



UNIVERSITAS ANDALAS

**KORELASI KADAR ENDOTHELIAL NITRIC OXYDE SYNTHASE
DENGAN LAJU FILTRASI GLOMERULUS PADA PASIEN INFARK
MIOKARD AKUT ELEVASI SEGMENT
SAAT ADMISI**

TESIS

**Diajukan Sebagai Salah Satu Syarat Memperoleh Gelar
Spesialis Ilmu Penyakit Jantung dan Pembuluh Darah**

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2023

ABSTRAK

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Judul : Korelasi kadar endothelial nitric oxide synthase dengan laju filtrasi glomerulus pada pasien infark miokard akut elevasi segmen-ST saat admisi

Latar belakang: Disfungsi endotel merupakan pemicu utama yang mengganggu tonus vaskular dan mengaktifkan faktor pro-inflamasi, proliferasi, dan prokoagulasi. Penurunan fungsi endotel tercermin dari penurunan kadar nitric oxide (NO) yang dihasilkan oleh NO sintase. Salah satunya, endothelial nitric oxide synthase (eNOS), menyumbang NO terbesar. Penurunan fungsi eNOS saat IMA-EST memperbesar risiko luaran yang buruk dari nilai laju filtrasi glomerulus (LFG) saat admisi.

Metode Penelitian: Penelitian ini adalah penelitian analitik potong lintang terhadap pasien IMA – EST yang menjalani pemeriksaan kadar eNOS dan nilai LFG dinilai darah vena yang diperiksa di laboratorium biomedik FK UNAND pada Instalasi Pusat Jantung RSUP M. Djamil Padang dari bulan Juli – Agustus 2023. Dilakukan analisa statistik yang mencakup uji normalitas, uji korelasi Spearman dan analisis regresi linear.

Hasil Penelitian: Berdasarkan analisis statistik, didapatkan nilai median kadar eNOS 37,05 pg/ml (17,00 pg/ml - 121,95 pg/ml) pada pasien IMA – EST saat admisi. Uji normalitas dengan Kolmogorov – Smirnov menunjukkan data eNOS terdistribusi tidak normal, dan uji korelasi Spearman menunjukkan nilai koefisien korelasi $\rho = 0,486$ ($p = 0,002$). Hasil regresi linear R^2 sebesar 0.184 berarti LFG mampu memprediksi kadar eNOS sebesar 18,4% dan sebanyak 81,6% diterangkan oleh faktor-faktor selain LFG. Persamaan regresi yang diperoleh untuk memprediksi kadar eNOS adalah $Y = 17,811 + 0,454X$.

Kesimpulan: Penurunan kadar eNOS berkorelasi positif sedang terhadap penurunan LFG pada pasien IMA – EST saat admisi.

Kata kunci: IMA-EST, STEMI, eNOS, LFG

ABSTRACT

Name : Giovanni Rachmanda Maulana
Study Program: Cardiovascular Specialist Program
Title : Correlation between endothelial nitric oxide synthase levels and glomerular filtration rate in patients with ST-segment elevation acute myocardial infarction upon admission

Background: Endothelial dysfunction served as a primary trigger that disrupted vascular tone and activated pro-inflammatory, proliferative, and pro-coagulative factors. Impaired endothelial function was reflected in the reduction of nitric oxide (NO) levels produced by NO synthase. Among these, endothelial nitric oxide synthase (eNOS) contributed the most to NO production. The decrease in eNOS function during ST-segment elevation acute myocardial infarction (STEMI) magnified the risk of adverse outcomes related to glomerular filtration rate (GFR) upon admission.

Method: This cross-sectional analytical study involved STEMI patients undergoing eNOS level assessments and GFR evaluations through venous blood samples taken at the Biomedical Laboratory of FK UNAND at the M. Djamil Padang Central Cardiac Installation from July to August 2023. Statistical analysis was performed, including normality tests, Spearman correlation test and linear regression analysis.

Results: Based on the statistical analysis, a median eNOS level of 37,05 pg/ml (17,00 pg/ml – 121,95 pg/ml) was obtained in patients with STEMI upon admission. The normality test using the Kolmogorov-Smirnov test showed that the eNOS data was not normally distributed, and the Spearman correlation test showed a correlation coefficient value of $\rho = 0,486$ ($p = 0,002$). The linear regression obtained an R^2 value of 0,184, indicating that GFR could predict eNOS levels by 18,4%, while 81,6% was explained by factors other than GFR. The regression equation obtained to predict eNOS levels was $Y = 17,811 + 0,454X$.

Conclusion: A moderate positive correlation was observed between decreased eNOS levels and reduced GFR in STEMI patients at admission.

Key word: STEMI, eNOS, GFR

