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Oral Presentation

Evaluation of the Immediate and Early Role of Decompressive Craniectomy in the Treatment of Refractory Intracranial Hypertension in Cases of Severe Traumatic Brain Injury

Mohamed El-Fiki*

Department of Neurosurgery, University of Alexandria, Alexandria, Egypt.

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Abstract

When intracranial pressure (ICP) was uncontrollable among patients with severe traumatic brain injuries (STBI) and especially if it raises above 40 mmHg 100% morality was reported. Eighty four percent of head injured patients would die if their initial ICP is greater than 25 mm Hg. Decreasing ICP through decompressive craniectomy (DC) theoretically may revert increased ICP to normal and decrease mortality. However some data indicated increased morbidity and mortality related to DC. The ability of early DC to decrease ICP in traumatic brain injury patients is still under evaluation. This is a prospective randomized study on 80 consecutive patients who sustained severe traumatic brain injury and increased ICP above 20 mm H_2O who failed to respond to conservative medial measures to lower ICP. Forty-three patients under went outright DC, while thirty-seven patients were in the conservative medical arm. Wide DC was performed and early results within one week are compared for responsiveness and complications. Most patients have a low admission Glasgow coma score (GCS). Thirty seven percent of patients scored less than 5 on GCS at the time of inclusion in the study. Associated extra-cranial injuries were commonly encountered and resulted in hypoxic episodes in 63% of patients and in hypotensive episodes in 53% of victims during the first 24 hours post injury. After decompressive craniectomy ICP dropped from a mean of 34 cm H_2O to 19.2 cm H_2O. Higher mortality was significantly associated with: 1. Hypotension (P=0.001), 2. Extra-cranial injuries (P=0.019); and 3. High preoperative ICP (P=0.002). Fifty four percent of patients have died. There was a significant correlation between ICP and outcome (P=0.002). Complications were frequent. In all patients DC succeeded to decrease ICP below 20 cm H_2O in the immediate P.O. period. This was maintained below 20 cm H_2O in those who improved. An increase of ICP to above 20 cm H_2O after 1 week was noted in those who died or became vegetative. Decompressive craniectomy decreased high ICP in patients with STBI. High M&M was encountered. Only patients who maintained a lowered ICP below 20 mm H_2O showed clinically significant recovery. Patients who showed a later secondary increased ICP either died or became vegetative. Those who failed to maintain a lowered ICP after one week are candidates for further studies & treatment alternatives.

Keywords: ICP, DC, Trauma, Brain Injury.

***Corresponding Author:** Mohamed El-Fiki

E-mail: *mohamedelfiki@netscape.net*

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