EPIDEMIOLOGY OF PRIMARY EARLY DECOMPRESSIVE CRANIECTOMIES PERFORMED IN A REFERENCE NEUROSURGERY HOSPITAL IN BRAZIL

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INTRODUCTION:

Severe head trauma can lead to brain swelling, increased intracranial pressure (ICP), reduced cerebral blood flow, inadequate O2 delivery, ischemia, metabolic failure and further brain edema. A major principle in managing severe traumatic brain injury (TBI) is based on strategies to control intracranial pressure and an adequate cerebral perfusion pressure (CPP). Decompressive craniectomy (DC) enlarges the intracranial space, allowing the swollen cerebral hemisphere to expand out of normal cranial limits. The gain in intracranial volume as a result of the surgery results in the improvement of cerebral compliance, a reduction in ICP, and an increase in CPP, favoring a rise in both cerebral blood flow and cerebral microvascular perfusion. The role of DC in the treatment of refractory posttraumatic intracranial hypertension remains controversial despite current guidelines discourage DC as a first-line therapy. This study analyzes the early (within 24 hours) and ultra-early (6 to 12 hours) DC as an effective form of management for severe TBI.

METHODS:

Retrospective cohort from data base of 35 patients who underwent surgical DC in our institution. The data analysis considered: personal profile, lesion characteristics, clinic profile, surgical characteristics, post-operative situation and complications and initial Glasgow Coma Scale (GCS). Pearson's Chi-square test, the Fisher's exact test, Poisson Regression Model, Wald test were used. Bivariate and multivariate analysis was performed.

RESULTS:

The study showed that most patients are from the interior of the state, although the comparison test was not significant (Table 1). The prevalence was higher in patients admitted in severe condition, with a score of 3 to 8 points (60%), followed by the group with 9 to 12 points (22.9%) and 13 to 15 points (17.1%) (Table 2). The proportion comparison test was significant (p-value = 0.003). In the management, the presence of primary DC is found in 88.9% of the cases, the duraplasty was performed in 55.6% of the interventions, the monitoring of the ICP was instituted in only 5.6% of the patients and the flap bone was discarded in 74.3% of cases. It was observed that the majority of patients had surgical intervention performed within 12 hours of admission, these patients, still, had a substantially lower average age, had severe Glasgow in the initial evaluation and were, for the most part, hospitalized for TBI when compared to those who waited 12 hours or more for surgery. Regarding the clinical outcome, there was no statistically significant difference.

DISCUSSION AND CONCLUSIONS:

Upon analyzing the results found in the retrospective cohort, it was found that patients who underwent DC in less than 12 hours were of greater severity and younger than the others. A similar outcome was observed between the group operated on for less than 12 hours and those who underwent DC after that time. In this way, it is concluded that the early DC has good efficacy for reduction of the PIC.

Table 1. Distribution of the origin of the evaluated patients.

Rated factor	n	%	p-value[1]
Provenance			
MRR	15	42,9	0,398
Inland	20	57,1	

[1]p-value of the Chi-square test for comparison of proportions.

Table 2. Distribution of GCS on admission

Initial GCS	n	%	p-value[1]
13 to 15 points	6	17,1	
09 to 12 points	8	22,9	0,003
03 to 08 points	21	60,0	

[1]p-value of the Chi-square test for comparison of proportions.