

Nilai *Platelet to Lymphocyte Ratio*, Nilai *Transferrin Saturation* dan Kadar Vitamin D [1,25(OH)₂D₃] sebagai Prediktor Kejadian Resistensi Eritropoietin pada Pasien Penyakit Ginjal Kronis Stadium Akhir yang Menjalani Hemodialisis

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ABSTRAK

Latar Belakang: Anemia merupakan komplikasi yang sering terjadi pada penyakit ginjal kronis (CKD) yang disebabkan oleh penurunan produksi eritropoietin. Sebagian pasien hemodialisis (HD) menunjukkan respons yang tidak adekuat terhadap eritropoietin rekombinan (EPO), suatu kondisi yang dikenal sebagai resistensi EPO. Platelet-to-lymphocyte ratio (PLR), transferrin saturation (TSAT), dan vitamin D [1,25(OH)₂D₃] dapat memengaruhi respons terhadap EPO.

Tujuan: Menganalisis PLR, TSAT, dan vitamin D [1,25(OH)₂D₃] sebagai prediktor resistensi EPO pada pasien CKD stadium akhir yang menjalani hemodialisis.

Metode: Penelitian potong lintang ini melibatkan 60 pasien CKD yang menjalani HD rutin. Kadar PLR, TSAT, dan vitamin D [1,25(OH)₂D₃] diukur. Analisis bivariat dilakukan menggunakan tabel 2×2 untuk menghitung prevalence ratio (PR).

Hasil: Rerata nilai TSAT adalah 34,38 ± 16,22%; Nilai TSAT <30,75% tidak berhubungan dengan resistensi EPO ($p = 0,475$). Rerata nilai PLR adalah 301,02 ± 166,67; nilai PLR ≥199,1 meningkatkan risiko resistensi EPO sebesar 1,68 kali (95% CI: 1,12–2,52; $p = 0,001$). Rerata kadar vitamin D [1,25(OH)₂D₃] adalah 28,51 ± 15,38 pg/mL. Kadar vitamin D [1,25(OH)₂D₃] <26,75 pg/mL meningkatkan risiko resistensi EPO sebesar 1,33 kali (95% CI: 0,98–1,81; $p = 0,039$).

Kesimpulan: TSAT <30,75% bukan merupakan prediktor resistensi eritropoietin. Sebaliknya, PLR ≥199,1 dan kadar vitamin D [1,25(OH)₂D₃] <26,75 pg/mL merupakan prediktor peningkatan kejadian resistensi eritropoietin pada pasien CKD stadium akhir yang menjalani hemodialisis.

Kata kunci: PGK, resistensi eritropoietin, ERI, PLR, TSAT, vitamin D [1,25(OH)₂D₃]

Platelet to Lymphocyte Ratio, Transferrin Saturation, and Vitamin D [1,25(OH)₂D₃] Levels as Predictors of Erythropoietin Resistance in End-Stage Chronic Kidney Disease Patients Undergoing Hemodialysis

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ABSTRACT

Background: Anemia a frequent consequence of Chronic Kidney Disease (CKD) brought on by decreased erythropoietin productios. Some hemodialysis (HD) patients exhibit an inadequate response to recombinant erythropoietin (EPO), a condition known as EPO resistance. Platelet-to-lymphocyte ratio (PLR), transferrin saturation (TSAT), and vitamin D [1,25(OH)₂D₃] may influence EPO responsiveness.

Objective: To analyze PLR, TSAT, and vitamin D [1,25(OH)₂D₃] as predictors of EPO resistance in end-stage CKD patients undergoing hemodialysis.

Methods: This cross-sectional study included 60 CKD patients undergoing regular HD. PLR, TSAT, and vitamin D [1,25(OH)₂D₃] levels were measured. Bivariate analysis was performed using 2×2 tables to calculate prevalence ratios (PR).

Results: The mean TSAT level was 34.38 ± 16.22%; TSAT <30.75% was not associated with EPO resistance (*p* = 0.475). The mean PLR was 301.02 ± 166.67; PLR ≥199.1 increased the risk of EPO resistance by 1.68-fold (95% CI: 1.12–2.52; *p* = 0.001). The mean vitamin D [1,25(OH)₂D₃] level was 28.51 ± 15.38 pg/mL. Vitamin D [1,25(OH)₂D₃] levels <26.75 pg/mL increased the risk of EPO resistance by 1.33-fold (95% CI: 0.98–1.81; *p* = 0.039).

Conclusion: TSAT <30.75% was not a predictor of erythropoietin resistance. In contrast, PLR ≥199.1 and vitamin D [1,25(OH)₂D₃] levels <26.75 pg/mL correlated as increased risk erythropoietin resistance patients with end-stage CKD undergoing hemodialysis.

Keywords: CKD, erythropoietin resistance, ERI, PLR, TSAT, vitamin D [1,25(OH)₂D₃]