

Factors Predicting Outcomes In Paediatric Traumatic Brain Injury

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Purpose:

Traumatic brain injury (TBI) is a common presentation to the paediatric emergency department. Understanding factors that predict outcomes will be useful in clinical decision making and prognostication. The objective of this study was to identify important clinical parameters predictive of outcomes in paediatric TBI patients who underwent surgery.

Materials and Methods:

This retrospective study included 43 paediatric TBI patients who underwent surgery from January 2011 to January 2017. Clinical parameters including presenting signs and symptoms, intracranial pressure, need for inotropes and CT findings were collected. Outcomes were assessed using the Glasgow outcome scale (GOS) based on the latest follow up. Outcomes were divided into favourable (GOS 4-5) and unfavourable (GOS 1-3).

Results:

Surgery was performed in 43 patients. The mean age was 9.6 ± 4.9 . The mean follow-up period was 31 weeks. 30 (70%) patients had favourable outcome and 13 (30%) had unfavourable outcome. On univariate analysis, GCS score, vomiting, cerebral oedema on CT, pupil size $> 3\text{mm}$, hypotension, inotropic use, need for blood transfusion and raised ICP (all $p < 0.005$) were significantly associated with outcomes. On stepwise logistic regression, raised ICP (OR=35.6, $p=0.008$) and hypotension (OR=26.1, $p=0.01$) were found to be statistically significant.

Conclusion:

Our study suggests that surgical intervention for the majority of paediatric TBI patients have favourable outcomes. Closer attention should be paid to raised ICP and hypotension as they were strong predictors of unfavourable outcomes. These findings also help manage expectations of patients' family and clinicians.