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New Technology Helps Amnesics

Memory aids that may help some amnesics remember better are now being studied as part of a $1.5-million grant awarded by the National Institutes of Health to Boston University School of Medicine (BUSM) and the new Memory Disorders Research Center at the Boston Veterans Administration Medical Center. Researchers are attempting to use computer programs tailored to an individual’s memory loss and daily routine to produce behavioral changes in the amnesic.

Memory loss is a common disorder following brain injury. However, exact numbers are hard to determine, since amnesia is difficult to assess. Amnesia, which cannot be cured, is most commonly caused by head injury. Anoxia, a lack of oxygen to the brain, or stroke, tumors and Korsakoff disease (the combination of chronic alcoholism and thiamine deficiency) can also cause memory loss.

"Although there is no known therapy to improve memory, we hope that by using computers programmed to their specific needs, amnesics will be able to live more productive lives without the constant attention of family and friends," says Laird Cermak, M.D., Ph.D., a professor of neurology at BUSM and director of the Center.

One way a computer can be programmed to aid amnesics requires minimal effort on the patients’ part, because it describes a series of tasks that they want to perform on a particular day. Once sufficient time has passed, the computer will ask if the task has been completed. By answering "yes" with a touch of a computer key, the program will go on to the next task. Without the interaction of asking if the task was performed, the amnesic might perform the task over and over again, forgetting that he had already done it. The computer is more useful than traditional memory aides, such as notebooks or diaries, because the latter demand constant monitoring by the patient.

Bacteria Prevents Acid Production In The Stomach

The discovery that a substance produced by a common stomach bacteria prevents the stomach from secreting hydrochloric acid—a major factor in the development of ulcers—may lead to a new treatment for ulcers, according to a study in a recent issue of The Lancet.

Scientists began to suspect that Campylobacter pylori, a bacteria found in 40 percent of the population, might inhibit acid production when they observed that a group of patients who had contracted the bacteria had no hydrochloric acid in their stomachs for several weeks after being infected.

To learn if the bacteria or something produced by the bacteria was the inhibiting agent, researchers at the University Hospital (UH) placed acid-producing cells from rabbit stomachs in C. pylori-free test tubes and in test tubes containing the bacteria. When both sets of cells were stimulated to produce acid, those that were bacteria-free produced normal amounts, while those in the C. pylori test tubes produced no acid.

Preliminary tests on the rabbit stomach cells following the experiment suggested that the bacteria had produced a protein-like substance that stopped the cells from producing acid.

"The results are exciting," says David Cave, M.D., a UH gastroenterologist and principal investigator of the study, "because this protein-like substance, when purified, may be a more effective remedy for ulcers than traditional medications."

Cave is continuing research to identify, isolate and purify this substance for use in future studies.

(more)
Location Of A Gene That Causes A Fatal Condition Determined More Precisely

The discovery of the location of a gene defect that causes a rare but fatal disease may help researchers develop a method to treat or prevent the disorder and may also shed light on how certain lymphomas are formed. Researchers at Boston University School of Medicine (BUSM) have located the site of the defect—a tiny deletion of an X chromosome—which results in X-linked lymphoproliferative disease (XLP), a disease carried by females that affects males. This finding was published in the American Journal of Medical Genetics.

Most males born with this genetic defect die during childhood of infectious mononucleosis caused by the Epstein-Barr virus (EBV). Those who live to adulthood often die from lymphoma or other immune system diseases.

BUSM researchers previously located the approximate site on the X chromosome of the defective gene. Most recently, they examined blood samples from 14 affected families, using samples from males affected with the disease and female carriers, and from normal males and female controls. They found a tiny deletion of the X chromosome at the site of the defective gene in those who had the disease or were carriers.

"The confirmation of the site of this defect is an historic observation," says Aubrey Milunsky, M.D., director of the Center for Human Genetics at BUSM. "It will open new avenues for carrier detection, prenatal diagnosis and, ultimately, treatment or prevention of the disease."

This finding may help scientists better understand how lymphomas are formed and what relationship they have with EBV. "Currently we know that certain lymphomas are related to EBV infection," says Milunsky. "And this work will undoubtedly shed light on the pathogenesis of these tumors." BUSM researchers, with support from the National Institutes of Health, are continuing this work, which is aimed ultimately at cloning and sequencing the XLP gene and determining its products.

New England’s First Support Group For Patients With Spastic Dysphonia

The first support group in New England for sufferers of spastic dysphonia—an uncommon, incurable speech disorder that can psychologically devastate its victims and ruin personal and professional lives—is being established by the University Hospital (UH). Spastic dysphonia, a neurological disorder that can strike suddenly or come on gradually, causes the vocal cords to spasm. The voice becomes a strangled, nonrhythmic and unmelodic noise, and sometimes no sound is produced at all.

"Just speaking becomes embarrassing," says Glenn Bunting, M.S., a speech pathologist and the leader of the group. "Patients are afraid to apply for jobs, meet new people in any setting, or even communicate about the simplest issues."

Disappointed by traditional treatments and ashamed of their condition, many patients become depressed and isolated and begin to lose hope of ever communicating normally again. "Because the disease is rare, most patients have never known the support offered by others with the same problem," says Bunting.

Bunting hopes UH’s new support group will offer spastic dysphonia patients a place where they can share experiences, receive emotional support, learn new coping skills, and find out about the latest research and treatment from psychiatrists, physicians, speech therapists, surgeons and each other.

For instance, in one of the first group sessions, several patients will share their experiences as participants in clinical trials of a promising new treatment. Called botulinum-toxin therapy, the treatment consists of injections of botulinum toxin that relax the vocal cords, which stops the spasms and results in more normal speech.

News Briefs

- Adults should not assume that vaccines received in childhood will protect them from infectious diseases in later life, according to Robert McCunney, M.D., director of the Occupational Health Program at the University Hospital. Instead, they should take a lesson from school children and make the fall a time to immunize. Incomplete immunizations, failure of a vaccine to take effect, or a misdiagnosis can leave an adult susceptible to disease. Some diseases, such as mumps, are relatively harmless in childhood but can be potentially dangerous in adulthood. Others, such as tetanus or lockjaw, require “booster” shots every five to ten years.

- Whether one is traveling by training plane, car or boat, motion sickness can disrupt even the most well-planned trip. Eric Smouha, M.D., an assistant professor of otolaryngology at Boston University School of Medicine, offers these travel tips: Take in the surroundings from a wide rather that a constricted viewpoint. Postpone reading to minimize sensory impulses that can overwhelm the brain and cause sweating, nausea or vomiting. Avoid alcohol, which aggravates motion sickness. Over-the-counter medications, such as Dramamine, are usually effective in preventing illness while traveling. Prescription medications are also available for the most sensitive individuals.