Johns Hopkins Surgeons Implant First Brain 'Pacemaker' for Alzheimer's Disease

Researchers at Johns Hopkins Medicine in Baltimore recently surgically implanted a pacemaker-like device into the brain of a patient in the early stages of Alzheimer's disease. The device, which provides deep brain stimulation and has been used in thousands of people with Parkinson's disease, is seen as a possible means of boosting memory and reversing cognitive decline.

The surgery is part of a federally funded multicenter clinical trial designed to slow or halt the ravages of the disease. Instead of focusing on drug treatments, the research focuses on the use of the low-voltage electrical charges delivered directly to the brain.

As part of a preliminary safety study in 2010, the devices were implanted in six Alzheimer's disease patients in Canada. Researchers found that patients with mild forms of the disorder showed sustained increases in glucose metabolism, an indicator of neuronal activity, over a 13-month period. Most Alzheimer's disease patients show decreases in glucose metabolism over the same period.

The first U.S. patient in the new trial underwent surgery at The Johns Hopkins Hospital, and a second patient is scheduled for the same procedure in December. The surgeries at Johns Hopkins are being performed by neurosurgeon William S. Anderson, M.D.

Fourty patients are expected to receive the deep brain stimulation implant over the next year or so at Johns Hopkins and four other institutions in North America as part of the ADvance Study led by Constantine G. Lyketsos, M.D., M.H.S., a professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine, and Andres Lozano, M.D., Ph.D., chairman of the neurology department at the University of Toronto. Only patients whose cognitive impairment is mild enough that they can decide on their own to participate will be included in the trial.

Other sites performing the operation, supported by the National Institutes of Health's National Institute on Aging, are the University of Toronto, the University of Pennsylvania, the University of Florida, and Banner Health System in Phoenix, Ariz. The medical device company, Functional Neuromodulation Ltd., is also supporting the trial.

For more information:
http://www.hopkinsmedicine.org/psychiatry/specialty_areas/memory_center/research.html