Comparison of Three Predicting Morbidity Scores of Unsuccessful Cardiopulmonary Resuscitation

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Background: There are various morbidity scores available in predicting unsuccessful CPR, such as Pre-Arrest Morbidity score (PAM), Prognosis After Resuscitation score (PAR) and Modified PAM index (MPI). All of these scores have cut-off point in Caucasian population, but no cut-off point in Thai population.

Objective: This study aimed to demonstrate the performance and optimal cut-off point of predicting mortality scores at discharge; PAM, PAR and MPI among patients with cardiac arrest receiving CPR from Srinagarind Hospital.

Methods: This retrospective study analyzed all medical records and CPR record forms of all patients who had cardiac arrest and received CPR at Srinagarind Hospital from January 2013 to December 2014. The inclusion criteria were patients who were aged 18 years or older. Exclusion criteria were second or subsequent cardiac arrested during the same hospital admission and medical records were unavailable.

Results: The AUC of PAM was 0.65 (95%CI 0.56, 0.74), while MPI was 0.66 (95%CI 0.57, 0.75) and PAR was 0.6 (95%CI 0.52, 0.70), p=0.5. From subgroup analysis, the performances of three morbidity scores were statistically significant in OHCA, especially PAM and MPI scores. In OHCA subgroup, the AUC of PAM, MPI, and PAR was 0.76 (95%CI 0.58, 0.95), 0.75 (95%CI 0.56, 0.94) and 0.56 (95%CI 0.38, 0.74), respectively (p<0.04), but these scores were not statistically significant in IHCA. The cut-off point of performance of PAM and MPI score to predict dead at 7 days after discharge were 6 (49% sensitivity, 80.5% specificity) and 5 (57% sensitivity, 73.2% specificity), respectively.

Conclusion: PAM, MPI, and PAR scores are not sufficient tools to identify patients who would benefit from resuscitation attempts among Thai patients. Given their high specificities, a combination of these tools as part of a shared-decision to identify patients in whom CPR is likely to be unsuccessfully recommended.

Keywords: CPR, Cardiac arrest