

INTISARI

Latar belakang: Penyakit ginjal kronis (PGK) merupakan masalah kesehatan utama di seluruh dunia. Anemia adalah komplikasi tersering PGK sebanyak 80-90%. Penyebab utama anemia adalah defisiensi eritropoetin dan 25-45% diakibatkan defisiensi besi. Perhimpunan Nefrologi Indonesia (PERNEFRI 2011) menggunakan serum feritin (SF) dan saturasi transferin (ST) sebagai standar rujukan parameter status besi namun bersifat pro inflamasi. Defisiensi besi dibedakan menjadi defisiensi besi absolut dan fungsional. Parameter *Reticulocyte Hemoglobin Equivalen* (Ret-He) lebih stabil, untuk melihat anemia akibat defisiensi besi dan mengevaluasi respons sumsum tulang terhadap terapi.

Tujuan: Penelitian ini bertujuan untuk menggambarkan profil hematologi dan Ret-He pada berbagai status besi PGK dengan hemodialisis di Yogyakarta.

Metode: Penelitian ini menggunakan rancangan potong lintang. Subyek penelitian pasien PGK dengan hemodialisis di Unit Hemodialisis RSUP Dr. Sardjito Yogyakarta. Parameter Ret-He diperiksa dengan Sysmex XN 1000 metode *flow cytometry*. Analisis statistik deskriptif: rerata \pm SB, median (min.-mak.), Uji beda *One-way* ANOVA dan Kruskal Wallis.

Hasil: Penelitian ini diikuti 125 subyek memenuhi kriteria inklusi dan eksklusi. 88 subyek dengan status besi normal, 14 defisiensi fungsional, 15 defisiensi indeterminate, 8 defisiensi absolut. Tidak didapatkan perbedaan bermakna pada parameter hematologi RBC, Hb, Hct, MCV, MCH, MCHC. Terdapat perbedaan bermakna kadar Ret- He status besi normal vs defisiensi besi fungsional ($p=0,023$), status besi normal vs absolut ($p<0,0001$), status besi fungsional vs absolut ($p=0,005$).

Simpulan: terdapat perbedaan bermakna Ret-He kelompok status besi normal dengan defisiensi besi (fungsional dan absolut), defisiensi besi fungsional dengan absolut.

Saran: penelitian lebih lanjut dengan mempertimbangkan terapi dan frekuensi HD, kadar hemoglobin dan hematokrit.

Kata kunci: *Feritin, Saturasi Transferin, Ret-He, Defisiensi Besi, Pasien Hemodialisis*

ABSTRACT

Background: Chronic Kidney Disease (CKD) is a major health problem throughout the world. Anemia is the most common complication of CKD by 80-90%. The main cause of anemia is erythropoietin deficiency and 25-45% due to iron deficiency. The Indonesian Nephrology Association (PERNEFRI 2011) uses serum ferritin (SF) and transferrin saturation (ST) as the standard reference of iron status but they are a pro-inflammatory parameters. Iron deficiency is divided to absolute, and functional iron deficiency. Reticulocyte Equivalent Hemoglobin (Ret-He) is more stable parameter, to see anemia due to iron deficiency and increase bone marrow response to therapy.

Objective: This study aims to describe the hematological profile and reticulocyte index in various hemodialysis iron status in Yogyakarta.

Method: This study uses a cross-sectional design. The subjects of CKD patients with hemodialysis in the Hemodialysis Unit of Dr. RSUP Sardjito Yogyakarta. The parameter Ret-He discusses with Sysmex XN 1000 method of flow cytometry. Descriptive statistical analysis: mean \pm SB, median (min-max), Different test by One-way ANOVA and Kruskal Wallis test.

Results: This study was followed by 125 subjects fulfilling the inclusion and exclusion criteria. 88 subjects with normal iron status, 14 functional deficiencies, 15 indeterminate deficiencies, 8 absolute deficiencies. There were no significant differences in hematological parameters RBC, Hb, Hct, MCV, MCH, MCHC. There are differences in normal iron status vs. functional iron deficiency ($p = 0.023$), normal vs absolute iron status ($p < 0.0001$), functional vs absolute iron status ($p = 0.005$).

Conclusion: There are significant differences Ret-He between normal iron with (functional and absolute) deficiency groups, between functional and absolute deficiency iron.

Suggestion: Further research by considering therapy and the frequency of HD, hemoglobin levels and hematocrit.

Keywords: Ferritin, Transferin Saturation, *Ret-He*, Iron Deficiency, Hemodialysis Patients