

Epilepsy Patients Are Given New Hope With Brain Implant

December 9 2009, by John Messina



The device can detect abnormal electrical activity that precedes a seizure, and respond with a specific pattern of electrical jolts. Credit: Neuropace

(PhysOrg.com) -- A startup company, Neuropace in Mountain View Ca., has developed a device that offers new hope for epilepsy patients. The device is designed to neutralize the abnormal electrical activity in the region of the brain that causes seizures.

About 30 to 50 percent of epilepsy patients have trouble controlling their seizures with medication. This represents hundreds of thousands of patients in the U.S. alone.



A clinical trial was conducted on approximately 200 epilepsy patients who failed to respond to medication. The device was able to reduce the seizure frequency by 29 percent. This equates to approximately 100 patients seeing a 50 percent or greater reduction in seizure frequency.

The device is implanted into a hallowed out part of the skull and is approximately the size of a small deck of cards. Wires are placed on the surface of the brain or in the <u>brain tissue</u>, depending where the seizures originate from. Prior to surgery, brain imaging, EEG (<u>electroencephalogram</u>) or ECoG (electrocorticography) is used to record <u>brain activity</u> in order to determine the area of the brain the <u>seizures</u> originate from.

A study has shown that the procedure and device are relatively safe. A few patients have suffered from infections or bleeding which are consistently lower with similar procedures. A major benefit is that patients don't suffer from drug side effects that are common with many <u>epilepsy</u> medications.

Once the device has been implanted, the patients need to go through optimization period where the doctor needs to program the device to recognize a seizure pattern and provide a particular pattern of electrical impulse that counter acts the electrical pattern of the seizure.





A patient waves a wand over her head to download data recorded by the Neuropace device before and after stimulation. (Credit: Neuropace)

Patients also need to learn to how to wave a wand over their head, where the implant is located, and download data recorded before and after brain stimulation. This data provides doctors with information to see how well the device is working and make any necessary adjustments.

Neurosurgeons are confident of the device's potential in determining the onset of a seizure and providing the necessary electrical impulse pattern to counter act the seizure. With time, patients and doctors will understand the effectiveness of the device and harness its full potential.

Additional information: Neuropace

Via: <u>Technology Review</u> © 2009 PhysOrg.com

Citation: Epilepsy Patients Are Given New Hope With Brain Implant (2009, December 9) retrieved 27 April 2024 from <u>https://medicalxpress.com/news/2009-12-epilepsy-patients-brain-implant.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.