SEEG After Subdural Grid Placement for Difficult to Localize Epilepsy

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Introduction

In patients with medically intractable epilepsy who are deemed candidates for invasive intracranial electroencephalography (EEG), techniques to localize the epileptogenic zone (EZ) include subdural grids and stereoelectroencephalography (SEEG). After undergoing subdural grid placement, a subset of patients are found to have nonlocalizable epilepsy, and the authors suggest that reimplantation with SEEG may be of benefit in this group.

Methods

A retrospective chart review was performed for 16 patients who had undergone subdural grid placement without localization of the EZ, followed by reimplantation with SEEG. MRI findings, EZ localization, seizure-free outcomes, type of surgery performed, and perioperative complications were evaluated.

Results

Seventy-five percent of patients underwent a resection after SEEG implantation. Of the four patients not undergoing resection, two were found to have seizures arising from eloquent cortex, one was bitemporal, and one had a prior temporal lobectomy contralateral to the EZ. Of the patients undergoing resection, sixty-seven percent had Engel Class 1 seizure freedom postoperatively. Intraoperative complications were minimal and included a small cortical contusion, which did not require any further intervention, and an abscess which required burr-hole drainage and antibiotics.

Conclusions

SEEG is a safe and effective method to localize the EZ when subdural grid placement is inconclusive. SEEG avoids the risks associated with open craniotomy and reoperation and early data regarding seizure free outcomes appears promising.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the similarities and differences between SEEG and subdural grid placement. 2) Discuss the safety and efficacy of SEEG.

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