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Outcomes following cranioplasty for Traumatic Brain Injury: A single centre experience

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Introduction:

Outcomes of cranioplasty following decompressive craniectomy for traumatic brain injury (TBI) can be variable and reasons for this have been explored in the literature. These include timing of cranioplasty as well the materials used. There is however no strong evidence to suggest that either of these has a significant impact on the outcome in these patients .

Methods:

We retrospectively studied 166 patients who underwent cranioplasty following a decompressive craniectomy for TBI at University Hospitals Birmingham NHS Foundation Trust between 2020 and 2024. Data analysed included demographics, timing between craniectomy and cranioplasty, the; materials used and incidence of post operative complications (including wound leak, infection, mortality etc).

Results:

A total of 166 patients were studied who underwent cranioplasty following craniectomy. Of these, 17 patients had early cranioplasty and 138 delayed cranioplasty. (rest patients had unknown time period difference between cranioplasty and craniectomy). Our results showed that there was a higher rate of complications with delayed cranioplasty (6/17 vs 38/138). But there was no statistical difference (p value=0.15). The role of material used in outcomes (i.e. rate of complications) was also analysed and we found no significant difference. (p value=0.317). But interestingly, the type of complications varied within these groups and are worth discussing.

Conclusion:

Although our retrospective analysis failed to show a significant impact timing and materials had on outcomes following cranioplasty for TBI, it suggested that types of complications vary between these groups and a large, randomised control trial is needed to fully investigate these.