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TOOTH FOR AN EYE

Blind woman sees again after doctors implanted a tooth in her eye to serve as anchor for a plastic lens

Progress toward Alzheimer's vaccine

JERUSALEM

An Israeli researcher working on a vaccine to combat Alzheimer's disease has made important progress following tests on gene-altered laboratory mice. "We have been able to stimulate an immune response and forecast the effects in inoculated mice carrying human genes," said Alon Monsonego, who works with British and United States researchers.

"It is an important development" that could help find vaccines which could be used for individuals with a predisposition to Alzheimer's, the University of Beersheva researcher said. Monsonego added that "inoculated mice were able to reduce plaques of beta-peptides, as well as inflammations and neuronal damage associated with the disease."

Monsonego's work, which is aimed at finding a vaccine capable of reinforcing the immune system, was published in the *Journal of Immunology*.

A report by the Alzheimer's Disease International predicted that cases of the disease and other forms of dementia are expected to soar in the next few decades, due largely to a spike in cases in developing countries. Just under 36 million people will be living with dementia in 2010, an increase of around 12 million on how many suffered some form of dementia in 2005, the report said.

"Aura" migraines double stroke risk

PARIS

Migraines accompanied by a blurring of vision known as "aura" double the risk of stroke, according to a study published in the *British Medical Journal*. That risk becomes even higher for women, persons under 45, and smokers, it said. Women who use contraceptives that contain estrogen boost the odds of suffering a stroke even further.

Up to 20 percent of adults—three-quarters of them women—suffer migraine headaches often characterized by vomiting or extreme sensitivity to light and noise. Up to a third of these patients experience a so-called aura before or during the headache, typically described as a strange light, unpleasant smell, or confusing thoughts.

Earlier research has uncovered a correlation between migraines and strokes, but did not distinguish between different kinds of migraines, or investigate possible links to other types of cardiovascular disease.

Scientists led by Markus Schurks of Brigham and Women's Hospital in Boston sifted through nine studies in an effort to fill in some of these gaps. They found that migraines with aura push up the risk of strokes caused by reduced blood flow twofold, but uncovered no association between migraines of any kind and heart attacks or death due to cardiovascular disease. The researchers recommend that young women who have migraine with aura should stop smoking and use estrogen-free birth-control methods.

"Clinicians need to identify young women with migraine, particularly those who are seeking estrogen-containing hormonal contraception," concurred Elizabeth Loder of Harvard Medical School in a commentary, also in the *British Medical Journal*. The absolute risk of stroke for most patients with migraine remains low, Loder said, "so a doubling of risk is not cause for panic. At a population level, however, this risk deserves attention between the prevalence of migraine is so high."

Implanted tooth lets blind woman see again

MIAMI

A 60-year-old grandmother, blind for nearly a decade, has recovered her sight after surgeons implanted a tooth in her eye as a base to hold a tiny plastic lens.

Sharron "Kay" Thornton, from the southern US state of Mississippi, lost her sight in 2000 when she came down with a case of Stevens-Johnson syndrome, a rare disease that scarred her cornea, according to the University of Miami's Bascom Palmer Eye Institute.

For patients whose bodies reject a transplanted or artificial cornea, this procedure "implants the patient's tooth in the eye to anchor a prosthetic lens and restore vision," said Thornton's surgeon Victor Perez. In the procedure—which was pioneered in Italy but was a first in the United States—the medical team extracted Thornton's canine or "eyetooth" and surrounding bone, shaved and sculpted it, and drilled a hole into it to insert an optical cylinder lens.

"We take sight for granted, not realizing that it can be lost at any moment," the grateful patient said. "This truly is a miracle." She said people should imagine what it is like "if you could keep your eyes closed just for one week.... It's amazing what you see when you open your eyes again."

The tooth and the lens were implanted under the patient's skin in the cheek or shoulder for two months so they could bond, then they were carefully implanted in the center of the eye after a series of procedures to prepare the socket. "A hole is made in the mucosa for the prosthetic lens, which protrudes slightly from the eye and enables light to reenter the eye allowing the patient to see once again," said the Eye Institute in a statement.

Following a series of operations, the bandages from Thornton's eyes were removed. She was able to recognize objects and faces a few hours later, and two weeks later she was able to read newspapers, the Eye Institute said. "I'm looking forward to seeing my seven youngest grandchildren for the first time," said Thornton.

"Through the work of [the] team, patients in the United States now have access to this complex surgical technique, which has been available only in a limited number of centers in Europe and Asia," said Eduardo Alfonso, chair of Bascom Palmer Eye Institute.

Japan robotics experts unveil sci-fi wheelchair

TOKYO

Robotics and medical experts in Japan unveiled the prototype of a new hi-tech electric wheelchair that resembles a scooter and promises greater mobility. Users ride astride the four-wheeled Rodem — rather than sitting in it, as in a conventional wheelchair—steer it with a joystick and hold onto motorbike-style handles while the knees and chest rest on cushions. The design allows users to slide more easily on and off the vehicle, lessening reliance on care-givers to lift them, the inventors said.

“I believe this is a whole new idea for a wheelchair,” said Makoto Hashizume, head of the Veda International Robot Research and Development Center and a medical professor of Kyushu University. “With this vehicle, users can move around more freely and more actively without much help from other people.”

It is the first invention unveiled by the Veda center, which opened in May in southwestern Munakata city and is a joint project of Japanese robot maker Tmsuk Co. and researchers from 10 universities and institutes. The robotics and medical specialists, including from Germany and Italy, aim to invent robots for use in health and nurs-



AFP/T. Kitamura

ROBOT RIDE

An “injured” model demonstrates the medical universal vehicle, Rodem, during its recent press preview in Tokyo. Rodem, developed by Veda International Robot Research and Development Center, is designed to assist the elderly, the sick, the injured, and the handicapped.

ing, an area where high-tech Japan, with its fast-greying population, is seen as a world leader.

The inventors said they had no immediate plans to commercialize the new vehicle, which would first have to meet government safety standards, but said they were open to offers from private companies in Japan and overseas.

Tmsuk president Yoichi Takamoto said the Rodem may also be used by people who are not disabled to simply ride and enjoy. Takamoto said the Rodem was too simple to be called a robot, but added that it may evolve into one. “We can add more robot-like functions in future,” he said. “For example, we could add a new function so it comes to your bedside when you call.”

Chronic fatigue linked to retrovirus

WASHINGTON

Chronic-fatigue syndrome (CFS), a mysterious and debilitating exhaustion that is not relieved by sleep, appears to be linked to a retrovirus, researchers announced in a breakthrough study published in *Science*. Researchers said their findings could lead to a treatment for an ailment affecting millions of people worldwide and that in some cases render them unable to work or engage in even moderately robust activities.

The study was hailed as a breakthrough in understanding the perplexing syndrome for which there is no known treatment. “We now have evidence that a retrovirus named XMRV is frequently present in the blood of patients with CFS,” said Judy Mikovits, director of research for the Whittemore Peterson Institute (WPI) located at the University of Nevada, Reno, one of the organizations that led the research. “This discovery could be a major step in the discovery of vital treatment options for millions of patients,” Mikovits said.

Other health agencies that contributed to the study were the US National Cancer Institute (NCI), the National Institutes of Health, and the Cleveland Clinic.

Researchers cautioned that while there appears to be a relationship between the retrovirus and CFS, they have not proved that the illness is caused by XMRV. They noted that earlier research has linked the retrovirus with prostate cancer as well.

“The discovery of XMRV in two major diseases, prostate cancer and now chronic-fatigue syndrome, is very exciting,” said Robert Silverman, a professor in the department of cancer biology at the Cleveland Clinic Lerner Research Institute, and coauthor of the CFS study. “If cause-and-effect is established, there would be a new opportunity for prevention and treatment of these diseases,” he said.

In the study, WPI scientists identified XMRV in the blood of 68 of 101 CFS patients. By contrast, the retrovirus was found in the blood of only eight of 218 healthy people (3.7 percent).

“These compelling data allow the development of a hypothesis concerning a cause of this complex and misunderstood disease, since retroviruses are a known cause of neurodegenerative diseases and cancer in man,” said Francis Ruscetti, of the Laboratory of Experimental Immunology at NCI.

Retroviruses like XMRV have also been shown to activate a number of other latent viruses. This could explain why so many different viruses, such as Epstein-Barr virus, have been associated with CFS. “The scientific evidence that a retrovirus is implicated in CFS opens a new world of possibilities for so many people,” said Annette Whittemore, founder and president of WPI and mother of a CFS patient. “Scientists can now begin the important work of translating this discovery into medical care for individuals with XMRV-related diseases.” **M**