treats, with United States citizens devouring around 2.8 million pounds of chocolate annually - the equivalent to around 12 pounds per person.

In moderation, chocolate may be beneficial for health, with studies linking moderate chocolate intake to better cognitive function and heart health.

However, the possible harms of consuming too much chocolate should not be overlooked; its high fat and sugar content can increase the risk of obesity and associated conditions, such as high blood pressure, diabetes, and heart disease.

So how can we eradicate those intrusive thoughts that make us want to gorge on chocolatey treats? The new study suggests that it is all down to self-awareness.

The 'elaborated-intrusion theory of desire'

Schumacher and colleagues explored what is known as the "elaborated-intrusion theory of desire" - the idea that initial thoughts about a desirable object are amplified by mental imagery.

With this in mind, the researchers hypothesized that targeting both desirable thoughts about chocolate and mental imagery of chocolate might help to reduce chocolate cravings.

The team tested this theory by conducting two experiments. The first experiment involved a group of 94 young women, while the second experiment involved a group of 97 young women who said they wished to reduce their chocolate cravings.

In both experiments, participants were randomly allocated to receive cognitive defusion, guided imagery, or a mind-wandering control condition.

Cognitive diffusion targets the initial thoughts of the desirable product - in this case, chocolate. It focuses on taking the initiative to move away from such thoughts, and realizing that we do not need to respond to these thoughts with action.

Guided imagery targets the second craving stage, whereby we start to imagine what it would be like to smell and eat chocolate. It replaces these thoughts with unrelated imagery, like a forest or a beach.

'Target initial craving thoughts before they become full-blown cravings'

Across both groups, the researchers compared the occurrence of chocolate-related thoughts before and after each intervention, as well as the intrusiveness of these thoughts, the intensity of cravings, vividness of imagery, and chocolate consumption.

The team found that cognitive defusion led to a reduction in intrusive thoughts, vividness of imagery, and craving intensity in both groups, while guided imagery led to reductions in chocolate-related thoughts, intrusiveness, vividness of imagery, and craving intensity for chocolate cravers only.

Although chocolate consumption did not differ between groups, the researchers believe that their findings indicate that engaging in greater self-awareness when chocolate-related thoughts first hit could stop us from succumbing to cravings.

"If we tackle the issue when it first pops up in your mind - particularly if you are not hungry - then it's much easier than waiting for those cravings to gather force.

Learn[ing] to nip off these cravings at the bud - by giving yourself a constructive distraction such as imaging a walk in a forest - can help to lower the intrusiveness of the thoughts and vividness of the imagery. We found it was important to target the initial craving thoughts before they become full-blown cravings."

Learn how chocolate and beer may influence the gut microbiome.

AFib surgery

AFib surgery: Types, risks, and what to expect (Medical News Today: 20170315)

http://www.medicalnewstoday.com/articles/316361.php

ial fibrillation is a serious medical condition characteristic of an abnormal heartbeat. The irregular response is due to erratic electrical impulses in the heart's upper chambers.

Atrial fibrillation (AFib) is an irregularity that can result in symptoms, such as heart palpitations, chest pain, and dizziness. However, some people may not experience any symptoms at all.

The Centers for Disease Control and Prevention (CDC) estimate that up to 6.1 million people in the United States may have AFib. According to the World Health Organization (WHO), there are around 33.5 million people living with AFib worldwide.

There are different treatment options for managing AFib, including lifestyle changes, medications, and other nonsurgical options. While these treatments may help some people, they may not work for everybody and are not a cure. Doctors may consider surgery if a patient's medications aren't working and when nothing else has helped.

Contents of this article:

How is AFib treated?

Catheter ablation

Maze surgery

Pacemaker

Risks and benefits

How is AFib treated?

Treating AFib involves preventing blood clots and lowering stroke risk. Other goals include controlling heart rate, restoring heart rhythm, and treating underlying disorders.

hand stubbing out a cigarette among butts in a sand tray

The first treatment for AFib will be to live a healthful lifestyle and to quit smoking.

Lifestyle changes are a first treatment approach. People with AFib should quit smoking, get active and stay active, lose weight, and eat a healthful diet. Patients may also take medications to prevent blood clots, control heart rate, and restore heart rhythm.

Rate control involves managing the per minute contraction rate of the ventricles (two large chambers in the heart that help pump the blood).

The heart needs a certain amount of time to circulate the blood and if it is able to work at a regular pace, people will experience fewer symptoms and will feel better. Restoring the heart's rhythm allows it to pump blood effectively throughout the body.

When medications aren't helping to restore normal heart rates and rhythms, the next step is electrical cardioversion.

Electrical cardioversion involves giving a person an electric shock outside their chest wall while they are under low-dose anesthesia. Like defibrillation, electrical cardioversion is designed to reset the heart rhythm. The only difference is that lower levels of electricity are used in electrical cardioversion than in defibrillation.

Whether this procedure is successful or not depends on what is causing the AFib symptoms and how long the person has been having them. Most people get their heart rhythm back right away, but cardioversion is not a cure.

If AFib symptoms return, another cardioversion is carried out. When cardioversion is combined with medications, the heart rhythm can stay normal for longer, which could be up to a year or longer.

The risks of cardioversion include skin burns, fluid buildup in the lungs, and an increased risk of heart attack or stroke. However, the success rates for returning the heart to a normal rhythm during the procedure or shortly after are over 90 percent. The potential for success may outweigh the risks, but people should still discuss any and all risks with their doctors.

A doctor may recommend surgery to treat AFib when lifestyle changes, medication, and cardioversion are not helping. Surgical options include catheter ablation, maze surgery, or the insertion of a pacemaker.

Catheter ablationCatheter ablation

Catheter ablation destroys faulty tissue that causes irregular heart rhythm.

Catheter ablation is an option for people whose medications are no longer effective and for those for who electrical cardioversion did not work or was not an option. Before the

procedure, a doctor will do electrical mapping, which shows what areas of the heart are causing complications to its rhythm.

The actual procedure involves inserting a thin and flexible tube, called a catheter, into the blood vessels and guiding it to the heart. The purpose of catheter ablation is to destroy the faulty tissues that are sending irregular signals and causing the irregular heart rhythm.

It does this in one of three possible ways:

destroyed, scarred areas will be left behind. This scar tissue will no longer send irregular signals and the heart will return to its normal rhythm. In some cases, however, AFib will return, and ablation will have to be redone two or more times.

Catheter ablation is a minimally invasive surgical procedure and recovery time is generally short. A person will still need to take anti-arrhythmic drugs until the procedure takes its full effect.

The success rates for maintaining normal heart rhythms after catheter ablation is up to 90 percent. Success depends on how long an individual has had AFib and its severity.

For most people, quality of life is significantly improved. A 2010 study found that 2 years after their ablation procedure, 72 percent of the 323 people surveyed were no longer taking AFib medications.

The risk of life-threatening complications is around 1-2 percent. Other side effects are not life-threatening and include mild pain, bleeding, and bruising.

Maze surgery

Surgeons will perform full maze surgeries when AFib patients have open-heart surgery, such as a heart bypass or valve replacement. The reason for its name is the pattern created during the surgery.

Surgeon

Maze surgery will involve cuts being made in the heart and then sewn together to correct the heart's electrical signals.

During the procedure, the surgeon will make a number of cuts in a person's heart and then sew them together. Much like a catheter ablation, the resulting scar tissue will prevent the heart's electrical signals from crossing and allow them to function normally.

Risks include stroke, kidney and other organ failures, and death. Some people may need a pacemaker after the procedure.

The success rate after a maze surgery is 90 percent and current research shows that this rate continues to hold.

Mini-maze surgery is an option for those people who are not candidates for open-heart surgery. The mini-maze is a minimally invasive version of the full maze.

The mini-maze takes a few hours and involves the surgeon making three or four incisions on each side of the chest. The doctor will then insert surgical instruments, including an ablation device and a scope for viewing the chest wall. Ablation energy is then used to create a block to the pulmonary veins and stop the inconsistent electrical signals disrupting the heart.

The surgeon will also remove or cut away a small sac in the top left chamber of the heart, which reduces the potential for stroke and blood clots.

The current success rate for the mini-maze is 80 percent, and only 5 percent of patients who undergo this procedure will need a pacemaker.

Pacemaker

A pacemaker is a small device that is implanted under a person's skin in the upper chest near the collarbone. Pacemakers do not actually treat AFib, but use electrical pulses to monitor and regulate heart rhythm. A person may require a pacemaker after certain types of ablation or when heart medicine causes their heart to beat too slowly.

In some instances, doctors may use catheter ablation and implant a pacemaker.

Before a pacemaker is implanted, the surgeon will damage the tissue of the atrioventicular (AV) node, which is the place where the electronic signals of the heart travel from the upper part of the heart to the lower part. The pacemaker will then transmit regular heart rhythms.

Risks and benefits

It is very possible that people with AFib can be cured, either through electrical cardioversion or surgery. Surgery is generally a last option.

People with AFib who think that surgery is the right option for them should check with their doctors about the potential benefits and risks in having an ablation or maze procedure.

Could new 'helper drugs' restore antibiotic susceptibility in superbugs?

ing state-of-the-art genomics tools, researchers have pinpointed genes that contribute to antibiotic resistance in two global superbugs. They show how such a discovery could lead to "helper drugs" with the potential to restore the susceptibility of resistant bacteria to antibiotics.

older woman in hospital

The research offers a new route to developing drugs to overcome antibiotic-resistant superbugs, which are becoming an increasing threat to global public health.

The researchers - including some from the University of Copenhagen in Denmark and Ross University School of Veterinary Medicine in St Kitts, West Indies - report their findings in

two scientific papers: one published in the journal Scientific Reports, and the other in the journal Antimicrobial Agents and Chemotherapy.

Antibiotic

Could new 'helper drugs' restore antibiotic susceptibility in superbugs? (Medical News Today: 20170315)

http://www.medicalnewstoday.com/articles/316356.php

Antimicrobial resistance is a growing threat to global public health, according to the World Health Organization (WHO).

An ever-increasing range of infections caused by bacteria, viruses, parasites, and fungi are becoming resistant to the antimicrobial drugs or antibiotics used to prevent and treat them.

As antibiotics lose effectiveness against resistant "superbugs," patients undergoing surgery and cancer chemotherapy face an added risk of developing potentially severe infections.

The cost of caring for patients infected with superbugs is higher than the cost of caring for patients with nonresistant infections because they require more tests, need more expensive drugs, and have lengthier stays in hospital.

An international review suggested that unless we find new ways to overcome resistant superbugs, the global death toll of antimicrobial resistance will overtake that of cancer and exceed 10 million people per year by 2050.

The Centers for Disease Control and Prevention (CDC) estimate that in the United States, antibiotic resistance is responsible for at least 2,049,442 illnesses and 23,000 deaths every year.

Research focuses on two 'priority 1' pathogens

For their investigation, the researchers focused on two superbugs: one paper describes how they investigated the bacterium Klebsiella pneumoniae, and the other paper describes their work on the bacterium Escherichia coli.

The WHO class both bacteria as "priority 1 pathogens" in their recently published list of global pathogens for which we urgently need new drugs.

K. pneumoniae is a common intestinal bacteria that can give rise to serious, life-threatening infections. It is a major cause of hospital-acquired infections, including pneumonia and bloodstream infections. It can also infect newborns and patients in intensive care units.

Strains of K. pneumoniae that are resistant to last resort treatment with carbapenem antibiotics have now spread to all regions of the world. In some countries, because of resistance, treatment with carbapenem antibiotics is now ineffective in around 50 percent of patients infected with this pathogen.

E. coli is also a common intestinal bacteria - it is often the cause of urinary tract infections (UTIs). There are now many countries where fluoroquinolone antibiotics - drugs that are widely used to treat UTIs - are now ineffective against resistant strains of this pathogen in more than half of patients.

Identifying genes that contribute to antibiotic resistance

The lead investigator of the research on both pathogens was Luca Guardabassi, a professor in veterinary and animal sciences at Copenhagen University and also director of the One Health Center for Zoonoses and Tropical Veterinary Medicine at Ross.

He and his colleagues took a new approach to try and identify genes that might be important to helping the superbugs survive treatment with antibiotics.

Using the latest genomics technology, they assessed the extent to which every single gene in each of the bacteria might contribute to antibiotic resistance.

They identified several genes in multidrug-resistant (MDR) strains of K. pneumoniae that appear to be key to its ability to survive in the presence of colistin - a last-line of defense antibiotic used to treat drug-resistant infections of the pathogen.

To show that their discovery could lead to new drugs (demonstrating "proof of principle"), the team showed that switching off one of the genes, called dedA, completely restored susceptibility of MDR K. pneumoniae to colistin.

The team also conducted similar proof-of-principle tests that showed switching off some of the resistance genes they identified in MDR strains of E. coli restored their susceptibility to beta-lactams - a class of broad-spectrum antibiotics that includes penicillin and carbapenems.

New 'helper drugs' work differently

The authors note that their discovery paves the way to a new type of antibiotic "helper drug" that works differently to beta-lactamase inhibitors - the only type of helper drug already in clinical use. Helper drugs are compounds that when given together with another drug - in this case antibiotics - increase their potency.

Beta-lactamase inhibitors reverse antibiotic resistance by blocking the enzyme in bacteria that breaks down beta-lactam antibiotics. However, the new gene targets that Prof. Guardabassi and colleagues identified are not directly involved with the mechanism of antibiotic resistance itself.

The target genes are present in all bacteria and can therefore be used to make antibiotics more potent in all cases of infection - whether caused by resistant or susceptible strains.

Prof. Guardabassi says: "This is a desirable feature for a helper drug as it would reduce the risk of treatment failure due to factors other than antibiotic resistance (e.g. biofilms, immunosuppression, etc.), allow dose reduction for toxic antibiotics such as colistin, and possibly even prevent selection of resistant mutants."

The researchers are already investigating how to prevent the selection of resistant mutants. They are testing a combination of colistin with an antifungal drug that is known to disrupt the resistance genes that they identified in MDR K. pneumoniae.

"Our discovery shows that resistant superbugs are not invincible. They have an 'Achilles heel' and now we know how to defeat them."

Prof. Luca Guardabassi

Learn how contaminated hospital floors may help to spread infection.

Lung cancer

Lung cancer and shoulder pain: What's the connection? (Medical News Today: 20170315)

http://www.medicalnewstoday.com/articles/316346.php

t people experience shoulder pain, usually due to inflammation or muscle injuries. Much less frequently, shoulder pain can be a sign of lung cancer.

Although shoulder pain is not a hallmark of lung cancer, any persistent unexplained pain warrants a visit to a doctor

Contents of this article:

How can lung cancer cause shoulder painolder lady with shoulder pain is seen by doctor

Lung cancer may cause shoulder pain but shoulder pain does not immediately indicate lung cancer.

Lung cancer can cause referred pain in the shoulder. Referred pain is a type of pain that begins in one area of the body but is felt in another. Some types of lung cancer are more likely to cause referred pain than others.

Mesothelioma

Mesothelioma is a type of lung cancer usually caused by long-term exposure to asbestos.

Symptoms are similar to other forms of lung cancer, but a 2015 study found that 14 percent of people with mesothelioma also had shoulder pain. In these patients, shoulder pain was often the first symptom of mesothelioma.

Pancoast lung cancer tumors

Pancoast tumors are a relatively uncommon form of lung cancer. These tumors are located in a groove at the top of the lungs called the superior sulcus. Because this area is close to the shoulder, it can cause intense shoulder pain on the same side where the cancer develops.

A person who has a Pancoast tumor, the type of lung cancer most likely to cause shoulder pain, may also experience a group of symptoms called Horner syndrome. In addition to shoulder pain, people with Horner syndrome may experience:

changes in the eyes, including droopy eyelids or shrinking in one pupil

asymmetrical changes in sweating, such as reduced sweating on one side of the face

Metastatic lung cancer

Metastatic lung cancer is cancer that has spread to other areas of the body. When lung cancer spreads to nearby regions, such as the bones, lymph nodes, and other nearby structures, shoulder pain may occur.

Metastatic lung cancer can cause a range of symptoms specific to the body system affected. For example, lung cancer that spreads to the liver may cause symptoms of jaundice, such as yellow eyes. Some common symptoms of metastatic lung cancer include:

unexplained muscle and bone pain

changes in the nervous system, such as weakness or tingling, headaches, dizziness, and seizures

swelling in the lymph nodes

How lung cancer-related shoulder pain feels

Shoulder pain can be a frustrating symptom to diagnose. There is no characteristic cluster of shoulder pain symptoms associated with lung cancer. One study of shoulder pain in people with mesothelioma, for example, found that most people thought the pain was minor, ranking it a 4 on a scale of 1-10. A few people, however, experienced more significant symptoms, including decreased mobility.

Some people with cancer-related shoulder pain experience pain in the arms that radiates down to the hands. This pain may also include numbness and tingling.

Other lung cancer symptoms

Around 80 percent of lung cancer deaths in men and 90 percent in women are due to smoking. Although anyone can develop lung cancer, current and former smokers with symptoms should be particularly concerned.

man coughs up blood

A persistent cough, wheezing, and coughing up blood may be symptoms of lung cancer.

Shoulder pain is not the most frequent symptom of lung cancer. With the exception of a small number of cases, it's rarely the first lung cancer symptom.

Common symptoms of non-small cell lung cancer - the most common variety of lung cancer - include

a persistent cough

coughing up blood or rust-colored mucus

hoarseness or wheezing

unexplained weight loss

difficulty breathing

fatigue and weakness

long-term infections of the chest or respiratory system, such as pneumonia or bronchitis

Common causes of shoulder pain

Most shoulder pain is due to everyday causes, such as slumping in front of a computer or straining a muscle. Many people experience shoulder pain caused by the following:

Short-term injuries due to overextending or overusing the muscles of the shoulder. Symptoms typically occur in the injured shoulder only.

Referred pain from other areas of the body. Neck and back pain may trigger shoulder aches. Weakness in one muscle may cause the shoulder muscles to overcompensate, triggering pain.

Injuries in the spine, such as herniated disks.

Osteoarthritis, which occurs over time as cartilage wears down.

Rheumatoid arthritis, a long-term inflammatory condition.

Tears in the rotator cuff.

Frozen shoulder, an injury that limits mobility. Lack of use, rheumatoid arthritis, and unusual tissue growth in the shoulder may cause frozen shoulder.

Poor posture. Slumping over a computer, holding the body in an awkward position for extended periods, and craning the neck may cause tension and pain in the shoulders. The pain may spread to the neck and back.

Less frequently, various diseases can irritate the nerves of the shoulder, triggering pain. Heart disease, gallbladder disease, and liver disease are common causes of this type of pain. Nerve pain can cause tingling and numbness or a sensation of pins and needles in the shoulder. Its location often changes or expands over time.

Treatment for shoulder painice pack being held on a shoulder

New shoulder pain may be treated with rest and the application of an ice pack.

Much shoulder pain is temporary, due to overuse, strain, and minor injuries. To treat new shoulder pain, people should try RICE:

Resting the injured shoulder, avoiding excessive movement or weight-bearing

Ice can be applied to the area with an ice pack for 20 minutes at a time

Compressing the area with a bandage or wrap to reduce swelling

Elevating the painful area

Some people also find that switching between heat and ice packs helps to increase blood flow, speeding healing and reducing pain. Gentle stretching, low-impact exercise, and non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen can also offer relief.

Shoulder pain that lasts more than a few days, that goes away and then comes back, or that is unbearable warrants seeing a doctor. Depending upon the cause, the doctor may recommend:

physical therapy

exercise therapy

surgery to address structural issues

alternative treatments, such as acupuncture or chiropractic care

pain medications to reduce the severity of shoulder pain and improve mobility

Outlook

Lung cancer is one of the most dangerous forms of cancer because it spreads so rapidly. When detected early, 5-year survival rates are around 55 percent. People who have symptoms of lung cancer should therefore seek prompt medical treatment.

Treatment for lung cancer depends on the type of cancer, and whether it has spread to other areas of the body. Some of the most common treatments include:

surgery to remove tumors

chemotherapy and radiation treatment

drugs that block tumors, interfere with their growth, or that treat side effects of cancer

immunotherapy, a treatment that supports the immune system to fight cancer cells

Pollution (Dainik Gagaran: 20170315)

http://epaper.jagran.com/ePaperArticle/15-mar-2017-edition-National-page_12-148-10437-262.html

अमेरिकी वैज्ञानिकों के अध्ययन का निष्कर्ष

वायु प्रदूषण से बचाता है विटामिन बी

भारत समेत दुनिया के कई देशों के करोड़ों लोग गंभीर वायु प्रदूषण की चपेट में रहने को मजबूर हैं। इससे बड़ी तादाद में लोगों की अकाल मृत्यु हो जाती है। अमेरिकी वैज्ञानिकों ने इससे निपटने का नया तरीका ढूंढने का दावा किया है। कोलंबिया विश्वविद्यालय के शोधकर्ताओं के मुताबिक, विटामिन बी एपीजीनोम को वायु प्रदूषण के दुष्प्रभावों से बचाता है। एपीजीनोम एक तरह का मिश्रण होता है जो जीन को क्या करना है, इसका निर्देश देता है। दरअसल, विटामिन बी पीएम-2.5 पार्टिकल्स से होने वाले नुकसान से बचाता है। वैज्ञानिकों का मानना है कि इसका सप्लीमेंट लेने से बड़ी संख्या में प्रदूषण से प्रभावित लोगों को बचाया जा सकता है। विटामिन बी एपीजीनोम में बदलाव कर उसे प्रदूषण के प्रभावों से लड़ने में भी सक्षम बनाता है। विश्व स्वास्थ्य संगठन द्वारा निर्धारित मानक के अनुसार, दुनिया भर की 92 फीसद आबादी वायु प्रदूषण की चपेट में रहती है। ऐसे में विटामिन बी का सेवन कर उससे बचा जा सकता है। -प्रेट्र

एमआरआइ से भी चलेगा एचआइवी का पता

यूनिवर्सिटी कॉलेज लंदन के विशेषज्ञों ने प्रभावी इलाज के बावजूद एमआरआइ के जरिये मस्तिष्क की ओर अग्रसर एचआइवी का पता लगाने में सफलता पाई है। प्रोफेसर रवि गुप्ता ने बताया कि असरदार इलाज नहीं होने पर एचआइवी-एड्स मस्तिष्क को भी प्रभावित करता है। इससे डिमेंशिया और अन्य तरह की समस्याएं सामने आती हैं। हालांकि, यह परेशानी अन्य कारणों से भी होती है। स्मरण शक्ति संबंधी समस्या एचआइवी के कारण है, इसका पता लगाने का मौजूदा तरीका जटिल है। इसके लिए सिर के पिछले हिस्से से इंजेक्शन के जरिये नमूने लिए जाते हैं। पीड़ितों को अस्पताल में भर्ती होना पड़ता है। ताजा अध्ययन में एमआरआइ के जरिये एचआइवी से होने वाली समस्या का पता लगाने में सफलता मिली है। एचआइवी पीड़ितों के मस्तिष्क में व्हाइट मैटर में बदलाव का खतरा दस गुना ज्यादा होता है। जानलेवा एचआइवी संक्रमण का खतरा लगातार बढ़ रहा है। -प्रेट्र

Diabetic (Hindustan: 20170315)

http://mepaper.livehindustan.com/pagezoomsinwindows.php?id=1797997&boxid=55339124&cid=4&mod=&pagenum=20&edcode=1&pgdates=2017-03-15

रोज तीन घंटे से ज्यादा टीवी देखना खतरनाक

सेहत

लंदन | एजेंसी

एक नए शोध में भी कहा गया है कि रोज तीन घंटे से ज्यादा टीवी देखना या कंप्यूटर पर समय बिताना बच्चों के लिए हानिकारक है। विशेषज्ञों का कहना है कि इससे बच्चों में डायबिटीज होने की आशंका बढ़ जाती है।

प्रमुख शोधकर्ता और यूनिवर्सिटी ऑफ लंदन के डॉक्टर क्लेयर नाइटिंगेल ने बच्चों में टाइप 2 डायबिटीज की आशंका कम करने के लिए स्क्रीन के सामने उनके द्वारा बिताए जाने वाले समय को कम करने की सलाह दी है। डॉ. नाइटिंगेल ने कहा कि टीवी और कंप्यूटर के अलावा स्मार्टफोन पर भी बच्चों का देर तक खेलना सही नहीं है।

टीवी के सामने समय बिताने और टाइप 2 डायबिटीज की आशंका के बीच संबंध इसलिए भी है क्योंकि इससे बच्चों में मोटापा बढ़ता है। इसके कारण उनका शरीर ब्लड शुगर का स्तर नियंत्रित नहीं कर पाता है। इस निष्कर्ष पर पहुंचने के लिए यूनिवर्सिटी ऑफ लंदन के शोधकर्ताओं ने 220 स्कूलों के नौ से दस साल के 4495 छात्रों के आंकड़ों का अध्ययन किया। स्क्रीन के सामने तीन घंटे से अधिक समय बिताने वाले पांच में से एक बच्चे का वजन ज्यादा था और उसका मोटापा बढ़ रहा था।

शोध में देखा गया कि स्क्रीन के सामने अधिक समय बिताने वालों में लड़कियों के मुकाबले लड़के आगे थे। टीवी और अन्य स्क्रीन पर तीन घंटे से अधिक समय बिताने वाले बच्चों के वजन और लंबाई का अनुपात उन बच्चों के मुकाबले अधिक था जिन्होंने इससे कम समय बिताया।

स्क्रीन पर अधिक समय बिताने वाले बच्चों में ब्लड शुगर का स्तर, भूख नियंत्रित करने वाले हॉर्मोन लेप्टिन और इंसुलिन के लिए प्रतिरोधक क्षमता में संबंध देखा गया। ये टाइप 2 डायबिटीज की तरफ इशारा करने वाले प्रमुख निशान हैं। इन्हें जीवनशैली नियंत्रित कर संतुलित किया जा सकता है।

कंप्यूटर और स्मार्टफोन की आदत भी नुकसानदेह

अध्ययन में दावा किया गया है कि प्राइमरी स्कूल से ही बच्चों में काउच पोटैटो के लक्षण शुरू हो जाते हैं। यनिवर्सिटी ऑफ स्ट्रेथक्लाइड के शोधकर्ताओं ने टीवी, कंप्यूटर और स्मार्टफोन पर बच्चों की बढ़ती सक्रियता को इसके लिए जिम्मेदार ठहराया है। विशेषज्ञों ने इसके लिए आठ साल तक की उम्र के 400 बच्चों पर शोध किया। अध्ययन में पता चला कि सात साल की उम्र से बच्चों की सक्रियता में गिरावट दर्ज की गई। शोध के दौरान विशेषज्ञों ने देखा कि सिर्फ 19 फीसदी लड़कों ने साधारण से अत्यधिक मेहनत का शारीरिक श्रम किया, जबकि लड़कियों की संख्या इस मामले में न के बराबर थी।

Diabetic (Navbharat Times: 20170315)

http://epaper.navbharattimes.com/details/6620-62183-1.html

ज्यादा टीवी देखने से बच्चों में डायबिटीज का खतरा

■ भाषा, लंदन

एक नए शोध में चेतावनी दी गई है कि दिन में तीन घंटे से अधिक समय तक टीवी, स्मार्टफोन या टैबलेट का इस्तेमाल करने वाले बच्चों को डायबिटीज (मधुमेह) का खतरा अधिक हो सकता है। शोधकर्ताओं का कहना है कि तीन या तीन घंटे से अधिक समय तक टीवी या फोन की स्क्रीन देखने का संबंध ऐसे कारकों से हैं, जो बच्चों में डायबिटीज के विकास से जुड़े हुए हैं।

अधिक देर तक टीवी या मोबाइल स्क्रीन पर समय बिताने से शरीर में फैट (वसा) और इंसुलिन की प्रतिरोध क्षमता का संतुलन बिगड़ जाता है। पैन्क्रियाटाइटिस (अग्नाशय) द्वारा तैयार किए जाने वाले हमारे इंसुलिन का कार्य खून में ग्लूकोज के स्तर को नियंत्रित करना होता है।

शोधकर्ताओं ने अपने शोध के लिए ब्रिटेन के 200 प्राइमरी स्कूलों में पढ़ने वाले 9-10 साल के करीब 4,500 बच्चों के नमूने एकत्रित किए। जिन कारकों का अध्ययन किया गया उनमें रक्त वसा, इंसुलिन प्रतिरोध, भूखे रहने पर ब्लड में ग्लूकोज का स्तर, जलन पैदा करने वाले रसायन और शरीर की फैट आदि थे।