

## INTISARI

### KORELASI INDEKS ERITROSIT DENGAN KADAR FERITIN SERUM PADA PASIEN GAGAL GINJAL KRONIK DI UNIT HEMODIALISIS RSUP DR. SARDJITO

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**Latar Belakang** : Prevalensi anemia pada penyakit gagal ginjal kronik yang menjalani hemodialisis rutin cukup tinggi. Anemia yang terjadi dapat disebabkan oleh defisiensi besi. Pada pasien hemodialisis rutin, defisiensi besi merupakan akibat dari pengambilan sampel darah yang berulang, perdarahan kronik akibat *uremia-associated platelet dysfunction*, flebotomi berulang-ulang, *blood trapping* pada mesin dialisis, dan terapi *erythropoietin-stimulating agents* (ESA) intravena dosis tinggi. Pemberian terapi besi diperlukan oleh pasien yang mengalami defisiensi besi. Pada umumnya kebutuhan terapi besi dinilai dari kadar feritin serum pasien, namun pemeriksaan kadar feritin serum cukup mahal dan ketersediannya tidak luas. Indeks eritrosit yang terdiri atas *Mean Corpuscular Volume* (MCV), *Mean Corpuscular Hemoglobin* (MCH), dan *Mean Corpuscular Hemoglobin Concentration* (MCHC) merupakan salah satu parameter status besi yang ketersediannya luas dan rutin dilakukan, namun belum diketahui korelasi antara indeks eritrosit dengan kadar feritin serum pada pasien gagal ginjal kronik yang menjalani hemodialisis rutin.

**Tujuan** : Mengetahui korelasi antara indeks eritrosit (MCV, MCH, dan MCHC) dengan kadar feritin serum pada pasien gagal ginjal kronik di Unit Hemodialisis RSUP Dr. Sardjito.

**Metode** : Penelitian ini dilakukan dengan menggunakan rancangan potong lintang. Subjek penelitian adalah pasien gagal ginjal kronik di Unit Hemodialisis RSUP Dr. Sardjito pada 27 Juli 2015 – 1 Agustus 2015 yang memenuhi kriteria inklusi dan eksklusi. Sebanyak 127 orang bersedia menjadi subjek penelitian, namun hanya 119 orang yang memenuhi kriteria penelitian. Analisis data dilakukan dengan melihat korelasi (uji Pearson) antara indeks eritrosit (MCV, MCH, dan MCHC) dengan kadar feritin serum.

**Hasil** : Sebanyak 119 subjek penelitian sebagian besar berjenis kelamin laki-laki (58,82%) dengan kisaran usia 19 – 81 tahun ( $50,54 \pm 13,28$ ). Sejumlah 97 subjek (81,51%) memiliki riwayat hipertensi. Rata-rata subjek telah menjalani terapi hemodialisis rutin selama  $3,65 \pm 3,28$  tahun. Sebagian besar subjek mengalami anemia dengan rata-rata kadar hemoglobin  $9,34 \pm 1,48$  g/dl. Rata-rata nilai MCV, MCH, dan MCHC subjek secara berturut-turut yaitu  $89,66 \pm 6,71$  fl,  $29,10 \pm 2,04$  pg, dan  $32,48 \pm 0,98$  %. Median dari kadar feritin serum pasien adalah 542,85 ng/ml. Uji korelasi Pearson menunjukkan tidak terdapat korelasi yang signifikan secara statistik antara kadar feritin serum dengan MCV ( $p = 0,987$ ;  $r = 0,002$ ), MCH

( $p = 1,000$ ;  $r = 0,000$ ), dan MCHC ( $p = 0,528$ ;  $r = 0,058$ ). Kadar feritin serum pasien anemia lebih tinggi dibandingkan pasien tidak anemia yaitu 919,61 ng/ml.

**Kesimpulan** : Tidak terdapat hubungan yang bermakna antara indeks eritrosit (MCV, MCH, dan MCHC) dengan kadar feritin serum pada pasien gagal ginjal kronik di Unit Hemodialisis RSUP Dr. Sardjito.

**Kata Kunci** : Gagal ginjal kronik, hemodialisis, indeks eritrosit, feritin

## ABSTRACT

### CORRELATION BETWEEN ERYTHROCYTE INDICES AND SERUM FERRITIN LEVEL IN CHRONIC KIDNEY DISEASE PATIENTS IN HEMODIALYSIS UNIT OF RSUP DR. SARDJITO

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**Background** : The prevalence of anemia in patients with chronic kidney disease who are undergoing frequent hemodialysis therapy is quite high. Anemia can be caused by iron deficiency. In frequent hemodialysis patient, iron deficiency is attributable to frequent blood sampling, chronic hemorrhage due to uremia-associated platelet dysfunction, frequent phlebotomy, blood trapping in dialysis machine, and high dose of intravenous erythropoietin-stimulating agents (ESA) therapy. Iron supplementation is needed by iron deficiency patient. Generally speaking, the needs of iron supplementation is monitored by serum ferritin level examination, yet this kind of examination is relatively expensive and not readily available in some facilities. Erythrocyte indices i.e. Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin (MCH), and Mean Corpuscular Hemoglobin Concentration (MCHC) are some of iron status parameters whose widely available and frequently examined, yet the correlation between erythrocyte indices and serum ferritin level in patients with chronic kidney disease undergoing frequent hemodialysis therapy is not yet known.

**Objective** : To know the correlation between erythrocyte indices (MCV, MCH, and MCHC) and serum ferritin level in chronic kidney disease patient in Hemodialysis Unit of RSUP Dr. Sardjito.

**Method** : The research design of this study is cross sectional. The subjects were chronic kidney disease patients in Hemodialysis Unit of RSUP Dr. Sardjito on July 27<sup>th</sup> – August 1<sup>st</sup>, 2015 who met inclusion and exclusion criterias. As many as 127 people were willing to be the research subject, but only 119 people met the research criterias. Data analysis was done using Pearson's test to know the correlation between erythrocyte indices (MCV, MCH, and MCHC) and serum ferritin level.

**Results** : There were 119 research subjects consist mostly men (58,82%) with age ranging from 19 – 81 years old ( $50,54 \pm 13,28$ ). As many as 97 subjects (81,51%) had hypertension. Most of the research subjects had undergone frequent hemodialysis therapy for  $3,65 \pm 3,28$  years. The average of MCV, MCH, and MCHC of subjects are  $89,66 \pm 6,71$  fl,  $29,10 \pm 2,04$  pg, dan  $32,48 \pm 0,98\%$ , respectively. Pearson's correlation test showed no significant correlation between serum ferritin level and MCV ( $p = 0,987$ ;  $r = 0,002$ ), MCH ( $p = 1,000$ ;  $r = 0,000$ ), and MCHC ( $p = 0,528$ ;  $r = 0,058$ ). Serum ferritin level of anemic patient was higher than non-anemic patient i.e. 919,61 ng/ml.

**Conclusion** : There is no significant correlation between erythrocyte indices (MCV, MCH, and MCHC) and serum ferritin level in chronic kidney disease in Hemodialysis Unit of RSUP Dr. Sardjito.

**Keywords** : Chronic kidney disease, hemodialysis, erythrocyte indices, ferritin