Correlation Between Traditional Cardiovascular Risk Factors and Complexity of Coronary Artery Lesion Determined by SYNTAX Score in Patient with ST-Elevation Myocardial Infarction

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BACKGROUND A number of traditional risk factor for atherosclerosis in determining the development of coronary artery disease (CAD) has been identified. The SYNTAX (SYnergy between percutaneous coronary intervention with TAX us and cardiac surgery) score (SS) is an angiographic tool for grading the severity and lesion complexity of CAD. SYNTAX score is based on qualitative and quantitative characterization of CAD by including angio-angiographic variables that take into consideration lesion location and characteristics. Thus far, this score has been shown to be an effective tool to risk-stratify patients with complex CAD undergoing percutaneous coronary intervention (PCI) in the landmark SYNTAX trial, as well as in other clinical settings. Correlation between cumulative traditional cardiovascular risk factors and lesion complexity of coronary artery is still remaining unclear. The aim of this study was to investigate its correlation in patient with ST-elevation myocardial infarction (STEMI) in Indonesian population.

METHODS A cross sectional study of 308 patients with STEMI who underwent PCI at Hasan Sadikin Hospital Bandung Indonesia from January 2012 to December 2013. Subjects with history of prior PCI were excluded. Clinical characteristics including age, sex, diabetes mellitus (DM) based on American Diabetes Association (ADA) criteria, hypertension based on the Joint National Committee (JNC) 7 criteria, dyslipidemia based on National Cholesterol Education Program-Adult Treatment Panel III (NCEP-ATP III) criteria, smoking cessation and family history of premature CAD, all were retrieved from medical record. SYNTAX score was calculated using online version 2.1 of SS calculator. Patients were categorized into low score (0 - 22; n =186), intermediate score (22 - 32; n = 83) and high score (> 32; n =39).

RESULTS ST-elevation myocardial infarction patient with more traditional cardiovascular risk factors have a higher complexity of coronary artery lesion. There were hypertension with coefficient regression 10.15 (95% confidence interval [CI] 8.66 - 11.64; p < 0.001), dyslipidemia, 9.72 (95% CI 6.41 - 9.43; p < 0.001), DM 7.41 (95% CI 5.52 - 9.31; p < 0.001), smoking 6.62 (95% CI 4.65 - 8.58; p < 0.001) and age 0.23 (95% CI 0.16 - 0.31; p < 0.001). In contrast, sex and family history of premature CAD did not reach statistical significance with coefficient regression 2.09 (95% CI -0.29 - 4.47; p = 0.09) and 3.61 (95% CI -2.73 - 9.95; p = 0.27).

CONCLUSION Cumulative traditional cardiovascular risk factors mainly hypertension has a positive linear correlation with complexity of coronary artery lesion, in patient with STEMI.

Keywords: SYNTAX score, coronary artery disease, traditional cardiovascular risk factor.

Prognosis of Patients with Coronary Artery Disease Treated in Different Therapy Units at Department of Cardiology

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BACKGROUND Coronary artery disease (CAD) is a major health problem in global. Benefits from Standard treatment in different care unit for various type of CAD are remained unknown.

METHODS We examined 806 patients with CAD who treated in coronary care unit (CCU) and normal unit (Normal) then divided into two groups. Each group involved two subgroups according to the diagnosis of stable angina (SA) and acute coronary syndrome (ACS). 12-48 months follow-up was proceeded to check the incidence of major adverse cardiovascular events. The primary end point was all cause mortality.

RESULTS Overall, 515 patients with CAD undergone percutaneous coronary intervention (PCI). For stable angina group, death from any cause occurred in 1.0% of the patients in the normal group (1 of 108), as compared with 5.1% in the CCU group (2 of 39) (hazard ratio, 0.164; 95% confidence interval [CI], 0.017 to 1.580; P = 0.118). The rates of revascularization were 12.0% and 13.6% in the two subgroups, respectively (hazard ratio, 0.821; 95% CI, 0.340-1.983; P = 0.662). The rates of Stroke were 4.6% and 6.8% in the two subgroups, respectively (hazard ratio, 0.636; 95% CI, 0.171-2.72; P = 0.501). The rates of heart failure were 12.0% and 13.6% in the two subgroups, respectively (hazard ratio, 0.820; 95% CI, 0.340-1.980; P = 0.659) and the rates of hemorrhage were 1.0% and 5.1% in the two subgroups, respectively (hazard ratio, 0.182; 95% CI, 0.019-1.748; P = 0.314). There were no significant differences between the two subgroups with respect to the risk of death (P = 0.074), revascularization (P = 0.497), heart failure (P = 0.658) and hemorrhage (P = 0.096) (Figure 1). For ACS group, death from any cause occurred in 1.9% of the patients in the normal subgroup (5 of 267), as compared with 1.3% in the CCU subgroup (5 of 372) (hazard ratio, 1.403; 95% confidence interval [CI], 0.406-4.846; P = 0.593). The rates of revascularization were 22.8% and 22.6% in the two subgroups, respectively (hazard ratio, 0.999; 95% CI, 0.719-1.390; P = 0.996). The rates of Stroke were 4.1% and 3.0% in the two subgroups, respectively (hazard ratio, 1.402; 95% CI, 0.608-3.253; P = 0.428). The rates of heart failure were 9.7% and 8.6% in the two subgroups, respectively (hazard ratio, 1.137; 95% CI, 0.678-1.908; P = 0.626) and the rates of hemorrhage were 0 and 0.8% in the two subgroups, respectively. There were no significant differences between the two subgroups with respect to the risk of death (P = 0.590), revascularization (P = 0.996), stroke (P = 0.425), heart failure (P = 0.625) (Figure 2).

CONCLUSION Patients with acute coronary syndrome (ACS) treated in CCU obtain little benefits than in normal yards, although the risk of MACEs reduced. No clinical benefits were observed for SA patients treated in CCU and even elevated rate of MACEs was revealed.