

TB vaccine shows promise

REUTERS, Washington

A new tuberculosis (TB) vaccine has shown promise in animal studies, researchers said recently, raising hope it might replace the current vaccine that has failed to stop one of the world's top killers.

If all goes well, human trials of the new vaccine with some modifications to make it safer could start in two to three years, said one of the researchers, immunologist Dr. Steven Porcelli of Albert Einstein College of Medicine in New York.

TB, a bacterial infection that usually attacks the lungs, kills about 1.6 million people a year globally. The increasing resistance of the TB organism to drug treatments makes creation of a truly effective vaccine even more crucial, experts say.

The existing BCG vaccine, in use for almost a century despite its limited effectiveness, is based on a live, weakened strain of the bacterium that causes TB in cattle.

Rather than trying to make changes in the BCG vaccine, the researchers decided to take a different path, using a weakened version of the bacterium that causes TB in people.

The idea behind this and other vaccines is to make the body's immune system — its natural defenses — better able to fight off invaders like disease-causing bacteria or viruses.

The researchers found a gene in the organism that helps it elude immune sys-

tem detection, and removed it from the bacterium. That helps the vaccine, using this live, weakened version of the organism, induce a strong immune response.

They tested the new vaccine head-to-head against the existing one. They found that the new one extended the lives of mice and guinea pigs and stimulated stronger immune responses in those animals compared to the existing BCG vaccine.

"It seems to be translating directly into something that might be of great benefit to humanity. So I feel extremely energised and quite optimistic about where this project is leading," Porcelli said.

The work appeared in the *Journal of Clinical Investigation*.

The TB organism infects roughly a third of the world's population. Most infections remain latent but can become active when the immune system is weakened, for example in people also infected by the virus that causes AIDS. About 10 million people worldwide have active cases of TB.

The existing BCG vaccine protects young children from tuberculosis, but does not do well at preventing the type of TB most adolescents and adults develop.

TB can be treated effectively with drugs in many cases, but the drugs have to be given daily for upward of six months, making treatment complicated and expensive.



One dose of vitamin D boosts TB immunity

In healthy people who have been exposed to tuberculosis, a single oral dose of vitamin D enhances their immunity against this bacterial infection.

"Vitamin D was used to treat tuberculosis in the pre-antibiotic era," Dr. Adrian R. Martineau, of Queen Mary's School of Medicine and Dentistry, London, and colleagues note. Studies that have evaluated the effects of vitamin D supplements on tuberculosis immunity have not been performed, they point out in their report.

Martineau's group therefore conducted a clinical trial in which they assigned 192 healthy adults who had been exposed to tuberculosis to receive a single oral dose of 2.5 milligrams of vitamin D or a placebo.

Of the 192 subjects, 43 were lost to follow-up and 18

were excluded, so that 131 participants were included in the analysis of primary outcome. Of these, 64 received placebo and 67 received vitamin D. After 6 weeks, the subjects were tested for evidence of *Mycobacterium tuberculosis*.

The researchers found that the vitamin D supplement significantly enhanced the subjects' immunity to *M. tuberculosis* compared with those who received the placebo.

Based on these findings, Martineau's team suggests that "clinical trials should be performed to determine whether vitamin D supplementation prevents reactivation of latent tuberculosis infection."

Source: American Journal of Respiratory and Critical Care Medicine

Health Events

Pre-filled syringe of Enoxaparin manufactured in the country

Popular pharmaceuticals company stans manufacturing enoxaparin sodium in pre-filled syringe equipped with a needle-safety device, says a press release.

Enoxaparin sodium, a low molecular weight heparin used to prevent and treat deep vein

thrombosis and pulmonary embolism. Prefilled syringes offer several advantages over traditional packaging in vials.

Use of a pre-filled syringe reduces several steps that are required before use of a drug in a vial.

Coping with health problems during flood

DR M KARIM KHAN

Flood in Bangladesh is not new. Almost every year we face this problem. We gather experience every time, but unfortunately we learn very little.

Huge lands are flooded by water but there is hardly safe drinking water. Food scarcity, hygiene problem, infectious diseases are common accompaniment of the flood. Children and elderly people are affected worst. During and after flood, diarrhoea, dysentery, cholera, malaria, pneumonia, typhoid, hepatitis, snake bite, food poisoning are very common.

How to handle the flood situation?

First of all, we have to give

emphasis on safe drinking water. If tube well is flooded, it is not completely safe. So it must be boiled prior drinking. If boiling is not possible, the water should be purified by tablets.

For diarrhoea and vomiting, oral rehydration saline (ORS) should be started immediately to avoid dehydration and complications, at a rate of 5ml per kg body weight for each vomiting or stool. If the condition deteriorates, transfer the patient to the nearest hospital.

Children may develop pneumonia during flood. Symptoms include increase of body temperature and respiratory rate, chest in drawing, cough. Oral antibiotics should be started immediately



A woman use a bamboo bridge to move from her flooded home at Mohammadpur in Dhaka.

after the prescription of a registered physician. If the condition does not improve within two days, transfer the patient to a hospital.

For any insect bite or snake bite, clean the area with soap and water, apply antiseptic if available, give paracetamol and antihistamin and transfer the victim to a hospital immediately, as delay may endanger life.

Safe, secured and hygienic shelter is very essential during flood.

Future plan

Since you can not avoid flood, prepare to handle it intelligently. When flood is apparent, store drinking water for the whole family in clean plastic containers at least for 10 days. Keep some water purifying tablets for emergency purpose.

Keep some candle and matches and store clean, dry food in reasonable amount.

Also store some ORS packets, oral antibiotics, as per advice of a doctor, and paracetamol tablets, antiseptic cream, disinfectant.

For small kids, keep some tins of powder milk, sugar and some tinned biscuits.

We are human beings, we live in a society and we have many things to do in emergency period for the distressed people. So please, come forward to help them as your own brothers and sisters. It may be an opportunity for you.

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Guidelines for treatment of anal fissure

PROF DR AK M FAZLUL HAQUE

Lots of people in our country suffer from pain in anal canal. It is a distressing and annoying condition. Fissure means an ulcer or a crack in anal canal (the passage through which we pass stool and wind).

Anal fissure are of two types — acute and chronic. Acute anal fissure causes severe pain during passing motion. In chronic anal fissure, intensity of pain varies from person to person. It can occur at any age — I have seen patient as young as 40 days old. Young adults suffer more. It affects both sexes equally.

Causes and how it happens

It occurs usually due to constipation and application of force to pass motion. It is thought that hard motion tears the anal canal. It occurs less in those subjects who take food containing sufficient amount of fiber (vegetables, raw fruits, isphagula husk etc.).

It has no relation with consumption of tea, coffee or wine. Frequent passage of motion and diarrhoea increase the likelihood of being attacked with fissure. During the attack it is hard to examine the inside of anus.

Scientists have measured the pressure of anal canal and found that the pressure of anal canal does not rise during this period.

Symptoms

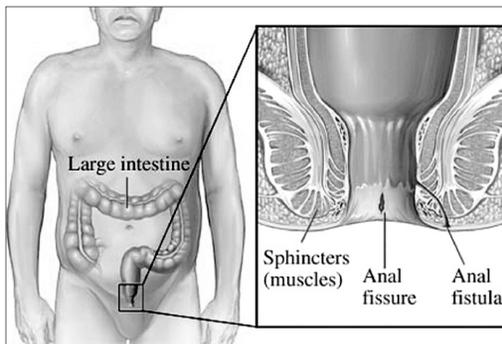
Main symptoms of anal fissure are pain and bleeding. This kind of pain usually happens after passing motion and it may continue for few minutes to hours. I have seen many patients complaining of pain for 24 hours.

"Proctalgia Fugax" is a kind of disease in which there is pain in anus, but it does not have any relation to passing motion. Patients with thrombosed piles also complain of pain in anus. In this condition they complain of a lump (mass of hard tissue which rises on the surface or under the surface of the skin) in anus.

In anal fissure, bleeding is usually minimal but patients may complain of profuse bleeding as well.

People with chronic (long standing) anal fissure complain of a different kind of symptom. They complain of lump, discharge of pus, itching or a protruding skin tag in anus. In this condition there may or may not be any bleeding. Pain is usually slight or sometimes there is no pain at all except while passing hard motion.

Sometimes, patients also



complain of urinary trouble and female patients occasionally feel pain during sexual intercourse. Though patients realise that this problem had perhaps arisen from constipation they do not respond to natures call due to fear of pain. This aggravates the constipation further. There are patients who pass motion once in seven to ten days.

Acute anal fissure: In this case there is severe pain and variable bleeding. Anus looks very much contracted. It is not possible to see the fissure inside because of severe pain. It is very hard to introduce any instrument inside.

Chronic anal fissure: Chronic fissure is that when it is limited within a circumscribed margin. In this condition, there is a tag of skin which hangs down. Inside the anus also there is a tumour like piece of meat called hypertrophied anal papilla. Many doctors confuse it with a tumour.

In this situation interior of the anus and rectum should be tested with instruments called sigmoidoscope or colonoscope so that any tumour or inflammatory cause can be identified.

This fissure can sometimes get infected and cause abscess which ultimately leads to fistula formation and discharge of pus.

Prevention

One should take care of his bowel so that constipation does not occur and during defecation one should not apply much force.

We should give up the habit of going to the toilet frequently. If there is diarrhoea, it should be treated immediately.

Some patients have the habit of reading newspaper or magazine in the toilet. Patients have to spend more time due to this habit. It must be avoided.

Treatment

Conservative treatment:

If treatment is started soon after the problem starts, there is more chance that the patient will be cured without operation. Different kind of medicine are prescribed to make stool softer. Fibre containing diet is advised to increase the volume of stool. Some pain killers are used for pain relief.

Sitz bath (hip bath) is very much helpful. This is done by immersing the hip into a half filled bowl of warm water containing salt or disinfectant. If this does not cure the condition and if the disease continues for long time, then there is less likelihood of treating the condition without operation.

Surgical treatment:

Dilatation of anal canal: Now

a days, this operation is not done because of its poor result.

Internal sphincterotomy: In this operation internal sphincter is divided and there is no need of full anaesthesia. Total two days hospital stay is necessary. The patient can lead normal life after 3-7 days. The success rate of this operation is 95-99 percent.

In last ten years we have done research on 31,635 patients all having problem in anal canal, of these 35% was anal fissure, 18% piles, 15% fistula, 2.6% cancer, 3.3% rectal polyp etc.

In my series 76% anal fissure patients were cured without operation and 23% patients required operative treatment. After operation, 96% patients were cured permanently. Patients need to be hospitalised for short time.

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HIV Pathogenesis, Treatment and Prevention update-3

World struggling to treat HIV/AIDS

Global AIDS treatment will fall far short of a universal target to have five million people being treated by 2010, due to a continued lack of access to drugs by many of the world's impoverished people, said a new report.

The report analysing AIDS treatment in 17 countries and titled "Missing the Target" said free HIV treatment was actually not free in many poor countries.

"Free treatment is not truly free in most countries surveyed," said Gregg Gonsalves from the International Treatment Preparedness Coalition, which released the report.

"Charges for diagnostic tests, medical care and other services are putting lifesaving care out of the reach of many thousands of people," Gregg said in a statement.

Although 700,000 more people with HIV received treatment in 2007, the pace needed to accelerate, said the coalition, which represents activists in more than 125 countries.

Stigma, marginalised

While increasing numbers of people were being treated for HIV, the latest report said there remained serious challenges with marginalised people, inequitable access to care for rural populations and children, a lack



of transportation, the stigma of being diagnosed and the high cost of drugs.

Cambodia, which has some 134,000 people with HIV, was a "success story" in increasing treatment, it said. AIDS drugs only became available in Cambodia in 2004 and there were now 40 centers treating some 21,900 people.

But the report said there was still a "large but silent minority" of marginalised people, such as sex workers, Vietnamese citizens living in Cambodia and people in remote areas and slums, who still did not receive treatment.

"Many of these individuals...are reluctant to seek out health services in general because of fear of stigma and discrimination, if not harassment," it said.

China's free treatment program, started four years ago, had expanded rapidly from August 2006 when 26,000 people were treated to 30,000 by June 2007, said the report. But this was a small percent of the official 650,000 people with HIV in China.

Major obstacles in China to treatment were stigma and a "prohibitively expensive" test to confirm diagnosis, along with a

lack of drugs and trained medical staff, it said.

India has one of the world's largest populations living with HIV/AIDS, about 2.5 million people, but as of 2007 only 70,780 people were being treated through 107 centers, said the report.

"Clearly, therefore, only a fraction of those needing treatment are receiving it now or can hope to receive it in the next half a decade," said the report.

South Africa, the epicenter of the AIDS epidemic with 5.5 million people with HIV, was also struggling to treat people.

As of 2007 some 257,100 patients were receiving drugs at specialist centers, with 30,000 on waiting lists, and up to 110,000 people being treated privately, said the report.

The report said South Africa had a long way to go meet its goal of treating 80 percent of new AIDS cases by 2011.

"Treatment delivery is working and there can be no more excuses for losing this momentum or letting millions die of AIDS," said Zackie Achmat of South Africa's Treatment Action Campaign.

RESEARCH UPDATE

Blood triglycerides seen as heart attack predictor

Measuring triglycerides (a type of blood fat) hours after a person has eaten may offer a better way to predict heart disease risk than making the person fast overnight, two studies suggest.

The studies may be good news for patients who are often told to fast before a physical.

The findings came in a U.S. study involving about 26,500 women and a separate Danish study involving about 7,600 women and 6,400 men.

Triglyceride levels are usually measured after a person has fasted for a number of hours, which can be inconvenient for patients. But these studies indicated testing for triglycerides in nonfasting patients might yield better information.

Doctors usually test for triglyceride levels as part of a thorough blood cholesterol screening. "The new data are a win-win for clinicians and for patients because, for the physician, we understand more about the importance of triglycerides. And it's now much more convenient for the patient," Dr. Paul Ridker of Brigham and Women's Hospital in Boston, a researcher on one of the studies, said.

with the patient fasting could exclude certain particles that are a possible risk factor for atherosclerosis, or hardening of the arteries, the researchers said.

The Danish researchers found that in men and women, incidence of heart attack, heart disease and death rose as people's levels of nonfasting triglyceride levels increased.

Ridker's team also found that higher nonfasting triglyceride levels were strongly associated with increased risk of heart attacks and other cardiovascular conditions. They found that fasting triglyceride levels showed little association with these medical problems.

The evidence was particularly strong in the people who had their blood drawn 2 to 4 hours after eating a meal, the researchers said.

Ridker said that when a patient comes in for cholesterol testing, a thorough assessment should include total cholesterol, HDL (high density lipoprotein or so-called good cholesterol), LDL (low density lipoprotein or bad cholesterol), CRP (C-reactive protein) and nonfasting triglycerides.

Source: Journal of the American Medical Association

Measuring triglyceride levels