Validation of APACHE II scoring system at 24 hours after admission as a prognostic tool in urosepsis: A prospective observational study

Abstract

Purpose: Urosepsis implies clinically evident severe infection of urinary tract with features of systemic inflammatory response syndrome (SIRS). We validate the role of a single Acute Physiology and Chronic Health Evaluation II (APACHE II) score at 24 hours after admission in predicting mortality in urosepsis.

Materials and methods: A prospective observational study was done in 178 patients admitted with urosepsis in the Department of Urology, in a tertiary care institute from January 2015 to August 2016. Patients >18 years diagnosed as urosepsis using SIRS criteria with positive urine or blood culture for bacteria were included. At 24 hours after admission to intensive care unit, APACHE II score was calculated using 12 physiological variables, age and chronic health.

Results: Mean±standard deviation (SD) APACHE II score was 26.03±7.03. It was 24.31±6.48 in survivors and 32.39±5.09 in those expired ($p<0.001$). Among patients undergoing surgery, mean±SD score was higher (30.74±4.85) than among survivors (24.30±6.54) ($p<0.001$). Receiver operating characteristic (ROC) analysis revealed area under curve (AUC) of 0.825 with cutoff 25.5 being 94.7% sensitive and 56.4% specific to predict mortality. Mean±SD score in those undergoing surgery was 25.22±6.70 and was lesser than those who did not undergo surgery (28.44±7.49) ($p=0.007$). ROC analysis revealed AUC of 0.760 with cutoff 25.5 being 94.7% sensitive and 45.6% specific to predict mortality even after surgery.

Conclusions: A single APACHE II score assessed at 24 hours after admission was able to predict morbidity, mortality, need for surgical intervention, length of hospitalization, treatment success and outcome in urosepsis patients.