

NILAI MEAN PLATELET VALUE, KADAR LIPOPROTEIN-ASSOCIATED PHOSPHOLIPASE A2 DAN NILAI HbA1c SEBAGAI FAKTOR RISIKO PROLIFERATIVE DIABETIC RETINOPATHY

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ABSTRAK

Latar belakang: *Proliferative diabetic retinopathy* (PDR) merupakan komplikasi mikrovaskular retina yang menyebabkan morbiditas yang tinggi. Kewaspadaan dini mengetahui faktor risiko PDR menjadi sangat penting. Kontrol glikemik dan durasi penyakit diabetes melitus mempengaruhi progresifitas PDR sebesar 11 %. Berbagai faktor risiko yang terlibat dalam perkembangan PDR belum diketahui secara jelas. *Mean platelet value* (MPV) dan *lipoprotein-associated phospholipase A2* (Lp-PLA2) ditemukan berkorelasi terhadap disfungsi endotel dan neovaskularisasi retina sehingga dipertimbangkan sebagai faktor risiko baru terhadap PDR. Kontrol glikemik dapat dinilai dengan HbA1c.

Tujuan: membuktikan MPV, Lp-PLA2 dan HbA1c sebagai faktor risiko PDR

Metode: Penelitian belah lintang terhadap 72 subjek yang dibagi menjadi dua kelompok PDR dan *non proliferative diabetic retinopathy* (NPDR). Nilai MPV diperiksa dengan metode *impedance*. Kadar Lp-PLA2 diperiksa dengan metode *enzyme-linked immunosorbent assay* (ELISA). Nilai HbA1c diperiksa dengan metode *high performance liquid chromatography* (HPLC). Analisis bivariat untuk menghitung rasio prevalensi (RP) dengan tabel 2x2

Hasil: Median MPV pada subjek PDR 10,20 (8,1 – 11,7)fL dan NPDR 9,50 (8,7 – 10,7)fL. Median Lp-PLA2 pada subjek PDR 157,5 (73 – 291)ng/mL dan NPDR 98 (64 – 187)ng/mL. Median HbA1c pada subjek PDR 10,35 (8,9 – 15)% dan NPDR 7,35 (6,5 – 10,6)%. Rasio prevalensi MPV terhadap PDR 2,60 (95% CI:1,48 - 4,57; $p < 0,001$). Rasio prevalensi Lp-PLA2 terhadap PDR 2,76 (95% CI:1,56 – 4,89; $p < 0,001$). Rasio prevalensi HbA1c terhadap PDR 11,63 (95% CI:3,92 – 34,51; $p < 0,001$).

Simpulan: Peningkatan nilai MPV, kadar Lp-PLA2 dan nilai HbA1c merupakan faktor risiko PDR.

Kata Kunci: *proliferative diabetic retinopathy*, MPV, Lp-PLA2 dan HbA1c

MEAN PLATELET VALUE, LIPOPROTEIN-ASSOCIATED PHOSPHOLIPASE A2 LEVELS AND HbA1c VALUE AS RISK FACTORS FOR PROLIFERATIVE DIABETIC RETINOPATHY

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ABSTRACT

Background: Proliferative diabetic retinopathy (PDR) is a microvascular complication of the retina that causes high morbidity. Early awareness of PDR risk factors is very important. Glycaemic control and disease duration of diabetes mellitus influence the progressivity of PDR by 11%. The various risk factors involved in the progression of PDR are not clearly known. Mean platelet value (MPV) and lipoprotein-associated phospholipase A2 (Lp-PLA2) were found to correlate with endothelial dysfunction and retinal neovascularization are therefore considered new risk factors for PDR. Glycaemic control can be assessed by HbA1c.

Objective: to prove MPV, Lp-PLA2, and HbA1c as risk factors for PDR.

Methods: A cross-sectional study of 72 subjects divided into two groups of PDR and nonproliferative diabetic retinopathy (NPDR). MPV was examined by the impedance method. Lp-PLA2 levels were examined by enzyme-linked immunosorbent assay (ELISA) method. HbA1c was examined by high-performance liquid chromatography (HPLC) method. Bivariate analysis to calculate prevalence ratio (RP) with a 2x2 table.

Results: Median MPV in PDR subjects was 10.20 (8.1 - 11.7)fL and in NPDR subjects was 9.50 (8.7 - 10.7)fL. Median Lp-PLA2 in PDR subjects 157.5 (73 - 291)ng/mL and NPDR subjects 98 (64 - 187)ng/mL. Median HbA1c in PDR subjects was 10.35 (8.9 - 15)% and NPDR 7.35 (6.5 - 10.6)%. The prevalence ratio of MPV to NPDR was 2.60 (95%CI: 1.48 - 4.57; $p < 0.001$). Lp-PLA2 prevalence ratio to PDR 2.76 (95%CI: 1.56 - 4.89; $p < 0.001$). The ratio of HbA1c prevalence to PDR was 11.63 (95%CI: 3.92 - 34.51; $p < 0.001$).

Conclusion: Increased MPV values, Lp-PLA2, and HbA1c levels are risk factors for PDR.

Keywords: proliferative diabetic retinopathy, MPV, Lp-PLA2 and HbA1c