

Risk Factors Associated With Hemorrhagic Progression And Adverse Outcome In Traumatic Contusional Brain Injury

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Purpose

To evaluate risk factors associated with hemorrhagic progression of contusion (HPC) in traumatic head injury and their association with adverse outcome.

Materials And Methods

246 patients were enrolled in this prospective cohort over a period of one year. Contusion volume was quantified using the ABC/2 technique while progression was considered as > 30% increase in initial volume. Univariate and multivariate statistics were used to examine the correlation between the risk factors of interest and HPC and associated mortality.

Results

HPC was seen in 110 (44.7%) patients. Binary logistic regression showed in the final adjusted model that multiplicity (RR is 2.24, 95% CI: 1.00-5.48), bilaterality (RR is 2.99, 95% CL: 1.08-8.25), initial volume of contusion (RR is 4.96, 95% CL: 1.87-13.13), frontal location (RR is 1.42, 95%CL:1.08-3.56) and presence of concomitant intracranial hematoma (extradural- RR is 3.90, 95%CL: 1.51-10.01, Subdural-RR is 2.91, 95% CL: 1.26-6.69, and Subarachnoid-RR is 2.27, 95% CL: 1.01-5.80) were significantly associated with HPC.

The overall mortality was 18.7% and was almost equal among patients with and without HPC. Mortality was significantly associated with GCS on admission (adjusted RR is 12.386, 95%CL: 4.789-32.035) and presence of co-morbid conditions (adjusted RR is 0.313 95%CL: 0.114-0.860)

Conclusion

Early recognition of associated factors and identification of high risk patients for HPC is the key in management and subsequent outcome in patients with contusion traumatic brain injury.