Correlation Between TIMI Risk Index (TRI) and Arrhythmia In STEMI patients In Haji Adam Malik Hospital Medan

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Introduction: The Thrombolysis in Myocardial Infarction Risk Index (TRI) is a simple stratification using baseline age, systolic blood pressure, and heart rate to predict major adverse cardiovascular events in patients with myocardial infarction (MI). TRI formula is Heart Rate x \( \frac{\text{Age}}{10} \times \frac{2}{\text{Systolic Blood Pressure}} \). Traditionally risk stratification of acute MI patients has been carried out based on KILLIP, arrhythmia, extent of infarction, laboratory result, and other comorbid events. So, we need a simple stratification to early identification patients with myocardial infarction especially in area that does not has facility to examine MI patients. Major adverse cardiac events consists of heart failure, cardiogenic shock, arrhythmia and death. The aim of this study to know the correlation between the TRI score and the occurrence of arrhythmia as one of the major adverse cardiac events in patients with myocardial infarction during hospitalized in Haji Adam Malik Hospital.

Methods: This was a retrospective study involving 95 patients of acute coronary syndrome with ST segment elevation onset < 48 hours and without reperfusion. These patients admitted to Haji Adam Malik Hospital during January 2014 until December 2014. The following information was collected from the medical record: age, heart rate, systolic blood pressure, renal function test, full blood count, blood glucose and cardiac enzyme. The exclusion criteria of this study were the patients with heart rate < 50 bpm or > 150 bpm, systolic blood pressure < 60 mmHg or > 200 mmHg, and history of cerebrovascular disease, history of cardiac stents, and history of severe liver and renal disorders. The TRI score was divided to 5 groups, TRI < 12.5 ; TRI > 12.5 – 17.5 ; TRI > 17.5 – 22.5 ; TRI > 22.5 – 30 ; TRI > 30. We follow up the occurrence of arrhythmia as one of the major adverse cardiac events. Arrhythmia that included in this criteria were ventricular tachycardia, ventricle fibrillation, AV block, and atrial fibrillation. After follow-up, chi-square and univariate regression analysis were used to evaluate the correlation between the TRI score and the occurrence of arrhythmia as one of the major adverse cardiac events.

Result: From 95 patients, 19 patients have arrhythmia and there was a correlation between TRI > 30 and the occurrence of arrhythmia as one of the major adverse cardiac events with p value 0.029 (OR 7.5; 95% CI 1,228-45,807).

Conclusion: There was a correlation between TRI score and the occurrence of arrhythmia as one of the major adverse cardiac events and TRI > 30 could predict the occurrence of arrhythmia in myocardial infarction patients.