Assessing pediatric index of mortality 2 score and factors affecting outcome of patients admitted to pediatric intensive care unit in st. Paul's hospital millennium medical college, Addis Ababa, Ethiopia, 2016 to 2019

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Background: Pediatric Index of Mortality2 (PIM2) is one of mortality scoring methods which can be used to predict mortality, to assess quality of care and to determine severity of illness in pediatric intensive care units (PICU). Despite PIM2 is regarded to be a better tool, its use has not been well validated in Ethiopia. The objective of this study was to evaluate the usefulness of PIM2 score in predicting mortality and to assess associated factors affecting mortality.

Method: A cross sectional study was conducted on 282 children admitted to PICU of St. Paul's Hospital. An adopted checklist was used to collect data from patient records from July 1-30, 2019. Data was entered and analyzed using SPSS version23. The predictive ability of PIM2 score for patient mortality was analyzed using Reciver Operative Characteristics curve and the corresponding sensitivity and specificity of the PIM2 model was also calculated. Multiple binary logistic regression was conducted and P-value <0.05 was considered statistically significant.

Results: A total of 282 patients were included in this study. The predicted mortality by PIM2 score was 11.8% (n=34) while the observed mortality was 39.7% (n=112). Neurological diseases contributed to 33.0% mortality followed by cardiac 14.3% and renal diseases 13.4%. PIM2 score discriminated well between death and survival with area under receiver operating characteristic curve 0.86 (95%CI 0.82 to 0.91), with sensitivity of 75% and specificity 83.5%. Significant statistical association with mortality was seen in children who required mechanical ventilation Adjusted Odd's Ratio (AOR) 9.2, children with high risk diagnosis (AOR) 8.4 and in those with dilated pupils at admission (AOR) 9.4.

Conclusion: PIM2 model discriminated well between survivors and death at PICU and therefore is recommended for routine use in clinical practice. Mortality was more likely in children who required mechanical ventilation, have a high risk diagnosis and dilated pupils at admission.

Key words: Pediatric index of mortality, children, PICU