Field Prognostic Factors on Discharge Prediction of Traumatic Brain Injuries

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Abstract : Introduction: Limited facility situations require allocating the most available resources for most casualties. Accordingly, Traumatic Brain Injury (TBI) is the one that may need to transport the patient as soon as possible. In a mass casualty event, deciding when the facilities are restricted is hard. The Extended Glasgow Outcome Score (GOSE) has been introduced to assess the global outcome after brain injuries. Therefore, we aimed to evaluate the prognostic factors associated with GOSE. Materials and Methods: In a multicenter cross-sectional study conducted on 144 patients with TBI admitted to trauma emergency centers. All the patients with isolated TBI who were mentally and physically healthy before the trauma entered the study. The patient's information was evaluated, including demographic characteristics, duration of hospital stays, mechanical ventilation on admission laboratory measurements, and on-admission vital signs. We recorded the patients' TBI-related symptoms and brain computed tomography (CT) scan findings. Results: GOSE assessments showed an increasing trend by the comparison of on-discharge (7.47 ± 1.30), within a month (7.51 ± 1.30), and within three months (7.58 ± 1.21) evaluations ($P < 0.001$). On discharge, GOSE was positively correlated with Glasgow Coma Scale (GCS) ($r = 0.729$, $P < 0.001$) and motor GCS ($r = 0.812$, $P < 0.001$), and inversely with age ($r = -0.261$, $P = 0.002$), hospitalization period ($r = -0.678$, $P < 0.001$), pulse rate ($r = -0.256$, $P = 0.002$) and white blood cell (WBC). Among imaging signs and trauma-related symptoms in univariate analysis, intracranial hemorrhage (ICH), interventricular hemorrhage (IVH) ($P = 0.006$), subarachnoid hemorrhage (SAH) ($P = 0.06$; marginally at $P < 0.1$), subdural hemorrhage (SDH) ($P = 0.032$), and epidural hemorrhage (EDH) ($P = 0.037$) were significantly associated with GOSE at discharge in multivariable analysis. Conclusion: Our study showed some predictive factors that could help to decide which casualty should transport earlier to a trauma center. According to the current study findings, GCS, pulse rate, WBC, and among imaging signs and trauma-related symptoms, ICH, IVH, SAH, SDH, and EDH are significant independent predictors of GOSE at discharge in TBI patients.

Keywords : field, Glasgow outcome score, prediction, traumatic brain injury.

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