Length of stay after craniectomy is significantly associated with postoperative complications

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Of note, there were a total of 71 participants who experienced a postoperative medical complication. These complications included myocardial infarctions, pneumonia, sepsis, UTIs, AKIs, DVT/PE, hydrocephalus, and seizures.

We included an additional set of minor complications that occurred after discharge and were related to the surgery, but not classified as one of the previous complications. These included irritation, pain, and fluid collections that did not require surgical intervention.

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References


Conclusion

- Length of stay after a craniectomy might be a useful indicator of who is a good surgical candidate for a cranioplasty. This factor best reflects how well the patient tolerates surgery and has shown statistical significance.
- Timing of cranioplasty after craniectomy was not found to be useful in determining good surgical candidates. This warrants further investigation as previous studies have demonstrated a possible correlation between timing and complication rates.

Methods

A retrospective analysis of patients who underwent cranioplasty from a single tertiary care center (the University of Michigan).

464 total participants.

Participants who underwent craniectomy and cranioplasty from 1997 to 2019.

Standard descriptive statistics were utilized for analysis, including logistic regression, ANOVA, linear regression, and generalized additive models.

• Craniectomies are a commonly practiced neurosurgical intervention with a wide range of indications.1
• Cranioplasties after a craniectomy have been reported to have high rates of complications (between 15%-35% of all cases).1
• There is sparse evidence identifying factors that might be useful in determining good surgical candidates.2

Objective

To identify risk factors that are correlated with postoperative complications.

Background

Demographics

Results

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- Some cranioplasties occurred over a year after the craniectomy date. In order to prevent skewing of the data, we limited our analysis to include only participants who had cranioplasties within a year of their craniectomy.

- The length of stay after craniectomy was significantly associated with postoperative complications (p = 0.0079). The model shows that a longer stay after a craniectomy increases the likelihood of a postoperative complication.
- The number of days between craniectomy and cranioplasty was not significantly associated with postoperative complications (a p = 0.257). A generalized additive model was used to look for any effects that would be missed on a simple regression model; it also showed no notable effect.
- No significant association was found between complications/infections/reoperation and use of autologous bone, use of drains, types of drains, age, tobacco use, diabetes, gender, indications for craniectomy, and alcohol abuse. These analyses were done using ANOVA.

Methods

Study Design

Number of Participants

Participants Criteria

Analysis

Participants

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Disclosures

None