

Stereo-electroencephalography (SEEG)

Stereo-electroencephalography (SEEG) is a minimally invasive procedure in which depth electrodes are used to record activity from structures deep in the brain. With SEEG, the doctors can monitor large areas on both sides of the brain. They can determine the location where the seizures start, and the brain regions involved in the production and dissemination of seizure activity.

The candidates for SEEG are patients who have failed two or more anti-seizure medications, known as refractory epilepsy, or people with epilepsy who have unclear/different findings from non-invasive studies.

Around sixteen (16) depth electrodes are implanted through small openings in the skull and the length of these electrodes will vary depending on the area to explore. This involves extensive planning based on medical tests like MRI and CTA to avoid injury while placing the electrodes.

Once the electrodes are in place, they are connected to equipment to monitor the brain activity and accurately identify where the seizures start. This monitoring period will occur at the Epilepsy Monitoring Unit (EMU), where the multidisciplinary team gathers and analyzes the data. The length of stay in the EMU will depend on how long it takes to see all the seizure types during the hospitalization and without anti-seizure medications. Also, it depends on the data that has been collected for a particular seizure. Electrodes are removed at either the bedside or in the operating room (OR). After SEEG, the doctors will determine which surgical treatment is the most appropriate one for you.

SEEG is a safe procedure, however, it may carry potential risks including infection, bleeding along with minor and transient side effects reported in the medical literature. Both, benefits and risks should be discussed with the surgeon and healthcare professionals in the team.

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Frequently Asked Questions (FAQ) about Stereo-electroencephalography (SEEG)

Q. Does SEEG hurt?

A. Almost not at all, generally an analgesic for minor pains and aches alone is sufficient for pain control.

Q. What does the SEEG reveal that the EEG doesn't?

A. SEEG can directly identify the deep areas of the brain where the seizures start and the regions where they disseminate. Some of those areas of the brain may be difficult to reach by a regular EEG. SEEG is more accurate. Also, SEEG can be used to confirm functions of specific areas to avoid injury during resection, which is not possible with EEG.

Q. What happens if the SEEG doesn't reveal any information?

A. SEEG always reveals some information. If the person with epilepsy is not a candidate for resective surgery because of the SEEG results; other types of procedures are still an option, depending on the case.

Q. Do I have to shave my head?

A. It is not always necessary to shave the whole head, but this is a good conversation to have with the neurosurgeon and the team.

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