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Introduction

An awake craniotomy (AC) and surgery under general anesthesia (GA) present two approaches for removing perirolandic, motor area gliomas. With a reported higher prevalence of intraoperative seizures occurring during awake resections of perirolandic lesions, oftentimes, surgery under general anesthesia is chosen for these lesions. This study evaluates a single-surgeon's experience with awake craniotomies versus surgery under general anesthesia for resecting perirolandic, motor area gliomas.

Methods

A comparative univariate analysis between 31 patients who had a craniotomy under general anesthesia (GA) with neuromonitoring and direct cortical stimulation (DCS) versus 27 patients who underwent an awake craniotomy (AC) with DCS for perirolandic gliomas was conducted. Perioperative risk factors, extent of resection, complications, and discharge status were assessed.

Results

The two groups were comparable in terms of age, sex, preoperative Karnofsky Performance Status score, size of the lesions, tumor location, and postoperative neurological deficits. The postoperative KPS, months after surgery, was significantly lower for the GA patients at 81.1 compared to the AC patients at 93.3 ($p=0.040$). The extent of resection for GA patients was 79.6% while the AC patients had a 86.3% resection ($p=0.136$). There were significantly more 100% total resections in the AC patients 25.9% compared to the GA group (6.5%) ($p=0.041$). Patients in the GA group had a longer mean length of hospitalization of 7.9 days compared to the AC group which was 4.2 days ($p=0.05$). Stimulation-induced seizures occurred in 7.4% of AC cases and 16.1% of GA cases ($p=0.432$), with no aborted cases in either group.

Conclusions

An awake craniotomy presents a safe, viable approach for perirolandic, eloquent region glioma resections. We show that awake craniotomies can be performed with low intraoperative seizure rates, more frequent 100% total resections, better postoperative KPS, shorter hospitalizations, as well as similar perioperative complication rates compared to surgery under general anesthesia.

Learning Objectives

1) To understand the postoperative outcome differences between awake craniotomies versus surgery under general anesthesia for perirolandic gliomas

2) To identify surgical risks associated with awake craniotomies and surgery under general anesthesia

3) To evaluate the best surgical approach for perirolandic gliomas

References

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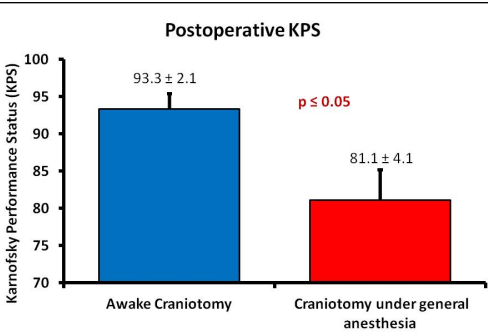
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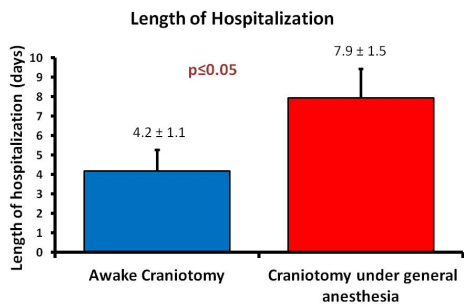
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Postoperative Karnofsky Performance status of patients undergoing a craniotomy for a perirolandic glioma. The patients in the awake craniotomy group had a significantly higher KPS months after surgery compared to patients who had a craniotomy under general anesthesia.



Length of hospitalization following an awake craniotomy and craniotomy under general anesthesia. Patients undergoing an awake craniotomy had significantly less days in the hospital following surgery compared to patients that had surgery under general anesthesia.