Modified Shock Index as a Simple and Strong Predictor of In-Hospital Mace among Patients with St-Segment Elevation Myocardial Infarction

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Abstract : Background: Current risk scores of ST-segment elevation myocardial infarction (STEMI) need sophisticated algorithm and were limited for bedside use. Prompt identification of higher risk patients presenting with STEMI will allow a more aggresive strategy and approach. The aim of this study was to evaluate the modified shock index as a predictor of in-hospital major adverse cardiovascular events (MACE) in patients with STEMI.

Method : This cohort ambispective study included 74 consecutive patients with STEMI from February 2018 until September 2018 admitted to Adam Malik General Hospital. The blood pressure (BP) and heart rate (HR) measured at emergency department were used to calculate MSI (HR/mean artery pressure). Patients were divided into groups with MSI <1.3 and ≥1.3,respectively, based on the receiver operating characteristic curve analysis from previous studies. MSI and clinical variables were compared between groups of patients with in-hospital MACE with a group of patients who did not experience in-hospital MACE which are mortality, acute heart failure, cardiogenic shock, and malignant arrhythmias.

Result : Of the 74 STEMI patients in this study, 28 (37.8%) patients experienced MACE, and there were 19 (79.2%) of them who had MSI values≥ 1.3. A significant relationship was found between the modified shock index value and the incidence of acute heart failure (OR 14,857, 95% CI 4.25-51.89, p <0.001). Multivariate analysis shows that MSI ≥ 1.3 is an independent factor to predict the occurrence of MACE in this study [OR 8.34 (5.15-34.66), p=0.001].

Conclusion : The modified shock index is a simple and easy to acquire and can be an independent factor for predicting major cardiovascular events during treatment in patients with acute myocardial infarction with ST segment elevation. The simplicity of this proposed index makes its use accessible in large-scale clinical practices for risk stratification during first contact with patients.

Keyword : Modified Shock Index; MACE; STEMI; Myocardial Infarct.

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