Neurology

Brain Function Mapping with Intracranial SEEG Using Event-related Spectral Modulations

Brief Description of Technology
This SEEG-based technique offers a safer, more precise method for functional brain mapping.

TECHNOLOGY ID

2019-0401

COMPLEMENTARY TECHNOLOGY

Fast Automated Stereo-EEG Electrode Contact Identification and Labeling Ensemble (FASCILE)

BUSINESS OPPORTUNITY

Exclusive License or Sponsored Research

TECHNOLOGY TYPE

Digital Health

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Technology Overview
This novel technique for functional brain mapping with intracranial stereotactic electroencephalography (SEEG) generates multidimensional power clusters, multidimensional connectivity clusters, combined power and connectivity cluster map, and visualizations, making brain surgery safer and accurate. The technique uses statistically significant clusters of event-related activity.

Applications

- Novel methodology for a functional brain mapping
- Multidimensional map of power and connectivity clusters aids in clinical decisions
- Neurosurgical planning, neuroscience research, and developmental neurobiology research

Advantages

- Precise preoperative assessment of functional anatomy surrounding a brain defect or lesion
- Provides a potentially safer method for mapping brain function with enhanced ecological validity compared to traditional techniques
- Offers improved safety using SEEG, which has been shown to be safer than electrocorticography (ECoG)

Market Overview
The functional brain mapping market is growing due to the rise in neurological disorders, advances in neuroimaging, and demand for minimally invasive procedures. This novel SEEG-based mapping technique enhances preoperative assessment, potentially improving precision, safety, and outcomes in epilepsy treatment, tumor surgery, and Deep Brain Stimulation (DBS) procedures.

Investigator Overview
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