

**Hubungan *Systemic Immune-Inflammation Index* dengan
Fungsi Ventrikel Kiri dan Kejadian Kardiovaskular Mayor Jangka Pendek Pada
Pasien Infark Miokard Akut dengan Elevasi Segmen ST yang Dilakukan
Intervensi Koroner Perkutan Primer**

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ABSTRAK

Latar Belakang : Infark Miokard Akut dengan Elevasi Segmen ST (IMA-EST) mengaktifkan respon inflamasi yang dapat menyebabkan efek merugikan. Intervensi koroner perkutan primer (IKPP) sebagai terapi pilihan utama tidak langsung menghentikan proses inflamasi. Identifikasi pasien berisiko tinggi melalui marker inflamasi pada fase akut diharapkan dapat menjadi perhatian mengenai kemungkinan kejadian kardiovaskular yang merugikan setelah IMA-EST. Systemic Immune-Inflammation Index (SII) merupakan penanda inflamasi yang dapat menilai status inflamasi sistemik pada pasien dengan penyakit jantung.

Tujuan : Mengetahui apakah systemic immune inflammation index memiliki hubungan dengan fungsi ventrikel kiri dan kejadian kardiovaskular mayor pada pasien IMA-EST yang dilakukan IKPP.

Metode : Pasien IMA-EST onset <12 jam untuk pertama kali diambil secara konsekutif. Dilakukan pengambilan sampel darah saat pasien tiba di IGD. Penilaian LVEF dan GLS dengan menggunakan pemeriksaan ekokardiografi dilakukan selama perawatan di rumah sakit dan diulang 1 bulan kemudian.

Hasil : Empat puluh sembilan pasien (usia rata-rata: 55±5 tahun) terdiri dari 32 orang laki-laki. Dilakukan uji korelasi dan didapatkan hubungan bermakna antara nilai SII dan LVEF *in hospital* ($p = <0,001$; $r = -0,529$) dan rawat jalan ($p = 0,048$; $r = -0,300$) dan antara SII dan GLS *in hospital* ($p = 0,014$; $r = 0,347$) dan rawat jalan ($p = 0,024$; $r = 0,340$). Terdapat asosiasi antara SII berdasarkan KKvM ($p=0,002$). Kurva receiver operating characteristic (ROC) menunjukkan dan KKvM dengan *cutoff* 1932,5 (OR (IK95%) 6,25 (1,59 – 24,65)).

Kesimpulan: SII berkorelasi dengan penurunan fungsi ventrikel kiri dan memiliki asosiasi dengan kejadian kardiovaskular mayor jangka pendek. SII>1932,5 mungkin meningkatkan peluang kejadian KKvM 6,25 kali lebih besar.

Kata kunci : Systemic immune-inflammation index (SII), infark miokard akut dengan elevasi segmen ST (IMA-EST), Kejadian kardiovaskular Mayor (KKvM), Fungsi ventrikel kiri

The Relationship Between Systemic Immune-Inflammation Index with Left Ventricular Function and Short-Term Major Cardiovascular Events in Patients with Acute ST-Elevation Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention

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ABSTRACT

Background: Acute Myocardial Infarction with ST-Segment Elevation (STEMI) triggers an inflammatory response that can lead to adverse effects. Primary percutaneous coronary intervention (PPCI) as the main treatment option does not directly halt the inflammatory process. Identifying high-risk patients through inflammatory markers during the acute phase is expected to provide insights into the potential for adverse cardiovascular events following STEMI. The Systemic Immune-Inflammation Index (SII) is an inflammatory marker that can assess systemic inflammatory status in patients with heart disease.

Objective: To determine whether the systemic immune inflammation index is associated with left ventricular function and major cardiovascular events in STEMI patients undergoing PPCI.

Methods: Consecutive first-time STEMI patients with an onset of fewer than 12 hours were enrolled. Blood samples were taken upon arrival at the emergency department. LVEF and GLS assessments using echocardiography were performed during hospitalization and repeated one month later.

Results: Forty-nine patients (mean age: 55 ± 5 years) consisting of 32 males were included. Correlation tests revealed a significant relationship between SII and in-hospital LVEF ($p < 0.001$; $r = -0.529$) and outpatient LVEF ($p = 0.048$; $r = -0.300$), as well as between SII and in-hospital GLS ($p = 0.014$; $r = 0.347$) and outpatient GLS ($p = 0.024$; $r = 0.340$). There was an association between SII and MACE ($p=0.002$). The receiver operating characteristic (ROC) curve analysis indicated a cutoff value of 1932.5 for SII and MACE (OR (95% CI) 6.25 (1.59 – 24.65)).

Conclusion: SII correlates with reduced left ventricular function and is associated with short-term major cardiovascular events. An $SII > 1932.5$ may increase the likelihood of MACE by 6.25 times.

Keywords: Systemic immune-inflammation index (SII), ST-Elevation Myocardial Infarction (STEMI), Major Adverse Cardiovascular Events (MACE), Left ventricular function