



UNIVERSITAS ANDALAS

**HEPARANASE SEBAGAI PREDIKTOR *LARGE THROMBUS BURDEN*
PADA PASIEN INFARK MIOKARD AKUT DENGAN ELEVASI
SEGMENT ST YANG DILAKUKAN INTERVENSI KORONER
PERKUTAN PRIMER**

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**PROGRAM STUDI PENDIDIKAN PROFESI DOKTER SPESIALIS-1
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RSUP DR M. DJAMIL**

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ABSTRAK

Nama : Nia Kasmia
Program Studi : Ilmu Penyakit Jantung dan Pembuluh Darah
Judul : Heparanase sebagai Prediktor *Large Thrombus Burden* pada Pasien Infark Miokard Akut dengan Elevasi Segmen ST yang Dilakukan Intervensi Koroner Perkutan Primer

Latar Belakang: Heparanase merupakan β -D-*endoglucuronidase* yang mendegradasi heparan sulfat. Heparanase sangat terkait dalam pembentukan dan perkembangan aterosklerosis dan trombosis. Infark miokard akut dengan elevasi segmen ST terjadi akibat pecahnya plak aterosklerosis yang mengaktifkan kaskade koagulasi sehingga terbentuk trombus yang dapat menyumbat lumen pembuluh darah koroner. Derajat *thrombus burden* yang tinggi berhubungan dengan meningkatnya angka kejadian kardiovaskular mayor. Tujuan penelitian ini adalah untuk mengetahui kadar heparanase dalam memprediksi *large thrombus burden* pada pasien IMA-EST yang menjalani IKPP.

Metode Penelitian: Penelitian ini merupakan penelitian analitik *cross-sectional* terhadap 69 pasien Infark Miokard Akut dengan Elevasi Segmen ST (IMA-EST) yang menjalani Intervensi Koroner Perkutan Primer (IKPP) sejak bulan September-Desember 2021. Pada saat dilakukan angiografi koroner, sampel darah intrakoroner diambil setelah kateter *guiding* masuk ke *infarct related artery* (IRA), namun sebelum pemberian heparin. Kadar heparanase diperiksa dengan menggunakan ELISA kit. Penilaian derajat *thrombus burden* dilakukan saat angiografi koroner. Untuk mengetahui kadar heparanase dalam memprediksi *large thrombus burden*, dilakukan uji normalitas kemudian dilakukan uji bivariat nonparametrik dengan Mann-Whitney test, dilanjutkan dengan analisis diagnostik untuk melihat nilai *cut-off point* kadar heparanase dengan prosedur *receiver operating curve* (ROC).

Hasil Penelitian : Pasien dibagi ke dalam dua kelompok; *large thrombus burden* (n=53) dan *small thrombus burden* (n=16). Kadar heparanase lebih tinggi secara signifikan pada kelompok *large thrombus burden* dibandingkan dengan kelompok *small thrombus burden* [0,90 (0,58-12,45) ng/ml vs 1,18 (0,87-19,62) ng/ml, p <0.001]. Nilai *cut-off point* kadar heparanase 0,98 ng/ml sebagai prediktor *large thrombus burden* pada pasien IMA-EST dengan sensitivitas 89% dan spesifisitas 88%.

Kesimpulan: Kadar heparanase dapat dijadikan prediktor *large thrombus burden* pada pasien IMA-EST.

Kata kunci: heparanase, *thrombus burden*, infark miokard akut dengan elevasi segmen ST

ABSTRACT

Name : Nia Kasmiati
Study Program : Cardiology and Vascular Medicine
Title : Heparanase as a Predictor of Large Thrombus Burden in Patients with Acute ST Elevation Myocardial Infarction Underwent Primary Percutaneous Coronary Intervention.

Background : Heparanase is β -D-endoglucuronidase which degrades heparan sulfate. Heparanase is strongly involved in the formation and development of atherosclerosis and thrombosis. ST elevation myocardial infarction (STEMI) caused by the rupture of an atherosclerotic plaque that activates the coagulation cascade, resulting in the formation of thrombus which is obstruct the lumen of coronary blood vessels. Large thrombus burden is associated with an increased rate of major cardiovascular events. The purpose of this study was to determine the level of heparanase in predicting large thrombus burden in patients with STEMI undergoing Primary Percutaneous Coronary Intervention (PPCI).

Study Method : This was a cross-sectional study enrolled 69 patients with STEMI underwent PPCI from September to December 2021. At the time of coronary angiography, intracoronary blood samples were taken after the guiding catheter was inserted into the infarct related artery (IRA), prior to heparin administration. Heparanase levels were checked using an ELISA kit. The degree of thrombus burden was assessed during coronary angiography. To determine the level of heparanase in predicting the large thrombus burden, a normality test was performed and then a nonparametric bivariate test was performed with the Mann-Whitney test, followed by a diagnostic analysis to see the cut-off point of heparanase levels using the receiver operating curve (ROC) procedure.

Study Result : Heparanase levels were significantly higher in patients with large thrombus burden than in those small thrombus burden [0,90 (0,58-12,45) ng/ml vs 1,18 (0,87-19,62) ng/ml, $p < 0.001$]. The cut-off point of heparanase levels was 0.98 ng/ml as a predictor of large thrombus burden in patients with STEMI with a sensitivity of 89% and specificity of 88%.

Conclusion : Heparanase levels can be used as a predictor of large thrombus burden in patients with STEMI.

Keyword: heparanase, thrombus burden, ST-segment elevation myocardial infarction

