

## INTISARI

**Latar Belakang:** Anisositosis merupakan abnormalitas eritrosit, dapat ditemukan pada kondisi patologis yang berperan dalam penilaian diagnostik dan prognostik beberapa penyakit, salah satunya karena anemia defisiensi besi. Feritin dan saturasi transferin menggambarkan jumlah besi yang tersedia untuk proses eritropoiesis di sumsum tulang maupun untuk fungsi selain eritropoiesis. Mikroskop digital saat ini telah banyak berkembang untuk menilai eritrosit anisositosis. Penilaian hubungan eritrosit anisositosis mikroskop digital dengan kadar feritin dan saturasi transferin masih sedikit diteliti.

**Tujuan:** Mengevaluasi korelasi persentase klas eritrosit anisositosis analisis mikroskop digital dengan saturasi transferin dan kadar feritin.

**Metode:** Subjek penelitian adalah kelompok masyarakat peserta skrining talasemia dari keluarga POPTI dan masyarakat skrining pranikah. Kriteria inklusi adalah peserta skrining talasemia berusia 15-64 tahun yang bersedia menjadi subjek penelitian. Kriteria eksklusi subjek yang sedang menstruasi, hamil, sedang mengkonsumsi terapi hematinik, riwayat transfusi dalam tiga bulan terakhir, hasil pemeriksaan HPLC ditemukan beta talasemia trait dan HbE, serta CRP meningkat  $>5$  mg/dL, dan kualitas apusan darah tepi yang tidak sesuai standar.

Apusan darah tepi dianalisis dengan mikroskop digital untuk menilai eritrosit anisositosis dilanjutkan analisis uji presisi. Uji normalitas data dengan uji *Kolmogorov Smirnov*, uji korelasi eritrosit anisositosis mikroskop digital dengan korelasi *Spearman* (data tidak terdistribusi normal). Analisis statistik menggunakan SPSS versi 23. Nilai  $p < 0,05$  dianggap bermakna secara statistik.

**Hasil:** Sebanyak 122 subjek dianalisis dalam penelitian ini. Jenis kelamin terbanyak didapatkan pada perempuan yaitu 101 subjek (82,8%). Median usia pada penelitian ini adalah 25 (15-56) tahun. Median eritrosit anisositosis mikroskop digital 12,8 (10,9-28,1) %. Median saturasi transferin 19,3 (2,7-59,3) %. Median kadar feritin 28,7 (1,9-383,8) ng/mL. Hasil korelasi persentase klas eritrosit anisositosis dengan saturasi transferin dan feritin didapatkan korelasi negatif dan signifikan berturut-turut  $r = -0,587$  ( $p = 0,001$ ) dan  $r = -0,579$  ( $p = 0,001$ )

**Kesimpulan:** Penelitian ini menghasilkan korelasi negatif antara persentase klas eritrosit anisositosis mikroskop digital dengan saturasi transferin dan kadar feritin dengan kekuatan sedang secara signifikan.

**Kata Kunci:** Eritrosit anisositosis, feritin, saturasi transferin, mikroskop digital, defisiensi besi.

## ABSTRACT

**Background:** Anisocytosis is an abnormality of erythrocytes, can be found in pathological conditions that play a role in the diagnostic and prognostic assessment of several diseases, one of which is iron deficiency anemia. Ferritin and transferrin saturation describe the amount of iron available for the erythropoiesis process in the bone marrow and for functions other than erythropoiesis. Digital microscopy has now been widely developed to assess the percentage of anisocytosis. The study about relationship between digital microscopic anisocytosis erythrocytes and ferritin levels and transferrin saturation is limited.

**Objective:** To determine the correlation between the percentage of anisocytosis from digital microscope analysis with transferrin saturation and ferritin levels.

**Method:** The subjects of the study were community groups participating in thalassemia screening from POPTI organizations, and premarital screening communities. Inclusion criteria were anemia-thalassemia screening participants aged 15-64 who agreed to be research subjects. Exclusion criteria were subjects who were menstruating, pregnant, on hematinic therapy, and a history of transfusion in the last three months, beta thalassemia trait, and HbE (HPLC), CRP >5mg/d, and peripheral blood smears that did not meet standards. Peripheral blood smears were analyzed using a digital microscope to assess anisocytosis followed by precision test analysis. Data normality test using the Kolmogorov Smirnov test, digital microscope anisocytosis correlation test with Spearman correlation (data not normally distributed). Statistical analysis using SPSS version 23. A p value <0.05 was considered statistically significant.

**Result:** A total of 122 subjects were analyzed in this study. The highest gender is expressed in women, 101 subjects (82,8%). The age median in this study was 25 (15-56) years. Median anisocytosis of digital microscope 12,8 (10,9-28,1) %. Median Saturation Transferrin 19,3 (2,7-59,3) %. Median Ferritin levels 28,7 (1,9-383,8) ng/mL. Correlation between the percentage of anisocytosis erythrocyte class with transferrin and ferritin saturation showed a negative and significant correlation, respectively  $r = -0,587$  ( $p = 0,001$ ) and  $r = -0,579$  ( $p = 0,001$ )

**Conclusion:** This study, found a negative correlation with moderate strength between the percentage of anisocytosis in digital microscopy with transferrin saturation and ferritin levels.

**Keywords:** Anisocytosis, ferritin, transferrin saturation, digital microscope, iron deficiency.