VALIDATION OF THE LOD SCORE COMPARED WITH APACHE II SCORE IN PREDICTION OF THE HOSPITAL OUTCOME IN CRITICALLY ILL PATIENTS

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Abstract. The Logistic Organ Dysfunction score (LOD) is an organ dysfunction score that can predict hospital mortality. The aim of this study was to validate the performance of the LOD score compared with the Acute Physiology and Chronic Health Evaluation II (APACHE II) score in a mixed intensive care unit (ICU) at a tertiary referral university hospital in Thailand. The data were collected prospectively on consecutive ICU admissions over a 24 month period from July1, 2004 until June 30, 2006. Discrimination was evaluated by the area under the receiver operating characteristic curve (AUROC). The calibration was assessed by the Hosmer-Lemeshow goodness-of-fit H statistic. The overall fit of the model was evaluated by the Brier's score. Overall, 1,429 patients were enrolled during the study period. The mortality in the ICU was 20.9% and in the hospital was 27.9%. The median ICU and hospital lengths of stay were 3 and 18 days, respectively, for all patients. Both models showed excellent discrimination. The AUROC for the LOD and APACHE II were 0.860 [95% confidence interval (CI) =0.838-0.882] and 0.898 (95% CI=0.879-0.917), respectively. The LOD score had perfect calibration with the Hosmer-Lemeshow goodness-of-fit H chi-2=10 (p=0.44). However, the APACHE II had poor calibration with the Hosmer-Lemeshow goodness-of-fit H chi-2=75.69 (p<0.001). Brier's score showed the overall fit for both models were 0.123 (95%CI=0.107-0.141) and 0.114 (0.098-0.132) for the LOD and APACHE II, respectively. Thus, the LOD score was found to be accurate for predicting hospital mortality for general critically ill patients in Thailand.

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