

ABSTRACT

THE RELATIONSHIP BETWEEN MEAN PLATELET VOLUME AND SEVERITY OF ATHEROSCLEROSIS IN PATIENTS UNDERGO ELECTIVE CORONARY ANGIOGRAPHY

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Background: Platelets have been recognized as contributors in the pathogenesis of coronary artery disease (CAD). Platelet volume is a marker of platelet reactivity and function, and is measured using mean platelet volume (MPV).

Objective: This study aims to assess the relationship between MPV and the severity of coronary artery lesions in patients undergoing elective coronary angiography at RSUP Dr. Sardjito Yogyakarta.

Method: Research design of this study was an observational analytic study with cross-sectional design plan on 145 subjects who undergo elective coronary angiography. This study uses secondary data from earlier studies. The MPV value was obtained from a complete blood count using a hematology analyzer device. The severity of coronary artery lesions was assessed using a Gensini Score (GS). Confounding variables in the form of age, gender, hypertension, diabetes mellitus, dyslipidemia, and obesity were obtained from anamnesis result and interviews. The relationship between these variables and the severity of coronary artery lesions were analyzed using the Chi-square test and the One Way Anova test.

Result : From 145 study subjects, 67.6% were <60 years old, 82.1% were male, which 27.6% had diabetes, 52.4% had dyslipidemia, 65.5% had hypertension and 47.5% had Obesity. Based on the Gensini Score, there were 93 people (64.1%) subjects with severe CAD (GS> 40), 19 people (13.1%) subjects with moderate CAD (GS: 21-40), and 33 people (22.8%) subjects with mild CAD. There were 128 people (88.3%) subjects with high MPV (> 8.85 fL) and 17 people (11.7%) subjects with low MPV (≤ 8.85 fL). The mean of MPV value was 9.94 ± 1.35 fL in the severe CAD group, 10.17 ± 1.87 fL in the moderate CAD group, and 9.73 ± 1.45 fL in the mild CAD group. Based on the analysis with the Chi-Square test ($p= 0.861$) and the One Way Anova test ($p= 0.552$), the results were not statistically significant.

Conclusion: There was no significant relationship between MPV and the severity of coronary artery lesions at RSUP Dr. Sardjito Yogyakarta.

Keyword (s): Coronary Artery Disease; Atherosclerosis; Mean Platelet Volume; Coronary Angiography

INTISARI

HUBUNGAN ANTARA *MEAN PLATELET VOLUME* DENGAN KEPARAHAN LESI ARTERI KORONER PADA PASIEN YANG MENJALANI ANGIOGRAFI KORONER ELEKTIF

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Latar Belakang: Platelet telah dikenal sebagai kontributor dalam patogenesis dari penyakit jantung koroner (PJK). Volume platelet merupakan penanda reaktivitas dan fungsi platelet, dan diukur menggunakan *mean platelet volume* (MPV).

Tujuan: Penelitian ini bertujuan untuk menilai hubungan MPV dengan derajat keparahan lesi arteri koroner pada pasien yang menjalani angiografi koroner elektif di RSUP Dr. Sardjito Yogyakarta.

Metode: Desain penelitian ini adalah analitik observasional dengan rancangan potong lintang pada 145 subjek yang menjalani angiografi koroner elektif. Penelitian ini menggunakan data sekunder dari penelitian sebelumnya. Nilai MPV didapatkan dari pemeriksaan darah lengkap menggunakan alat *hematology analyzer*. Derajat keparahan lesi arteri koroner dinilai menggunakan *Gensini score* (GS). Variabel pengganggu berupa usia, jenis kelamin, hipertensi, diabetes melitus, dislipidemia, dan obesitas didapatkan dari hasil anamnesis dan wawancara. Hubungan variabel-variabel tersebut dengan keparahan lesi arteri koroner dianalisis menggunakan uji *Chi-square* dan uji *One Way Anova*.

Hasil: Dari 145 subjek penelitian, 67,6% berusia <60 tahun, 82,1% adalah laki-laki, dimana 27,6 % menderita diabetes, 52,4% menderita dislipidemia, 65,5% menderita hipertensi dan 47,5% menderita obesitas. Berdasarkan skor Gensini, subjek dengan PJK Berat (GS>40) sebanyak 93 orang (64,1%), PJK Sedang (GS: 21-40) sebanyak 19 orang (13,1%), dan PJK Ringan (GS<20) sebanyak 33 orang (22,8%). Subjek dengan MPV Tinggi (>8,85 fL) yaitu sebanyak 128 orang (88,3%) dan MPV Rendah ($\leq$ 8,85 fL) sebanyak 17 orang (11,7%). Nilai rerata MPV adalah $9,94 \pm 1,35$ fL pada kelompok PJK Berat, $10,17 \pm 1,87$ fL pada kelompok PJK Sedang, dan $9,73 \pm 1,45$ fL pada kelompok PJK Ringan. Berdasarkan analisis dengan uji *Chi-Square* ($p=0,861$) dan uji *One Way Anova* ($p=0,552$) didapatkan hasil yang tidak signifikan secara statistik.

Kesimpulan: Tidak terdapat hubungan yang bermakna antara MPV dengan keparahan lesi arteri koroner di RSUP Dr. Sardjito Yogyakarta.

Kata Kunci: Penyakit jantung koroner; Aterosklerosis; *Mean platelet volume*; Angiografi koroner.