ABSTRACT

Background: Traumatic Brain Injury (TBI) causes a severe toll on society as a leading cause of mortality worldwide and the major cause of disability among young adults. The prognosis after TBI had been particularly challenging to predict, with limited availability of robust prognostic models.

Aim: to evaluate the usefulness of the APACHE II (Acute Physiology and Chronic Health Evaluation II), SAPS II (Simplified Acute Physiology Score II) and SOFA (Sequential Organ Failure Assessment) scores compared to simpler models based on age and Glasgow Coma Scale (GCS) in predicting a six-month mortality of patients with moderate to severe traumatic brain injury (TBI) in the intensive care unit (ICU).

Methods: A Prospective cohort study conducted on acute TBI patients admitted to I.C.U at EL-HELAL trauma Centre and KASR AL AINI university hospital, Egypt during the period from August 2014 to April 2015. All patients were assessed with APACHE II, SAPS II, SOFA score-based models and reference model (age and GCS) In addition; all patients were followed-up for 6 months from the day of admission. Our patients were divided into two groups (survivors and non-survivors).

Results: A total of 104 patients were enrolled. Mean age was 37 ± 17.16 years, the overall six-month mortality was 24.4% .The univariate analysis showed that APACHE II, SAPS II, SOFA, GCS, and age had a significant statistical difference regarding mortality between both groups (P-value < 0.05) and the optimal cut-off point as mortality indicator was 14, 26, 4, 9 and 49, respectively with area under the curve (AUC) 0.88, 0.87, 0.83, 0.80 and 0.79. By Multivariate analysis using logistic regression, we found only Age and GCS had a significant impact on outcome (P-value 0.001, 0.022) and other scores did not show statistically significant difference.

Conclusions: A simple prognostic model based only on GCS and Age displayed good predictor for six-month mortality of ICU treated patients with TBI. The use of the more complex scoring systems APACHE II, SAPS II and SOFA added little to the prognostic performance.

Key Words: Traumatic brain injury, ICU scores, six-month mortality