DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE Day

Tuesday 20170314

Hypertension

Study reveals link between hypertension and brain changes in rats (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316311.php

Untreated high blood pressure can lead to a number of serious conditions, from kidney failure to a stroke or a heart attack. How does high blood pressure develop in the first place? Researchers investigate the physiological changes that accompany the onset of hypertension.

New rat study offers insights into what may cause hypertension.

High blood pressure, also known as hypertension, occurs when the force with which blood flows through our veins is consistently too high.

Blood pressure (BP) is measured across two parameters - systolic and diastolic. The systolic measure is the top number in a BP measurement. For instance, in a BP of 116/82 millimeters of mercury (mm Hg), the "116" represents the BP measurement when the heart beats, and the "82" (the diastolic pressure) is the pressure when the heart rests between beats.

Hypertension is clinically defined as a consistent systolic BP of 140 mm Hg or higher, and a consistent diastolic BP of 90 mm Hg or higher.

It is estimated that approximately 85 million people in the United States (or 1 in 3 adults) aged 20 and older have hypertension. Of these, almost 20 percent are unaware that they have it.

Because high BP does not usually cause any symptoms, the condition has been dubbed "the silent killer." If high BP is left untreated, it can cause kidney failure, heart attack, angina, stroke, and even heart failure.

Although there are therapies available for treating high BP, the cause remains unknown.

New research, published in the journal Experimental Physiology, set out to investigate the early development of stress-induced hypertension.

The researchers - from the Institute of Cytology and Genetics in Russia - examined physiological changes in rodents using an ISIAH rat model, which is short for inherited stress-induced arterial hypertension.

Changes in arterial blood flow and brain activity may cause hypertension

The scientists induced stress-sensitive hypertension in ISIAH rats, which then developed high BP at 4-6 weeks of age. In an ISIAH model, the hypertension acquired then is sustained throughout their lives.

The team compared the high BP in 10 male ISIAH rats with a normal BP control group of eight male rats. They used MRI techniques to assess the hemodynamic and the changes in brain metabolites in the two groups at 1 month and 3 months of age, respectively.

With aging, the scientists noticed changes in the blood flow rates to certain arteries. Specifically, they noted an increased blood flow in the renal arteries, and a decreased blood flow in the abdominal aorta.

In ISIAH rats, the scientists also noticed a decrease in renal vascular resistance that occurred with age. However, renal vascular resistance remained higher than that of control rats at both 1 month and 3 months of age.

The study also revealed differences in brain activity. The ISIAH rat group revealed a decrease in the prefrontal cortex and an increase in the hypothalamus - neither of which were noticed in the control group.

Additionally, the hypothalamus of 3-month-old rats showed more excitatory neurotransmitters than inhibitory ones.

"Thus," the authors conclude, "the early development of the stress-sensitive hypertension in the ISIAH rats is accompanied by considerable changes both in brain metabolite ratios and in the parameters of blood flow through the main arteries."

This goes some way toward proving that there is a link between the development of hypertension and changes in brain activity and arterial blood flow. The authors speculate that these changes - especially if they take place in early life - could trigger hypertension.

"The study of early physiological changes in ISIAH rats may help clarify the cause of high blood pressure. Understanding this could help us prevent the disease early on."

Alisa Seryapina, first author

Prostate Cancer

Could antidepressants stop prostate cancer from spreading? (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316337.php

In almost all cases where prostate cancer spreads to other areas of the body, the disease spreads to the bone first. In a new study, researchers reveal the discovery of an enzyme that helps prostate cancer cells to invade bone. Furthermore, certain antidepressant medications may have the potential to block this enzyme.

Researchers suggest that antidepressants that block the enzyme MAOA could reduce the spread of prostate cancer cells to the bone.

Study co-author Jason Wu, of Washington State University-Spokane, and colleagues recently reported their findings in the journal Cancer Cell.

After skin cancer, prostate cancer is most common cancer among men in the United States and the third leading cause of cancer death.

According to the American Cancer Society, there will be 161,360 new cases of prostate cancer diagnosed in 2017, and more than 26,000 men will die from the disease.

When prostate cancer cells spread to other body parts - a process known as metastasis - the bone is the normally the first area affected. Around 90 percent of prostate cancer deaths involve bone metastasis.

In the new study, Wu and colleagues uncovered an enzyme called MAOA that prompts a signaling cascade that simplifies the process by which prostate cancer cells spread to the bone.

MAOA enzyme helps prostate cancer cells spread to bone

The researchers came to their findings by introducing human prostate cancer cell lines into mice and analyzing MAOA activity.

The team found that the MAOA enzyme in prostate cancer cells stimulates three proteins to boost the function of osteoclasts, which are bone cells that play a role in the degradation of bone tissue during growth and healing.

"The cancer cells can specifically activate the osteoclasts for bone degradation," explains Wu. "The experimental phenomenon we've observed is actually a lot more bone destruction than new bone formation."

When the researchers reduced the expression of MAOA in the prostate cancer cells, they found it reduced the cells' ability to spread to the bone. "On the other hand, if we overexpress this enzyme in prostate cancer cells, we found increased bone metastasis in mice," says Wu.

'Old' antidepressant blocks MAOA

In the next part of the study, the researchers tested a drug called clorgyline - a drug once used as an antidepressant that is known to block the activity of MAOA - on prostate cancer cell lines.

They found that the drug prevented MAOA from activating the three proteins that enhance osteoclast function, thereby reducing the prostate cancer cells' ability to invade and grow in bone.

"Our findings provide a rationale to pursue the new use of these 'old' antidepressant drugs to benefit late-stage prostate cancer patients with signs and symptoms of metastasis."

Jason Wu

The researchers note that there are antidepressants in clinical use that work in a similar way to clorgyline, and researchers are currently investigating how these medications affect tumor growth.

"Our studies provide promising results in mice, which merit further investigation, such as adjusting the formulation, dose, and delivery route of MAOA inhibitors, prior to ultimate clinical application," notes Wu.

HIV/ AIDS

HIV swollen lymph nodes: Symptoms, causes, and treatment (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316336.php

A lymph node is a small, bean-shaped mass of tissue that helps to defend the body against infections. Lymph nodes are sometimes incorrectly referred to as glands; however, glands make or secrete substances, whereas lymph nodes only act as filters.

There are about 600 lymph nodes throughout the body. Some of these lymph nodes are in deep tissue, but others can more easily be located in clusters closer to the skin in the armpit, groin, and neck areas.

The lymph nodes are part of the lymphatic system, which helps the body fight infection. The lymph nodes filter the lymphatic fluid, which is a clear fluid that carries infection-fighting cells, and stores white blood cells.

A lymph node is considered swollen if it measures about half an inch wide. Lymph nodes can become swollen due to many different types of infections. Among these, swollen lymph nodes can be an early symptom of HIV infection. The lymph nodes in the neck, groin, or armpits are most often affected.

Contents of this article:

When to see a doctor: Symptoms and causes

People should see a doctor:

doctor checking a persons lymph nodes

Swollen lymph nodes may be an early symptom of HIV. However, there may also be other causes behind the swelling.

if their lymph nodes have been swollen for more than 2 weeks

if their lymph nodes are hard or seem to be growing rapidly

if the skin over the nodes is red and inflamed

People should also see a doctor if they have swollen lymph nodes and are also experiencing any of the following symptoms:

weight loss

night sweats

fatigue

fever that will not go away

When attempting to diagnose the cause of swollen lymph nodes, a doctor will perform a physical exam and ask questions about symptoms, recent travel history, and recent contact with animals. It is important to remember that although swollen lymph nodes are a symptom of early HIV infection, there are also many other causes of swollen lymph nodes.

Doctors may also require blood or tissue samples to help them make a diagnosis. Fluid from the lymph node may also be extracted and placed into a culture to analyze what class of bacteria may grow, if any. Swollen lymph nodes may also be the result of a viral illness.

If a person has swollen lymph nodes and it is possible that they have recently been exposed to HIV, they should speak to a doctor about what testing options are available.

Other causes of swollen lymph nodes

The lymph nodes usually become swollen due to a rapid increase in number of the white blood cells that build up in the nodes in order to fight an infection.

Common infections that are associated with swollen lymph nodes include the common cold, measles, strep throat, ear infections, and tooth infections. Less common infections, such as tuberculosis, syphilis, and toxoplasmosis can also cause the lymph nodes to swell.

However, as well as indicating infection, swollen lymph nodes can also be a sign of cancer such as leukemia, or lymphoma, which is a cancer of the lymphatic system.

Other early symptoms of HIV infection

Early symptoms of HIV infection include:

fever

rash that is not easily explained by other factors, such as medication or allergies

sore throat

fatigue, caused by the inflammatory response generated by the overworked immune system

aches and pains in the muscles and joints

new or serious headache

diarrhea, vomiting, nausea, and lack of appetite

night sweats - these can be a side effect of a fever caused by infection

TreatmentDoctor writing prescription

A doctor will take into account a patient's full history when treating swollen lymph nodes. If the cause is HIV, antiretrovirals may be prescribed.

When treating swollen lymph nodes, doctors will take into account the person's age, medical history, how sick they are, and how well they tolerate certain medicines.

If the underlying cause of the swollen lymph nodes is HIV, antiretroviral drugs are typically used to manage the infection. Antiretrovirals cannot cure HIV, but the drugs are able reduce the amount of HIV in the bloodstream, also known as the viral load.

The goal of antiretrovirals is to reduce the viral load to undetectable levels.

People with HIV whose viral loads are at undetectable levels are known to stay healthier for longer and are less likely to transmit the virus to other people. However, having an undetectable viral load does not mean that the person is completely free of the virus.

Outlook for HIV

There are three main stages of HIV infection: acute infection, chronic infection, and AIDS.

During the first stage of the disease, acute HIV infection, the amount of HIV in the blood reaches very high levels, as the body is not yet able to mount an immune response.

The second stage of infection is chronic HIV infection. HIV continues to multiply in the blood during this stage, but at lower levels than in acute infection. People at this stage of infection may not present symptoms, but they can still transmit the virus.

If a person with HIV does not receive treatment then they will usually progress to the final stage of infection, which is AIDS. This usually happens within 10 years.

By this stage, a person's immune system has been so badly damaged by HIV that their body is unable to fight infections that a healthy immune system might be able to. People who have been diagnosed with AIDS but do not receive treatment will typically die within 3 years.

However, studies have found that people who take their antiretrovirals to manage HIV infection can expect to live well into their 60s and 70s. Their life expectancy is still around 13 years shorter on average than people who do not have HIV.

Complications

People with HIV are at an increased risk of lymphoma and other types of cancer. AIDS-related lymphoma occurs when cancer cells form in the lymphatic system of people who have AIDS.

Symptoms of AIDS-related lymphoma include:

weight loss

fever

night sweats

swollen lymph nodes

a feeling of fullness below the ribs

The condition can be diagnosed from a physical exam and by using blood tests to count the numbers of red blood cells, white blood cells, and platelets in the blood.

Rarely, AIDS-related lymphoma can occur outside of the lymph nodes, in the bone marrow, liver, brain, and stomach.

HIV and diarrhea: Causes, treatment, and remedies (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316312.php

Diarrhea is a term used to describe an increase in the weight, volume, and frequency of bowel movements, which are typically loose and watery.

This condition develops when there are problems with the body's normal processes of digesting and absorbing food. It can sometimes be the body's way of getting rid of unwanted or unnecessary materials in the gut.

In most cases, diarrhea goes away on its own in a few days, but for people with HIV, diarrhea can become more chronic, severe, and threatening to health.

Contents of this article:

What is the connection between diarrhea and HIV?

The intestine plays a very significant role in the healthy functioning of the human immune system. According to researchers, it is one of the organs of the immune system that is most damaged by HIV infection.

Man heading to the toilet with a toilet roll in hand

A HIV infection can damage the intestine, which may lead to chronic and severe diarrhea.

The intestine is home to more than half of the body's antibody-producing cells. HIV attacks these cells, which reduces the intestine's ability to function.

The intestine is also home to the so-called "healthy" bacteria, or gut flora, which promote effective digestion and fight infection. However, antibiotics taken to address other HIV-related problems may attack these "healthy" bacteria, and further interfere with the intestine's ability to work properly.

For people with HIV, diarrhea can also be a symptom of opportunistic infections, diseases that develop when the immune system is compromised. In addition, several noninfectious factors, such as irritable bowel syndrome or reactions to medications, can cause diarrhea for patients with HIV.

The connection between HIV and diarrhea is most strongly pronounced in the developing world, where authorities estimate that almost everyone who has HIV-positive will develop diarrhea at some point.

When might diarrhea occur and how long does it last?

For people with HIV, diarrhea can be caused by multiple factors. Each case should be reviewed individually, as causes can vary depending on:

symptoms

immune system health

eating habits

allergies

family history

exposure to illness

People with HIV are more susceptible to any of the things that can cause diarrhea. This is due to the way HIV suppresses the immune system and how the infection wears on the body.

In addition, protease inhibitors (PIs), one type of vital medication someone with HIV can take, may cause gastrointestinal distress. However, people with HIV seem to have an easier time handling more recently introduced PIs, such as Prezista, Prezcobix, Reyataz, or Evotaz.

Potential causes for HIV diarrhea include:

parasites, such as cryptosporidium

side effects of medications used to treat HIV infection

loss of "healthy" bacteria, due to use of antibiotics

inflammatory bowel syndrome, which affects 10-20 percent of adults in America

inflammatory bowel diseases, such as ulcerative colitis or Crohn's disease

lactose intolerance, or an inability to digest milk or milk products

problems with the pancreas, such as acute or chronic pancreatitis

stress and anxiety

a diet too full of greasy, rich, spicy, and fatty foods

Viruses can also cause diarrhea. Common viruses, such as the Norwalk virus, can cause diarrhea in people with HIV as well as those with healthy immune systems. Rarer viruses, such as cytomegalovirus or CMV, are most often seen in people with compromised immune systems.

Triggers

A number of different foods, supplements, and medications may prompt bouts of diarrhea, or make these episodes worse. The following should be avoided:

foods high in fat, such as chips and fried foods

dried fruit, such as prunes

fresh fruit and fruit juices

alcohol

caffeine

nuts and nut butters

high-fiber foods, such as dried beans and vegetables

monosodium glutamate

artificial sweetener and sugar-free gums or mints

Treatment and prevention

In people with HIV, diarrhea has the potential to be more than a minor inconvenience. It can last for a few days, or much longer.

For individuals with HIV, diarrhea lasting more than a few days is a potential cause for concern, and should be evaluated by a doctor.

There are several classifications of diarrhea, with chronic diarrhea being the most serious. Chronic diarrhea is generally diagnosed when an individual has had more than four watery bowel movements per day for more than 4 weeks. Chronic diarrhea can lead to dehydration, malnutrition, and wasting.

doctor writes notes whilst patient clasps hands together

If diarrhea lasts for more than a few days for people with HIV, a healthcare professional should be consulted.

For all people, including those who have HIV, diarrhea can be a sign that the body has something in its digestive tract that it needs to get rid of. Doctors recommend that people do not immediately reach for an antidiarrheal medication. Instead, they should talk to their doctor to determine a cause for the condition before treating it.

A doctor may run tests on the person's blood, stool samples, and immune system to identify the source of the problem. If these tests are inconclusive, and the condition is severe, the doctor may then refer the person for more involved tests.

These tests may include an endoscopy or colonoscopy, which use medical imaging to study the digestive tract.

After evaluating each case individually, physicians may recommend an over-the-counter medication (OTC), such as loperamide (Imodium). Other helpful over-the-counter products include Pepto-Bismol (Bismuth subsalicylate) and Kaopectate (attapulgite).

A doctor may also prescribe medications, dependent on the type of diarrhea an individual has.

There may be potential for drug-drug interactions even with over-the-counter medications, so people should always check with their doctor or a pharmacist before starting any new medication.

People who are taking medication to control their HIV should not stop taking it in order to treat diarrhea. They should speak to their doctor to discuss an appropriate way of addressing their symptoms.

For many people with HIV, diarrhea can be effectively managed with diet. They can do this by avoiding foods that may trigger diarrhea and by eating foods that will helpful for people with HIV.

Staying properly hydrated is very important, so individuals with HIV should drink lots of liquids. Healthful, clear liquids such as water are best, but ginger ale and peppermint or ginger tea are also good.

Sports drinks contain electrolytes so are also good to drink, but people should be wary of the sugar content of sports drinks as too much sugar can lead to diarrhea.

Although people with diarrhea need to keep their fluid intake up to prevent dehydration, they should try to drink most of these beverages between meals. Doing so avoids speeding the movement of food through the intestine.

Eating smaller, more frequent meals can also help with diarrhea, especially when these meals incorporate the following:

oral rehydration beverages, such as Pedialyte

yogurt, especially brands containing "live cultures" of acidophilus

oatmeal, or cream of wheat

bananas

plain pasta or noodles

boiled eggs

white toast or crackers

boiled or mashed potatoes

applesauce

Additionally, some supplements can be helpful for people with HIV who are experiencing diarrhea. These include:

amino acid L-glutamine

probiotics and acidophilus capsules

soluble fiber products, such as Metamucil and other psyllium-based products

While products such as Metamucil are often used to treat constipation, they can also help with diarrhea. They absorb water and add bulk to waste moving through the intestine, and this can help reduce the frequency of bowel movements.

Possible complications

To protect health, people experiencing diarrhea should replenish their fluids and nutrients with a healthful, simple diet and lots of clear fluids.

However, people with diarrhea can lose up to 1 gallon of water a day. This loss of fluid may not only lead to dehydration, but it can sap the body of electrolytes, minerals such as sodium and potassium, and other important nutrients.

Dehydration is one of the more common complications of diarrhea in people with HIV. While adults generally need eight 8-ounce glasses of fluids each day, authorities say that in severe cases of diarrhea people should drink twice that much.

When people with HIV lose 10 percent or more of their body weight without trying, they are diagnosed with wasting. Wasting is a frequent and serious complication for people with HIV. Diarrhea is one of the many factors which contributes to the development of this life-threatening syndrome.

Other gastrointestinal symptoms of HIV

Gastrointestinal (GI) problems are one of the main features of living with HIV. Close to half of the people who are HIV positive and who seek medical care do so because of problems with the GI tract. Almost everyone with HIV develops such problems eventually.

Lady being sick in toilet vomit

Stomach pain and nausea may be common gastrointestinal problems for people with HIV.

Along with HIV diarrhea, other GI problems commonly experienced by people with HIV include:

weight loss

nausea

ulcers in the mouth and food pipe

bleeding in the GI tract

cytomegalovirus or CMV, and other opportunistic infections

stomach pain

gastric non-Hodgkins lymphoma

Kaposi's sarcoma

Flu

Eight home remedies for treating a cold (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316302.php

At some point, almost everyone gets a cold. Colds are caused by a virus, which means an antibiotic is not an effective treatment.

Colds are so common that according to the Centers for Disease Control and Prevention (CDC), adults can expect to get about two colds per year. Although a cold is usually not dangerous, it can leave a person feeling awful.

There is currently no cure for a cold but there are several home remedies that may reduce symptoms. Symptoms of a cold include a sore throat, nasal congestion, coughing and aches and pains.

Fortunately, most home remedies do not have any side effects, so even if they only offer limited help, they will not do any harm.

Contents of this article:

Eight common home remedies

Consider the following eight common home remedies:

A common home remedy is to gargle with warm saltwater or honey and lemon juice.

1. Gargling

This old-school remedy can ease a sore throat, which is often one of the first symptoms of a cold. People can choose from a variety of saltwater gargle recipes, including gargling with 1 teaspoon of salt mixed in a cup of warm water.

Another option is gargling with warm water that is mixed with half a teaspoon of lemon juice and honey. With any gargling solutions, people should be sure that the water is not too hot, which can lead to burns.

2. Sipping fluids

Drinking plenty of fluids can help prevent dehydration and may thin mucus. Water is the best bet when it comes to staying well hydrated. Other liquids such as juice are also acceptable.

Tea with lemon and honey and other hot drinks may help break up congestion and ease a sore throat. Hot soup, especially spicy soups, may promote nasal drainage and make breathing easier.

People who have a cold should avoid coffee and alcohol, which can contribute to dehydration.

3. Steam

Breathing in steam from a hot shower may decrease nasal congestion and sinus pressure, at least temporarily. An alternative to a hot shower is filling a pot with boiling water, placing a towel over the head and breathing in the steam.

Steam soothes the tissues of the nose and throat and to make steam inhalation even more effective, people can consider adding eucalyptus, which is an essential oil. The National Association for Holistic Aromatherapy suggest adding 3 to 7 drops of eucalyptus oil to boiling water and inhaling the steam through the nose.

People should close the eyes to avoid irritation.

4. Blowing the nose correctly

Blowing the nose may seem like a no-brainer. But it's important to blow the nose correctly in order to clear the nasal passages as much as possible. Sniffing mucus back up can force it into the ears and lead to an earache.

To blow the nose correctly, people should block one nostril and gently blow into a tissue, then switch and block the opposite nostril and blow.

Additional home remedies for children

All the home remedies that may work for an adult can also be used with a child. Children may also benefit from a few additional home remedies, including the following:

humidifier

A humidifier may help to decrease cold symptoms.

5. Using a humidifier

A humidifier or cool mist vaporizer can decrease cold symptoms, such as a sore throat, cough, and congestion. Caregivers can place a cool mist vaporizer or humidifier in the child's room to add moisture to the home.

People should be sure to change the water daily. Also, cleaning the unit as instructed by the manufacturer prevents the buildup of mildew and mold.

6. Saline drops

Saline drops can help promote mucus drainage and clear the nasal cavity. While kids may not tolerate using a Neti pot to flush out the sinuses, they may be accepting of a few drops of saline in each nostril.

In very young children who have trouble blowing their nose, it may also be helpful to use a rubber bulb suction to remove mucus after using saline drops.

7. Acetaminophen

Children are more likely than an adult to develop a fever when they have a cold. Although a fever is usually not harmful, it can make a child feel miserable.

To treat a fever and sore throat, caregivers can consider over-the-counter pain relievers, such as acetaminophen. In children over the age of 6 months, ibuprofen can also be used.

Cold medicines containing a decongestant may be appropriate for children over the age of 6, but should not be given to younger kids. As always, it's best to talk to a healthcare provider regarding medications for children.

People should not give aspirin to children due to the possibility of a child developing Reye's syndrome. Although rare, Reye's syndrome is a serious illness that can be life-threatening. Research indicates that aspirin may trigger the development of the illness in some children.

8. Honey preparations

A research study published in Pediatrics suggested that giving honey to children before bedtime helped decrease nighttime coughs.

Honey should not be given to babies under the age of 1, however, because it contains botulinum spores. If the spores grow in a baby's immature digestive tract, they can make a baby sick.

How long do colds last?

Home remedies won't necessarily speed up a person's recovery, but they may help someone feel better until the virus has run its course. The CDC state that most people tend to experience cold symptoms for 7 to 10 days. Certain symptoms, such as a cough, may linger a little longer.

Complications of a cold can include an ear or sinus infection. If symptoms persist for longer than 2 weeks or become severe, it may be a good idea for the individual to see a doctor.

Preventing a cold

Prevention is the best medicine when it comes to a cold. Although it is not always possible to prevent a cold, certain precautions may help.

Below are a few ways to decrease the chances of developing the sniffles.

Frequent hand-washingwashing hands with soap

Frequent hand-washing may be one of the best ways to avoid getting a cold.

Viruses can live on the hands, which is why regular hand-washing is one of the best ways to avoid getting and spreading a cold.

When washing their hands, people should use soap and water and rub their hands together for about 20 seconds. Hand sanitizers containing alcohol are an option if soap and water are not available.

Keeping the immune system strong

It's almost impossible to avoid all germs. By keeping the immune system strong and working well, a person will increase their chances of fighting off the germs they encounter.

Getting plenty of sleep, exercising, and eating a well-balanced diet are important ways of boosting the immune system. Avoiding smoking and keeping stress levels down can also keep the immune system strong.

Not sharing germs

When someone does have a cold, it's important that they take a few precautions to avoid spreading the infection. These steps include:

staying home from work or school to avoid exposing other people to the virus

moving away from other people when sneezing

coughing or sneezing into a tissue

throwing away any used tissues so others can't handle them

People who have a compromised immune system, such as those on certain medications, should pay special attention to cold prevention methods. Someone with a lower immune system may be more likely to develop complications and may take longer to recover from a cold.

Breast Cancer

Male breast cancer: Protein discovery could yield new treatments (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316282.php

It is not only women who can develop breast cancer. Each year, more than 2,400 men in the United States are diagnosed with the disease. In a new study, researchers have uncovered two proteins associated with male breast cancer, a discovery that could lead to more effective treatments.

Researchers have discovered two proteins linked to male breast cancer.

Lead study author Dr. Matt Humphries, of the School of Medicine at the University of Leeds in the United Kingdom, and colleagues recently reported their findings in the journal Clinical Cancer Research.

According to the American Cancer Society, breast cancer is around 100 times less common in men than women, and the lifetime risk of a man developing the disease is around 1 in 1,000.

Because male breast cancer is relatively rare, it is difficult for researchers to gather enough participants to effectively study pathogenesis of the disease in men. This has hampered the development of male-specific breast cancer treatments, meaning that men with breast cancer are treated in the same way as women.

The new study from Dr. Humphries and team, however, could change the way that male breast cancer is treated, after revealing the discovery of two proteins that play a role in the disease.

Two proteins linked to greater risk of death from male breast cancer

The researchers assessed tumor samples from 697 men with breast cancer - provided by U.K. charity Breast Cancer Now - making it one of the largest studies of male breast cancer to date.

The researchers found that men whose tumor samples expressed two specific proteins - eIF4E and eIF5 - were less likely to survive breast cancer than men whose tumor samples did not express these proteins.

"These men were almost two and a half times more likely to die from their disease than those who had low levels of the proteins," notes Dr. Humphries.

Dr. Humphries and colleagues say that these proteins could be targets for new drugs, bringing us closer to treatments specifically for male breast cancer.

"These important findings could now enable researchers to identify whether certain male breast cancer patients might benefit from more extensive treatment," says Baroness Delyth Morgan, chief executive at Breast Cancer Now.

"It's so important that we continue to investigate how male and female breast cancers differ biologically, to ensure all patients receive the most appropriate treatment and are given the best chance of survival.

Finding out whether existing drugs could target the proteins identified in this study could open up the possibility of improving treatment for some aggressive male breast cancers."

Alzheimer's Disease

Sudden drops in blood pressure may increase risk of dementia (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316322.php

Dementia affects tens of millions of people in the United States. New research suggests that those who experience sudden blood pressure drops in their middle age may be more likely to develop dementia in old age.

New research finds long-term link between sudden drops in BP and the risk of dementia in later life.

Alzheimer's disease, the most common form of dementia, currently ranks as the sixth leading cause of death in the U.S. In fact, it is estimated that 1 in 3 U.S. elders dies with a form of dementia.

New research indicates that middle-aged people who experience sudden drops in their blood pressure (BP) may be at risk of developing dementia and serious cognitive decline when they reach old age.

The study was conducted by researchers from the Johns Hopkins Bloomberg School of Public Health in Baltimore, MD, and the findings were presented at the American Heart Association's Epidemiology and Prevention/Lifestyle 2017 Scientific Sessions in Portland, OR.

Chronically low BP may cause dizziness, fatigue, nausea, or fainting. Temporary, rapid drops in BP bear the name "orthostatic hypotension" (OP) and may cause serious damage; they stop the necessary blood flow from reaching the brain.

Previous studies have indicated a link between OP and cognitive impairment in seniors, but the new Johns Hopkins study - led by Andreea Rawlings, Ph.D., a post-doctoral researcher in the Department of Epidemiology at the Bloomberg School - is the first to examine the long-term correlations between the two.

The researchers examined clinical data from the Atherosclerosis Risk in Communities study, which collected information on 15,792 participants aged between 45 and 64 in 1987, the year of enrollment.

Patients with OP are 40 percent more likely to have dementia

For the new study, Rawlings and team isolated the data on 11,503 patients who had no history of heart disease and visited the hospital for the first time. Scientists took the patients' BP after they had lay down for 20 minutes.

The researchers defined OP as a rapid drop of 20 millimeters of mercury (mm Hg) or more in systolic BP, or 10 mm Hg or above in diastolic BP.

Approximately 6 percent of the participants, or 703 individuals, met these criteria.

The team clinically followed the participants for the following two decades or more.

They found that people with OP upon their first visit had a 40 higher risk of developing dementia than their OP-free counterparts. Patients with OP also had 15 percent more cognitive decline.

"Even though these episodes are fleeting, they may have impacts that are long lasting. We found that those people who suffered from orthostatic hypotension in middle age were 40 percent more likely to develop dementia than those who did not. It is a significant finding and we need to better understand just what is happening."

Andreea Rawlings, lead author

As this is an observational study, researchers cannot establish causality or explain whether OP is an indicator of another disease responsible for the cognitive decline. However, they speculate that the decrease in the blood flow to the brain may play a role.

The lead author of the study also acknowledges the study's limitation that arises from not knowing whether the patients had a singular episode of OP, or whether they had lived with the recurring symptoms over time.

"Identifying risk factors for cognitive decline and dementia is important for understanding disease progression, and being able to identify those most at risk gives us possible strategies

for prevention and intervention," Rawlings says. "This is one of those factors worth more investigation."

Fertility

Fertility treatment failure may harm women's heart health (Medical News Today:20170314)

http://www.medicalnewstoday.com/articles/316305.php

Fertility therapy failure may raise the risk of poor heart health for women, according to the results of a new study published in the Canadian Medical Association Journal.

Women who do not become pregnant after fertility treatment may be at greater risk of cardiovascular events, a new study finds.

Researchers found that women who did not become pregnant after undergoing gonadotropin-based fertility therapy - treatment often used in preparation for in vitro fertilization (IVF) and other assisted reproductive technologies - were at greater risk of heart failure and stroke than those whose fertility therapy was successful.

The research team - led by Dr. Jacob Udell of the Clinical Evaluative Sciences (ICES), the Peter Munk Cardiac Centre, and Women's College Hospital in Canada - notes that previous studies have suggested a link between fertility therapy and a short-term risk of cardiovascular events.

However, the researchers say that few studies have assessed the long-term impact of fertility therapy on heart health, especially among women whose fertility treatments have been unsuccessful.

"Failure of fertility therapy may be an early indicator of future cardiovascular risk by acting as a unique cardiometabolic stress test," says the authors. "In addition, fertility therapy may lead to adverse cardiovascular events by inducing background thrombosis, activating the renin-angiotensin system or inducing vascular injury from ovarian hyperstimulation."

To investigate how fertility treatment failure affects women's long-term heart health, the researchers reviewed the data of 28,442 women of an average age of 35.

All women had undergone gonadotropin-based fertility therapy in Ontario, Canada, between April 1993 and March 2011, and they were followed until March 2015. The women had an average of three fertility treatments.

Cardiovascular event risk 19 percent higher with fertility therapy failure

A total of 9,349 of the women gave birth within a year of undergoing fertility treatment. For the remaining women, fertility therapy was unsuccessful.

Over an average 8.4 years of follow-up, 2,686 cardiovascular events were identified.

Compared with women who gave birth following fertility therapy, women who did not become pregnant after fertility treatment were found to have a 19 percent greater risk of cardiovascular events, particularly stroke and heart failure.

However, the team points out that the absolute risk of cardiovascular events was modest for women who did not become pregnant after fertility therapy, at 10 cardiovascular events per 1,000 women over 10 years.

In comparison, there were 6 cardiovascular events per 1,000 women over 10 years for those who gave birth after fertility therapy.

Still, the researchers say that their findings indicate that fertility therapy might be a risk factor for cardiovascular disease among women, and this association warrants further investigation.

Furthermore, the team believes that women who have undergone fertility therapy should consider how the treatment might have impacted their heart health.

"We don't want to alarm women who undergo fertility therapy; we are instead suggesting that as women age, they should stay mindful of their health and remind their physician about any fertility therapy years earlier. It can be an opportunity for their doctor to review other risk factors for heart disease and discuss ways to protect against future cardiac problems."

Study co-author Dr. Donald Redelmeier, ICES

The researchers warn that there are some limitations to their study. For example, it did not include less invasive forms of fertility treatment.

Additionally, data were unavailable for a number of other factors that might have impacted women's heart health, such as blood pressure and cholesterol levels.

Cancer

Vitamin C can target and kill cancer stem cells, study shows (Medical News Today:20170314)

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Cancer is currently one of the top killers worldwide, and the number of cancer cases is only expected to rise. Although there are a number of therapies available, most of them are toxic and cause serious side effects. New research examines the impact of the natural vitamin C on cancer cell growth.

In a recent study, vitamin C proves effective in killing cancer stem-like cells.

Cancer is the second leading cause of death and disease worldwide, accounting for almost 9 million deaths in 2015, according to the World Health Organization (WHO).

The global number of new cases of cancer are expected to grow by around 70 percent in the next 20 years.

In the United States, the National Cancer Institute (NCI) estimate that almost 40 percent of U.S. men and women will have developed cancer at one point during their lives.

There are various treatment options available for cancer, but they are not always effective; most of them are toxic, and they tend to have a variety of side effects.

In some more aggressive cases, the cancer does not respond to treatment, and it is believed that cancer stem-like cells are the reason why the cancer comes back and metastasizes.

New research, published in the journal Oncotarget, examines the effectiveness of three natural substances, three experimental drugs, and one clinical drug in stopping the growth of these cancer stem cells (CSCs.)

The study was conducted by researchers from the University of Salford in Manchester in the United Kingdom, and was led by Dr. Gloria Bonuccelli.

Vitamin C up to 10 times more effective than experimental drugs

In total, the researchers measured the impact of seven substances: the clinical drug stiripentol, three experimental drugs (actinonin, FK866, and 2-DG), and three natural substances (caffeic acid phenyl ester (CAPE), silibinin, and ascorbic acid (vitamin C).)

The research focused on the bioenergetic processes of CSCs, which enable the cells to live and multiply. The study aimed to disrupt the CSCs' metabolism and ultimately prevent their growth.

Of all the substances tested, the team found that actinonin and FK866 were the most effective. However, the natural products were also found to prevent the formation of CSCs, and vitamin C was 10 times more effective than the experimental drug 2-DG.

Additionally, the study revealed that ascorbic acid works by inhibiting glycolysis - the process by which glucose is broken down within the cell's mitochondria and turned into energy for the cell's proliferation.

Dr. Michael P. Lisanti, professor of translational medicine at the University of Salford, comments on the findings:"We have been looking at how to target cancer stem cells with a range of natural substances including silibinin (milk thistle) and CAPE, a honey-bee derivative, but by far the most exciting are the results with vitamin C. Vitamin C is cheap, natural, nontoxic and readily available so to have it as a potential weapon in the fight against cancer would be a significant step."

"This is further evidence that vitamin C and other nontoxic compounds may have a role to play in the fight against cancer," says the study's lead author.

"Our results indicate it is a promising agent for clinical trials, and as an add-on to more conventional therapies, to prevent tumor recurrence, further disease progression, and metastasis," Bonuccelli adds.

Vitamin C has been shown to be a potent, nontoxic, anticancer agent by Nobel Prize winner Linus Pauling. However, to the authors' knowledge, this is the first study providing evidence that ascorbic acid can specifically target and neutralize CSCs.