

ABSTRAK

Korelasi antara Mean Platelet Volume (MPV) dan Immature Platelet Fraction (IPF) terhadap Hemoglobin A1c (HbA1c) pada Penderita Diabetes Melitus Tipe 2

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Pendahuluan. Penderita diabetes melitus tipe 2 berisiko mengalami komplikasi makro dan mikrovaskuler, yang dipengaruhi oleh kontrol glikemik. Reaktivitas trombosit berperan pada timbulnya komplikasi ini, terutama komplikasi kardiovaskuler. Tujuan penelitian ini adalah membandingkan MPV dan IPF pada kontrol glikemik baik dan buruk, dan menentukan adanya korelasi MPV dan IPF terhadap HbA1c.

Metode. Penelitian bersifat analitik observasional dengan rancang bangun *cross sectional*. Sampel darah EDTA dari 43 orang penderita DM tipe 2, dikumpulkan selama Januari-Februari 2016 dari Instalasi Rawat Jalan Endokrinologi Penyakit Dalam RSUD Dr. Soetomo Surabaya. Sampel diperiksa HbA1c, MPV, dan IPF, kemudian data MPV dan IPF dibandingkan pada kontrol glikemik baik dan buruk. HbA1c diperiksa dengan Dimension RxL, menggunakan TINIA (*turbidimetric inhibition immunoassay*). MPV dan IPF diperiksa dengan Sysmex XN-1000. MPV menggunakan perhitungan berdasarkan hitung platelet dengan impedans. IPF dengan *fluorescent flowcytometry*. Korelasi MPV dan IPF terhadap HbA1c dihitung dengan uji korelasi Pearson.

Hasil. Rerata nilai MPV $10,36 \pm 0,84$ fL, rerata nilai IPF $4,22 \pm 2,29\%$. Uji perbedaan nilai MPV menurut kontrol glikemik didapatkan $p=0,494$, uji perbedaan IPF didapatkan $p=0,462$. Uji korelasi Pearson antara IPF dan MPV didapatkan $r=0,877$ ($p<0,0001$), MPV dan HbA1c didapatkan $r=0,018$ ($p=0,907$), IPF dan HbA1c didapatkan $r=0,128$ ($p=0,414$).

Kesimpulan. Rerata MPV berada dalam rentang normal, sedangkan rerata IPF meningkat, namun tak terdapat perbedaan bermakna nilai MPV dan IPF pada kontrol glikemik baik dan buruk. MPV dan IPF pada penelitian ini tak berkorelasi dengan HbA1c.

Kata kunci. Mean platelet volume (MPV), immature platelet fraction (IPF), HbA1c, diabetes melitus tipe 2.

ABSTRACT

Correlations between Mean Platelet Volume (MPV) and Immature Platelet Fraction (IPF) to Hemoglobin A1c (HbA1c) in Patients with Type 2 Diabetes Mellitus

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Introduction. Patients with type 2 diabetes mellitus have macro and microvascular complication risks, which are influenced by glycemic control. Platelet reactivity contributes to the onset of these complications, especially cardiovascular complications. The aim of this study was to compare the value of MPV and IPF according to glycemic control, and determine the correlation between MPV and IPF to HbA1c.

Method. The study was analytical observational with cross sectional design. Samples were EDTA whole blood of 43 subjects with type 2 diabetes mellitus, collected from January to February 2016 at the Endocrinology Unit of the Department of Internal Medicine, Dr. Soetomo Hospital, Surabaya. Samples were examined for HbA1c, MPV, and IPF, then data of MPV and IPF were compared in poor and good glycemic control. HbA1c examination was done by Dimension RxL, using TINIA (turbidimetric inhibition immunoassay). MPV and IPF were examined by Sysmex XN-1000. MPV used calculations based on platelet count with impedance, IPF with fluorescent flowcytometry. Correlations of MPV and IPF with HbA1c was calculated by Pearson correlation test.

Results. The mean value of MPV was 10.36 ± 0.84 fL, and IPF was $4.22 \pm 2.29\%$. Test of difference in MPV value according to glycemic control showed $p = 0.494$, while the IPF $p = 0.462$. Pearson correlation test between IPF and MPV showed $r = 0.877$ ($p < 0.0001$), MPV and HbA1c $r = 0.018$ ($p = 0.907$), IPF and HbA1c $r = 0.128$ ($p = 0.414$).

Conclusions. The mean value of MPV was within normal limits, while the IPF was increased, but the difference was not statistically significant either in good or poor glycemic control. MPV and IPF in this study did not correlate with HbA1c.

Keywords. Mean platelet volume (MPV), immature platelet fraction (IPF), HbA1c, type 2 diabetes mellitus.