

NETRIN-1, PLATELET TO LYMPHOCYTE RATIO DAN MONOCYTE TO LYMPHOCYTE RATIO SEBAGAI FAKTOR PREDIKTOR IMPAIRED FASTING GLUCOSE

Studi pada Populasi Dewasa dengan Obesitas Sentral

ABSTRAK

Latar belakang: Obesitas sentral berhubungan erat dengan gangguan homeostasis glukosa dan merupakan faktor risiko terjadinya *impaired fasting glucose* (IFG). Netrin-1 yang meningkat pada kondisi IFG, serta *platelet to lymphocyte ratio* (PLR) dan *monocyte to lymphocyte ratio* (MLR) yang diketahui berkaitan dengan proses inflamasi, diduga berperan sebagai faktor prediktor IFG. Penelitian ini bertujuan menganalisis kadar netrin-1, PLR, dan MLR sebagai faktor prediktor IFG pada populasi dewasa dengan obesitas sentral.

Metode: Penelitian analitik observasional dengan desain potong lintang dilakukan pada 88 subjek dewasa obesitas sentral di Instalasi Rawat Jalan RS Nasional Diponegoro. Pemeriksaan netrin-1 dilakukan di Laboratorium GAKI FK UNDIP, sedangkan glukosa darah puasa dan darah lengkap dilakukan di Laboratorium RSND. Nilai PLR dan MLR dihitung secara manual berdasarkan jumlah trombosit, monosit, dan limfosit. Nilai *cutoff* ditentukan menggunakan kurva *receiver operating characteristic* (ROC), kemudian dianalisis dengan rasio prevalensi (RP). Hubungan dinyatakan bermakna apabila nilai $p < 0,05$ dengan interval kepercayaan 95%.

Hasil: Nilai *cutoff* netrin-1 $\geq 315,35$ pg/mL berhubungan dengan kejadian IFG dengan RP 3,39 (CI 95% 1,41–8,15; $p=0,011$). Nilai *cutoff* PLR $\geq 132,43$ juga berhubungan dengan IFG dengan RP 2,78 (CI 95% 1,71–6,61; $p=0,034$). Nilai *cutoff* MLR $\geq 0,20$ menunjukkan hubungan paling kuat dengan IFG, dengan RP 5,04 (CI 95% 2,03–12,51; $p=0,001$).

Simpulan: Kadar netrin-1 $\geq 315,35$ pg/mL, nilai PLR $\geq 132,43$, dan nilai MLR $\geq 0,20$ merupakan faktor prediktor terjadinya IFG pada populasi dewasa dengan obesitas sentral.

Kata kunci: obesitas sentral, IFG, netrin-1, PLR, MLR.

NETRIN-1, PLATELET-TO-LYMPHOCYTE RATIO, AND MONOCYTE-TO-LYMPHOCYTE RATIO AS PREDICTIVE FACTORS FOR IMPAIRED FASTING GLUCOSE

A Study in Adult Population with Central Obesity

ABSTRACT

Background: Central obesity is closely associated with impaired glucose homeostasis and is a major risk factor for impaired fasting glucose (IFG). Elevated netrin-1 levels in IFG, along with platelet-to-lymphocyte ratio (PLR) and monocyte-to-lymphocyte ratio (MLR), which are known to be associated with inflammatory processes, are suspected to play a role as predictors of IFG. This study aimed to analyze serum netrin-1 levels, PLR, and MLR as predictive factors for IFG in adults with central obesity.

Methods: This observational analytic study with a cross-sectional design was conducted on 88 adults with central obesity at the Outpatient Clinic of Diponegoro National Hospital. Netrin-1 levels were measured at the GAKI Laboratory, Faculty of Medicine, Diponegoro University, while fasting blood glucose and complete blood count were examined at the hospital laboratory. PLR and MLR values were calculated manually based on platelet, monocyte, and lymphocyte counts. Cutoff values were determined using receiver operating characteristic (ROC) curve analysis and subsequently analyzed using prevalence ratios (PR). Statistical significance was defined as $p < 0.05$ with a 95% confidence interval.

Results: A netrin-1 cutoff value of ≥ 315.35 pg/mL was significantly associated with IFG, with a PR of 3.39 (95% CI: 1.41–8.15; $p = 0.011$). A PLR cutoff value of ≥ 132.43 was also significantly associated with IFG, with a PR of 2.78 (95% CI: 1.71–6.61; $p = 0.034$). An MLR cutoff value of ≥ 0.20 showed the strongest association with IFG, with a PR of 5.04 (95% CI: 2.03–12.51; $p = 0.001$).

Conclusion: Netrin-1 levels ≥ 315.35 pg/mL, PLR ≥ 132.43 , and MLR ≥ 0.20 are predictive factors for IFG in adults population with central obesity

Keywords: Central obesity, IFG, netrin-1, PLR, MLR