**Physiological variables are inferior to traditional scores in predicting trauma death**

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**Introduction and aims:** Early prediction of trauma death is essential for proper triage and resource allocation. This study aims to evaluate the prediction ability of new simple physiological parameters in predicting trauma death.

**Methods:** Data of patients who presented with trauma to Al-Ain Hospital and were admitted for more than 24 hours or died at the Emergency Department from January 2014 to December 2017 were obtained. Patients' demographics, systolic blood pressure, heart rate, respiratory rate, shock index (SI), SI Age, Blood Pressure Age Index (BPAI), SI to Pulse Oxygen Saturation, Minute Pulse, Pulse Maximum Index, Reverse SI (rSI), combined rSI and Glasgow Coma Scale (GCS) score, GCS, Injury Severity Score (ISS), and in-hospital mortality data were analyzed. Significant factors in univariate analysis were entered into a logistic regression model to define factors predicting death.

**Results:** There were 3519 trauma patients having 1% (n=35) mortality in the registry. Logistic regression model was significant (Negelkerke R squared 0.46, p <0.001). GCS, and ISS were the most significant factors predicting mortality (p <0.001). AUCs for mortality were 0.87 for ISS and 0.9 GCS. A trend was observed in SI and BPAI without significance. The best cut-off score of GCS in predicting survival was more than 14.5 having a sensitivity of 0.956, specificity of 0.824, positive likelihood ratio of 5.43, and a negative likelihood ratio of 0.053. The best cut-off score of ISS for predicting mortality was more than 8.5 having a sensitivity of 0.912, specificity of 0.673, positive likelihood ratio of 2.79, and a negative likelihood ratio of 0.13.

**Conclusions:** The patient's ISS, and GCS were the most significant factors in predicting trauma death in our setting, with the GCS being the best. The new physiological variables were inferior to them.