

**PERBEDAAN KADAR ASAM URAT DAN ASYMMETRIC
DIMETHYLARGININE SERUM SEBELUM DAN SESUDAH
PENGUNAAN STATIN *HIGH INTENSITY* PADA PASIEN CORONARY
ARTERY DISEASE**



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ABSTRACT

THE DIFFERENCE IN SERUM URIC ACID AND ASYMMETRIC DIMETHYLARGININE LEVELS BEFORE AND AFTER HIGH-INTENSITY STATIN THERAPY IN PATIENTS WITH CORONARY ARTERY DISEASE

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Introduction : Coronary artery disease (CAD) remains the leading cause of cardiovascular mortality worldwide. Uric acid and asymmetric dimethylarginine (ADMA) have been identified as independent cardiovascular risk biomarkers that contribute to atherosclerosis pathogenesis through endothelial dysfunction and oxidative stress induction. High-intensity statins, beyond their cholesterol-lowering effects, possess pleiotropic properties that may influence these biomarker levels.

Methods: An analytical study with one-group pretest-posttest design was conducted on 26 CAD patients at Dr. M. Djamil General Hospital, Padang, from January to March 2025. Subjects were selected through consecutive sampling based on inclusion and exclusion criteria. Serum uric acid and ADMA levels were measured before and after 12 weeks of atorvastatin 40 mg administration. Statistical analysis was performed using paired t-test with significance level set at $p < 0.05$.

Results: Subject characteristics showed male predominance (65.4%), mean age of 58 years, and average BMI of 23.1 kg/m². Serum uric acid levels decreased significantly from 6.08±1.16 mg/dL to 4.94±1.06 mg/dL ($p < 0.001$). ADMA levels decreased significantly from 278.62±120.85 ng/mL to 190.94±101.73 ng/mL ($p = 0.002$) after 12 weeks of atorvastatin 40 mg therapy.

Conclusion: High-intensity statin therapy for 12 weeks effectively reduces serum uric acid and ADMA levels significantly in CAD patients. These findings support the pleiotropic role of statins in modifying cardiovascular risk biomarkers beyond lipid-lowering effects, potentially providing additional benefits in preventing atherosclerosis progression.

Keywords : uric acid, ADMA, high-intensity statin, coronary artery disease, atorvastatin

ABSTRAK

PERBEDAAN KADAR ASAM URAT DAN ASYMMETRIC DIMETHYLARGININE SERUM SEBELUM DAN SESUDAH PENGGUNAAN STATIN *HIGH INTENSITY* PADA PASIEN CORONARY ARTERY DISEASE

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Latar Belakang: Penyakit arteri koroner (CAD) merupakan penyebab utama mortalitas kardiovaskular di seluruh dunia. Asam urat dan asymmetric dimethylarginine (ADMA) telah diidentifikasi sebagai biomarker risiko kardiovaskular independen yang berperan dalam patogenesis aterosklerosis melalui induksi disfungsi endotel dan stres oksidatif. Statin intensitas tinggi, selain efek penurunan kolesterol, memiliki efek pleiotropik yang berpotensi memengaruhi kadar kedua biomarker tersebut.

Metode: Penelitian analitik dengan desain *one group pretest-posttest* dilakukan terhadap 26 pasien CAD di RSUP Dr. M. Djamil Padang periode Januari-Maret 2025. Subjek penelitian dipilih secara *consecutive sampling* berdasarkan kriteria inklusi dan eksklusi. Kadar asam urat dan ADMA serum diukur sebelum dan setelah 12 minggu pemberian atorvastatin 40 mg. Analisis statistik menggunakan uji t berpasangan dengan tingkat kemaknaan $p < 0,05$.

Hasil: Karakteristik subjek menunjukkan dominasi laki-laki (65,4%), rerata usia 58 tahun, dan IMT rata-rata 23,1 kg/m². Kadar asam urat serum menurun signifikan dari 6,08±1,16 mg/dL menjadi 4,94±1,06 mg/dL ($p < 0,001$). Kadar ADMA menurun signifikan dari 278,62±120,85 ng/mL menjadi 190,94±101,73 ng/mL ($p = 0,002$) setelah 12 minggu terapi atorvastatin 40 mg.

Kesimpulan: Pemberian statin intensitas tinggi selama 12 minggu efektif menurunkan kadar asam urat dan ADMA serum secara signifikan pada pasien CAD. Temuan ini mendukung peran pleiotropik statin dalam modifikasi biomarker risiko kardiovaskular di luar efek penurunan lipid, yang berpotensi memberikan manfaat tambahan dalam pencegahan progresivitas aterosklerosis.

Kata kunci: asam urat, ADMA, statin intensitas tinggi, penyakit arteri koroner, atorvastatin

