

Prognostic value of the relationship between serum levels of interleukin-6 and clinical outcome in patients with severe head injury

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Abstract

Background: Damage caused by traumatic brain injury (TBI) depends on the extent of primary and secondary damages. The latter can cause induced neurological inflammation by releasing pro- and anti-inflammatory cytokines and chemokines. Measurement of serum interleukin-6 (IL-6), as a pro-inflammatory cytokine, can be useful in predicting outcome in patients with TBI.

Materials & Methods: In a cross-sectional study, 44 patients with GCS \leq 8 (Glasgow Coma Scale) and age \geq 14 years, hospitalized in Poursina teaching hospital, were included in the study. Blood samples were collected from patients in the first 6 hours after the accident; and serum was tested by ELISA method for the determination of IL-6 levels. Patients' outcomes were recorded 6 months after head injury according to

Glasgow Outcome Scale (GOS), and were divided in two good ($GOS \geq 4$) and bad ($GOS < 3$) outcome groups. Data were analyzed in SPSS software version 18 using the Spearman's rho, independent-t test,

Fisher Exact test and Mann-Whitney test.

Results: Comparison of IL-6 serum levels, in the two groups after 6 months of head injury, showed that mean serum levels of IL-6 in good outcome group was lower than bad outcome group (85.2 ± 51.6 vs. 162.3 ± 141.1 , respectively) ($P < 0.03$).

Conclusion: Elevated serum levels of IL-6 in patients with severe TBI, is associated with poor clinical outcome.

Keywords: Traumatic brain injury, Interleukin-6, Neurological inflammation, Clinical outcome