ICU
MANAGEMENT & PRACTICE

RESCUE-IHCA Mortality Prediction Score for IHCA

A new study aimed to develop and validate a score to accurately predict the probability of death for adult extracorporeal cardiopulmonary resuscitation (ECPR). ECPR is widely used as a rescue technique among patients with refractory cardiac arrest and in patients with in-hospital cardiac arrest (IHCA) and out-of-hospital cardiac arrest (OHCA). ECPR has also been shown to improve survival and produce good neurological outcomes compared with conventional cardiopulmonary resuscitation. However, studies of in-patient ECPR are limited, and there is a gap in knowledge.

In this study, researchers identified 1075 adult patients from 219 centres with extracorporeal membrane oxygenation for IHCA and developed a multivariate survival prediction model and score to predict hospital death. The model was designed to be used by clinicians in real-time in patients who receive ECPR for IHCA. The primary outcome of the study was in-hospital death.

As per the findings of the study, 28% of the patients survived to discharge in both the derivation and validation cohorts. Six variables were found to be associated with in-hospital death. These included age, time of day, initial rhythm, history of renal insufficiency, patient type and duration of the cardiac arrest event. All these variables were combined to develop the Resuscitation Using ECPR During IHCA (RESCUE-IHCA) score. The score can be used to determine a patient's risk of mortality with good discrimination and calibration. The score was also externally validated in a separate cohort of patients who received ECPR for IHCA.

The analysis shows that clinicians can use the RESCUE-IHCA score in real-time to predict in-hospital death among patients with IHCA who are treated with ECPR. It enables clinicians to estimate at the bedside in real-time with a 72% accuracy, a probability of death ranging from 22 to >99%. The RESCUE-IHCA score was also comparable with other scores for both ECMO without cardiac arrest and cardiac arrest without ECMO. Many other scores require laboratory or other variables that may not be routinely available for patients with OHCA treated with ECPR, but that is not an issue with the RESCUE-IHCA score. This score can be calculated readily using the six pre- and intra-arrest variables and does not require laboratory values.

Source: JACC: Cardiovascular Interventions

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