

## INTISARI

### HUBUNGAN KADAR *SOLUBLE SUPPRESSION OF TUMORIGENICITY 2* (sST2) DENGAN *STRAIN* VENTRIKEL KIRI PADA PASIEN INFARK MIOKARD AKUT

**Latar Belakang:** Data epidemiologi menyatakan angka kejadian gagal jantung pasca infark miokard sebesar 20%. Kejadian gagal jantung pasca infark miokard akut juga diketahui meningkatkan mortalitas pasca infark. Kejadian gagal jantung berkaitan dengan proses *remodeling* pasca infark miokard akut. Proses remodeling akut pasca infark miokard akut melibatkan mekanisme mekanik dimana terjadi perubahan geometri ventrikel kiri sebagai respon adaptif terhadap kejadian infark dan kemudian mengakibatkan peningkatan stres dinding ventrikel kiri. Peningkatan stress dinding ventrikel kiri dapat dinilai dengan pengukuran *global longitudinal strain* (GLS) menggunakan ekokardiografi, yang menggambarkan *strain* ventrikel kiri. Di sisi lain, overload mekanik pada miokardium diketahui menyebabkan peningkatan kadar sST2. Hubungan peningkatan kadar sST2 dengan nilai GLS ventrikel kiri pada pasien infark miokard akut belum pernah diteliti sebelumnya.

**Metode Penelitian:** Penelitian ini adalah studi observasional analitik dengan desain potong lintang yang dilakukan sejak Juli – September 2018 di RSUP Dr. Sardjito. Pasien yang terdiagnosis infark miokard akut dan memenuhi kriteria inklusi dan eksklusi dimasukkan ke dalam penelitian. Pengukuran kadar sST2 dan pemeriksaan ekokardiografi dilakukan pada hari pertama setelah admisi. Analisis uji korelasi dilakukan untuk mengetahui hubungan kadar sST2 dengan GLS ventrikel kiri.

**Hasil:** Didapatkan sampel sebanyak 72 subjek, dengan 62 subjek STEMI dan 10 subjek NSTEMI. Rerata kadar sST2 pada penelitian ini didapatkan  $4.252 \pm 198$  pg/mL. Pengukuran fungsi ventrikel kiri didapatkan rerata fraksi ejeksi  $47 \pm 9\%$ , LVIDd  $45,79 \pm 6,2$  mm, dan nilai GLS sebesar  $-9,3 \pm 3,3\%$ . Uji korelasi menggunakan uji *Spearman* didapatkan tidak ada hubungan antara peningkatan kadar sST2 dengan penurunan nilai GLS pada pasien infark miokard akut ( $r = -0,133$ ;  $p = 0,344$ ).

**Simpulan:** Peningkatan kadar sST2 tidak berhubungan dengan peningkatan *strain* ventrikel kiri pada pasien infark miokard akut.

**Kata Kunci:** *soluble suppression of tumorigenicity 2*, sST2, *global longitudinal strain*, infark miokard akut

## ABSTRACT

### Correlation Between Levels of Soluble Suppression of Tumorigenicity 2 (sST2) and Left Ventricle Strain In Acute Myocardial Infarction

**Background:** Epidemiological data shows that the incidence of heart failure after myocardial infarction is about 20%. The incidence of heart failure after acute myocardial infarction is also known to increase post-infarct mortality. The incidence of heart failure is related to the remodeling process after acute myocardial infarction. The acute remodeling process after acute myocardial infarction involves a mechanical mechanism in which there is a change in left ventricular geometry as an adaptive response to the incidence of infarction and then results in increased left ventricular wall stress. Increased left ventricular wall stress can be assessed by measuring global longitudinal strain (GLS) using echocardiography, which can also measure left ventricular strain. On the other hand, mechanical overload in the myocardium is known to increase sST2 levels. The relationship between increased levels of sST2 and left ventricular GLS in patients with acute myocardial infarction has never been studied before.

**Methods:** An analytic observational study with a cross-sectional design conducted from July to September 2018 at Dr. Sardjito Hospital. Patients diagnosed with acute myocardial infarction and fulfilling the inclusion and exclusion criteria were included in the study. Measurement of sST2 levels and echocardiographic examination was performed on the first day after admission. Correlation test analysis was conducted to determine the relationship between sST2 levels and left ventricular GLS.

**Results:** There were 72 subjects, with 62 STEMI subjects and 10 NSTEMI subjects. The mean level of sST2 in this study was  $4,252 \pm 198$  pg / mL. Measurement of left ventricular function obtained a mean ejection fraction of  $47 \pm 9\%$ , LVIDd  $45.79 \pm 6.2$  mm, and GLS values of  $-9.3 \pm 3.3\%$ . Correlation test using Spearman test showed that there was no correlation between increased sST2 levels and decreased GLS values in patients with acute myocardial infarction ( $r = -0.133$ ;  $p = 0.344$ ).

**Conclusion:** Increased sST2 levels were not associated with increased left ventricle strain in patients with acute myocardial infarction.

**Keyword:** *soluble suppression of tumorigenicity 2, sST2, global longitudinal strain, acute myocardial infarct*