

INTISARI

Hubungan Antara Kadar ST2 Serum dengan Gula Darah Admisi pada Pasien Infark Miokard Akut dengan Elevasi Segmen – ST

Latar belakang: Saat ini *soluble Suppression of Tumorigenicity 2* (sST2) muncul sebagai biomarker baru yang dikeluarkan oleh kardiomyosit dan fibroblas jantung akibat adanya regangan mekanik miokard, fibrosis dan *remodeling* pada jantung. sST2 adalah bagian dari keluarga reseptor interleukin-1 (IL-1) yang kadarnya meningkat saat terjadi infark miokard. Hiperglikemi saat admisi merupakan kondisi yang sering ditemukan pada IMA-EST. Pasien IMA-EST yang mengalami hiperglikemi saat admisi memiliki mortalitas dan morbiditas yang tinggi. Belum ada penelitian yang secara langsung meneliti hubungan kadar sST2 dengan gula darah admisi pada IMA-EST, sehingga diperlukan penelitian lebih lanjut mengenai hal tersebut.

Tujuan: Untuk mengetahui apakah terdapat hubungan antara kadar sST2 serum dengan gula darah admisi pada pasien IMA-EST.

Metode: Penelitian ini merupakan penelitian observasional dengan desain potong-lintang. Data diambil dari *registry* tesis Hartopo *et al.* (2016). Sampel serum untuk pengukuran kadar sST2 diambil saat admisi pasien di IRD RSUP Dr. Sardjito Yogyakarta dan diukur menggunakan ELISA kit (*human ST2 R&D system*). Kadar sST2 dibagi menjadi dua kelompok, yaitu sST2 supramedian dan inframedian. Kadar gula darah admisi dibagi menjadi dua kelompok, yaitu tinggi (kadar gula $>200\text{mg/dl}$) dan tidak tinggi (kadar gula $\leq 200\text{mg/dl}$). Analisis hubungan kadar sST2 dan gula darah admisi menggunakan uji *Chi-square*, dengan nilai kemaknaan $p < 0,05$.

Hasil: Penelitian ini melibatkan 104 subjek. Nilai median dan minimum–maksimum kadar sST2 adalah 763,43 (pg/dl) dan 322,9–1006,21 (pg/dl). Dari nilai median tersebut diperoleh subjek sST2 supramedian sebanyak 51 dan inframedian sebanyak 53. Pada analisis kadar gula darah admisi diperoleh 21 subjek pada kelompok tinggi dan 83 pada kelompok tidak tinggi. Hasil analisis statistik menunjukkan hubungan tidak signifikan antara kadar sST2 dengan gula darah admisi ($p=0,917$) dengan rasio prevalensi 0,882 (IK 95%=0,414 – 0,606).

Kesimpulan: Kadar sST2 serum tidak berhubungan dengan kadar gula darah admisi pada pasien IMA-EST.

Kata kunci: sST2 serum, hiperglikemi, gula darah admisi, infark miokard, IMA-EST

ABSTRACT

Association of Serum Soluble ST2 with Admission Blood Glucose Levels in Patient with ST-segment Elevation Myocardial Infarction

Background: Nowadays, soluble Suppression of Tumorigenicity 2 (sST2) appears as new biomarker released by cardiomyocytes and cardiac fibroblasts due to the presence of mechanical myocardial strain, fibrosis and remodeling of the heart. sST2 is part of the family of interleukin-1 (IL-1) receptors whose levels increase when myocardial infarction occurs. Hyperglycemia on admission is a condition that often found in ST-segment elevation myocardial infarction (STEMI). Hyperglycemic condition in STEMI patients have high mortality and morbidity. No studies have directly examined the association of sST2 and admission blood glucose levels in STEMI patients, so further research is needed.

Aim: To determine the association of sST2 and admission blood glucose levels in patients with STEMI.

Method: This study is an observational study with cross-sectional design. Data was collected from thesis registry by Hartopo *et al.* (2016). Serum sample for measuring sST2 level was collected on admission patient in emergency unit RSUP Dr. Sardjito Yogyakarta and measured using ELISA kit (*human ST2 R&D system*). sST2 level was divided into two groups, sST2 supramedian and inframedian. Admission blood glucose level was divided into two groups, high (glucose level $>200\text{mg/dl}$) and not high (glucose level $\leq 200\text{mg/dl}$). Analysis relationship between serum levels of sST2 and admission blood glucose using Chi-square test, with p-value $<0,05$ regarded as significant.

Results: 104 subjects were involved. Median and minimum – maximum level of sST2 was 763,43 (pg/dl) and 322,9–1006,21 (pg/dl). From the median value, there were 51 supramedian and 53 inframedian subjects. Analysis on admission blood glucose levels, there were 21 subjects in high group and 83 subjects in non-high group. The result of statistical analysis showed an insignificant relationship between sST2 levels with admission blood glucose levels ($p=0,917$) with a prevalence ratio 0,882 (95% CI=0,414 – 0,606).

Conclusion: Serum level of sST2 is not significantly associated with admission blood glucose in patients with STEMI.

Keywords: sST2, hyperglycemia, admission blood glucose, myocardial infarction, STEMI