

INTISARI

Latar Belakang: Abnormalitas eritrosit seperti mikrositik dan hipokromik sering dijumpai pada anemia defisiensi besi (ADB). Persentase eritrosit hipokromik >2,5% mengindikasikan kekurangan zat besi dalam eritropoiesis. Feritin dan saturasi transferin menggambarkan jumlah besi yang tersedia untuk proses eritropoiesis dan non eritropoiesis. Mikroskop digital saat ini telah banyak berkembang untuk menilai eritrosit hipokromik. Penilaian hubungan eritrosit hipokromik mikroskop digital dengan kadar feritin dan saturasi transferin masih sedikit diteliti.

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

Metode: Penelitian observasional potong lintang di Departemen Patologi Klinik dan Kedokteran Laboratorium FK-KMK UGM dilakukan Desember 2022-Februari 2023. Subjek penelitian adalah skrining talasemia dari keluarga POPTI dan masyarakat skrining pranikah. Kriteria inklusi 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, CRP >5 mg/dL, kualitas apusan darah tepi yang tidak sesuai standar. Apusan darah tepi dianalisis dengan mikroskop digital untuk menilai eritrosit hipokromik dilanjutkan analisis uji presisi. Uji korelasi eritrosit hipokromik mikroskop digital dengan korelasi *Spearman* (data tidak terdistribusi normal). Analisis statistik menggunakan SPSS versi 23. Nilai $p < 0,05$ dianggap bermakna secara statistik.

Hasil : 122 subjek dianalisis dalam penelitian. Jenis kelamin terbanyak didapatkan pada perempuan yaitu 101 subjek (82,8%). Median usia adalah 25 (15-56) tahun. Median eritrosit hipokromik mikroskop digital 0,3% (0-45,6%). 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 hipokromik dengan saturasi transferin dan feritin didapatkan korelasi negatif dan signifikan berturut-turut $r = -0,526$ ($p = 0,001$) dan $r = -0,548$ ($p = 0,001$)

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

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

ABSTRACT

Background: Erythrocyte abnormalities such as microcytic and hypochromic are often found in iron deficiency anemia (IDA). Percentage of hypochromic erythrocytes $>2.5\%$ indicates iron deficiency in erythropoiesis. Ferritin and transferrin saturation describe iron available for erythropoiesis and non-erythropoiesis processes. Digital microscopy has now been widely developed to assess hypochromic erythrocytes. The study about relationship between digital microscopic hypochromic erythrocytes and ferritin levels and transferrin saturation is limited.

Objective: To evaluate correlation between the percentage of hypochromic erythrocytes from digital microscope analysis with transferrin saturation and ferritin levels.

Method: Cross-sectional observational study in the Department of Clinical Pathology and Laboratory Medicine from December 2022-February 2023. Subjects of the study were thalassemia screening from POPTI organizations, 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 $>5\text{mg/d}$, and peripheral blood smears that did not standards. Peripheral blood smears were analyzed using a digital microscope to assess hypochromic erythrocytes followed by precision test analysis. Hypochromic erythrocyte digital microscope 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: 122 subjects were analyzed. The highest gender is expressed in women, 101 subjects (82,8%). Median age in this study was 25 (15-56) years. Median erythrocytes of digital microscope hypochromic 0,3% (0-45,6%). Median Saturation Transferrin 19,3 (2,7-59,3) %. Median Ferritin levels 28,7 (1,9-383,8) ng/mL. Correlation between percentage of hypochromic erythrocyte with transferrin and ferritin saturation showed a negative and significant correlation, respectively $r = -0,526$ ($p = 0,001$) and $r = -0,548$ ($p = 0,001$).

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

Keywords: Hypochromic, ferritin, transferrin saturation, digital microscope, iron deficiency.