ABSTRACT

EFFECT OF ACE INHIBITORS AND β-BLOCKERS COMBINATION THERAPY ON sST2 LEVEL IN PATIENT WITH ACUTE MYOCARDIAL INFARCTION

BACKGROUND: Suppression of Tumorigenicity (ST2) is a receptor for interleukin-33 (IL-33), excreted by living cell as a response to cellular damage due to mechanical stretch cardiomyocytes. Identification of this cardiomark can be a sign of worsening clinical condition or as a prognostic and therapy evaluation factor in acute myocardial infarction (AMI) patients. Basic management in AMI is with balancing oxygen supply and demand. Combination therapy of ACE-Inhibitors and β-blockers work on modulating pathophysiology-related neurohormonal system and sympathetic activity, as a consequence, the combination therapy will be able to lowered sST2 concentration in AMI. In Dr. Soetomo Teaching Hospital, combination therapy is frequently prescribed for inpatients.

OBJECTIVES: to analyze the change of sST2 concentration after ACE-Inhibitors and β-blockers combination therapy in acute myocardial infarction inpatients in Dr. Soetomo Teaching Hospital.

METHODS: this was a prospective observational study. Conducted in ICCU and Cardiovascular ward of Dr. Soetomo Teaching Hospital from July-December 2017. Blood samples from patients who met inclusion criteria were extracted before combination therapy as baseline and on the fourth day as post. sST2 were measured using Quantikine® ELISA: Human ST2/IL-33 R Immunoassay. This kit was using quantitative sandwich enzyme immunoassay techniqu.

RESULTS: Total of 12 patients were included (11 male). After combination therapy, means of sST2 pre and sST2 post were significantly decreased, 492.7 ± 472.2 ng/mL to 46.9 ± 45.8 ng/mL (p<0.05). 15.5% decrease from baseline concentration showed clinically significant improvement in physiology condition. sST2 concentration lower than cut off 35 ng/mL showed better prognosis, three times lower in 30-days mortality. From 12 patients, sST2 concentration of 11 patients declined >15.5% (69.5%-98%) and there was 9 patients achieved concentration lower than cut off point.

CONCLUSION: There was a significant decrease in sST2 cencentration after ACE-Inhibitors and β-blockers combination therapy in AMI patients.

KEYWORDS: sST2; Acute Myocardial Infarction; STEMI; ACE-inhibitors, β-blockers