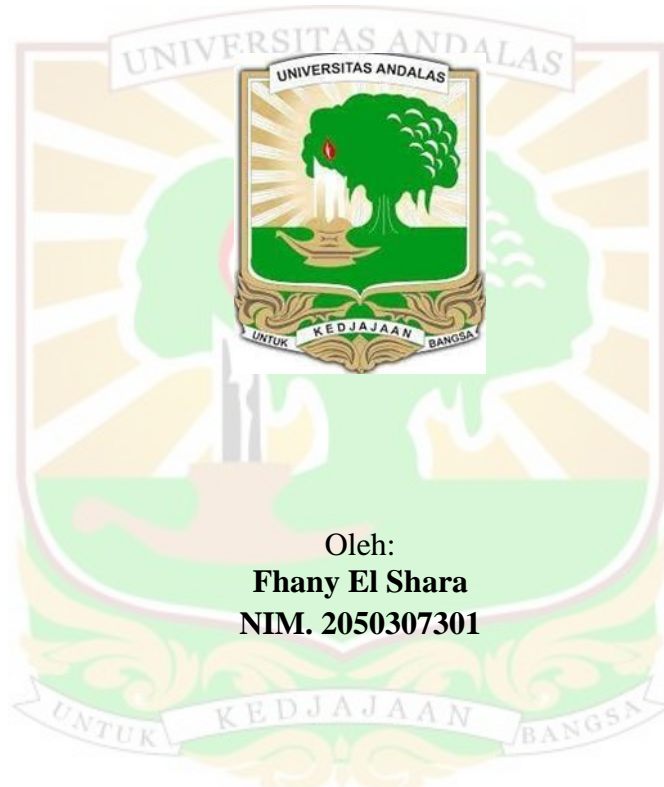


Tesis

NILAI PREDIKTIF *PERCENTAGE OF HYPOCHROMIC RED CELLS* TERHADAP DEPLESI BESI BERDASARKAN KADAR FERITIN PADA PENDONOR RUTIN



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ABSTRAK

Latar Belakang: Pendonor rutin merupakan populasi yang rentan terhadap kejadian anemia defisiensi besi. Pemeriksaan feritin digunakan untuk mendeteksi depleksi besi, namun tidak rutin dilakukan pada program seleksi donor dan cenderung lebih mahal. *Percentage of hypochromic red cells* (%Hypo-He) dapat dijadikan sebagai alternatif evaluasi depleksi besi pada pendonor rutin. Penelitian ini bertujuan untuk mengetahui korelasi nilai %Hypo-He dan kadar feritin serta menentukan nilai *cut-off* %Hypo-He dalam memprediksi depleksi besi berdasarkan kadar feritin pada pendonor rutin.

Metode: Penelitian ini merupakan penelitian analitik dengan rancangan potong lintang terhadap 82 pendonor rutin yang memenuhi kriteria inklusi dan eksklusi. Penelitian ini dilakukan mulai bulan Desember 2023 hingga Juni 2024 di RS Dr. M. Djamil Padang. Pemeriksaan nilai %Hypo-He dilakukan menggunakan alat *hematology analyzer* metode flowsitometri. Kadar feritin serum diperiksa menggunakan *immunology analyzer* metode *enzyme-linked fluorescent immunoassay*. Data dianalisis dengan uji korelasi Spearman dan *cut-off point* ditentukan berdasarkan kurva *receiver operating characteristics* (ROC).

Hasil: Median nilai %Hypo-He didapatkan 0,30 (0,1-7,1)%, median kadar feritin 35,72 (10,42-124,53) ng/mL. Uji korelasi Spearman menunjukkan terdapat korelasi antara nilai %Hypo-He dan kadar feritin pada pendonor rutin ($r = -0,8$; $p < 0,05$). *Cut-off point* nilai %Hypo-He dalam memprediksi depleksi besi berdasarkan kadar feritin pada pendonor rutin didapatkan $\geq 0,45\%$ dengan *area under curve* (AUC) 0,946, sensitivitas 81,3% dan spesifisitas 92,0%.

Simpulan: Terdapat korelasi nilai %Hypo-He dan kadar feritin pada pendonor rutin. Nilai %Hypo-He $\geq 0,45\%$ dapat memprediksi depleksi besi berdasarkan kadar feritin pada pendonor rutin.

Kata Kunci: %Hypo-He, Feritin, Depleksi Besi, Pendonor Rutin

PREDICTIVE VALUE OF PERCENTAGE OF HYPOCHROMIC RED CELLS FOR IRON DEPLETION BASED ON FERRITIN LEVELS IN REGULAR BLOOD DONORS

ABSTRACT

Background: Regular blood donors are susceptible to iron deficiency anemia. Ferritin examination is used to detect iron depletion but is not routinely performed in donor selection programs and tends to be more expensive. The percentage of hypochromic red cells (%Hypo-He) can be used as an alternative to evaluate iron depletion in regular blood donors. This study aims to determine the correlation between %Hypo-He and ferritin then determine the cut-off value of %Hypo-He in predicting iron depletion based on ferritin levels in regular blood donors.

Methods: This is an analytical study with a cross-sectional design of 82 regular blood donors who met the inclusion and exclusion criteria. This study was conducted from December 2023 to June 2024 at Dr. M. Djamil Padang Hospital. The %Hypo-He value was carried out using an automated hematology analyzer by flowcytometry method. Serum ferritin levels were examined using the enzyme-linked fluorescent immunoassay method. Data were analyzed using the Spearman correlation test and the cut-off point was obtained using the receiver operating characteristics (ROC) curve.

Results: The median of %Hypo-He value is 0.30 (0.1-7.1) % and the ferritin level obtained a median of 35.72 (10.42-124.53) ng/mL. The Spearman correlation test showed a robust correlation between the %Hypo-He value and ferritin levels in regular blood donors ($r = -0.8$; $p < 0.05$). The cut-off point of the %Hypo-He value in predicting iron depletion based on ferritin levels in regular blood donors was $\geq 0.45\%$ with an AUC of 0.946, a sensitivity of 81.3%, and a specificity of 92.0%.

Conclusion: There is a correlation between the %Hypo-He value and ferritin levels in regular blood donors. The %Hypo-He value $\geq 0.45\%$ can predict iron depletion based on ferritin levels in regular blood donors.

Keywords: %Hypo-He, Ferritin, Iron Depletion, Regular Blood Donors