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Epilepsy Brain Responds to Nerve Stimulations

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Controlled clinical trials in adults with medically refractory focal seizures treated with the RNS system have shown that closed-loop nerve stimulation that responds to epileptic foci can reduce the frequency of disabling seizures, is well tolerated, and it is acceptable security. The reduction in seizures begins at the beginning of treatment and continues over time, reaching a median reduction of 75 to 9 years of treatment. Treatment with sensitive cortical stimulation is also related to an improvement in the quality of life and cognitive function related to the functional area being treated. In addition, the chronic dynamic cortical EEG monitoring of the RNS system provides unprecedented insights for the disease management of each patient and the research of epilepsy itself, which can improve the treatment of epilepsy in the future.

Approximately one third of people with epilepsy have seizures that are resistant to drugs. For many of these patients, resection and/or ablative epilepsy surgery provides the best chance of getting rid of seizures. However, not all patients are suitable for these surgical procedures because of the risk of neurological deficits or unwillingness to consider resection or ablation. Designed to help these patients, the first implantable brain response neurostimulator RNS system was approved in the United States at the end of 2013 as an add-on therapy for adults to treat uncontrolled medically located in one or two epilepsy lesions Of focal seizures. Unlike the open-circuit method of neuromodulation (continuous or fixed schedule treatment), the RNS system continuously monitors the neural activity of the epileptic lesion and only responds to the stimulus when it detects epileptic activity.

RNS system is that it can automatically record a snapshot of electrocortical activity and track the number of abnormal electrogram events detected every hour and every day during the patient's treatment with the system. This type of chronic electrokinetic monitoring is mainly used to identify the patient's specific time dynamics in epileptiform activities, which can be used for personalized perception and pacing, but it also provides clinicians with unprecedented treatments of various other shapes being performed by patients Insight. Ongoing research analyzes data collected by the RNS system using traditional machine learning and deep learning, and aims to determine the best detection and stimulation parameters for individual patients and patients with similar clinical and EEG characteristics.

In adults with medically refractory focal epileptic seizures treated with the RNS system, closed loop nerve stimulation in response to epileptic lesions reduces the frequency of disabling seizures, is well tolerated, and is acceptable Security. The reduction in seizure frequency starts from the beginning of treatment and continues over time, reaching a median reduction of 75 to 9 years of treatment. Treatment with sensitive cortical stimulation is also related to an improvement in the quality of life and cognitive function related to the functional area being treated. In addition, the chronic dynamic cortical EEG monitoring of the RNS system provides unprecedented insights for the disease management of each patient and the research of epilepsy itself, which can improve the treatment of epilepsy in the future.

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