

INDEKS DISKRIMINASI HEMATOLOGI SEBAGAI PEMBEDA *BETA THALASSEMIA TRAIT* DAN ANEMIA DEFISIENSI BESI

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INTISARI

Anemia mikrositik hipokromik merupakan jenis anemia yang paling sering ditemui pada kasus *Beta Thalassaemia Trait* (BTT) dan Anemia Defisiensi Besi (ADB). Prevalensi kedua penyakit ini tergolong tinggi di negara berkembang, khususnya Indonesia dan secara klinis sulit dibedakan. Terbatasnya fasilitas skrining melahirkan indeks diskriminasi sebagai solusi alternatif dalam mendeteksi *thalassaemia trait* dari anemia defisiensi besi. Di Indonesia, perbandingan performa antara indeks Matos dan Carvalho, indeks Mentzer, Green dan King, England dan Fraser, RBC, Shine dan Lal, dan Srivastava belum pernah dilakukan. Penelitian ini bertujuan untuk mengetahui sensitivitas, spesifisitas, dan Youden's index tertinggi dalam mendiskriminasi BTT dan ADB menggunakan ketujuh indeks di atas. Penelitian ini merupakan penelitian potong lintang (*cross-sectional*) menggunakan data primer arsip profil hematologi pada 65 subjek yang didiagnosis mikrositik hipokromik. Subjek dikelompokkan dalam grup BTT dan ADB berdasarkan pemeriksaan standar emas dengan uji feritin dan analisis Hb. Uji CRP digunakan sebagai tes pendukung uji feritin. Perhitungan indeks dilakukan menggunakan formula dan dibandingkan dengan hasil uji standar emas. Data dianalisis menggunakan Excel dan SPSS. Hasil penelitian menunjukkan dari 65 subjek, 55 di antaranya merupakan perempuan dengan median usia 22 tahun. Nilai MCV dan MCH tidak berbeda signifikan antara kelompok subjek BTT dan ADB. Indeks Matos dan Carvalho memiliki kemampuan performa paling tinggi dalam mendiskriminasi BTT dan ADB dengan sensitivitas 80%, spesifisitas 77,1%, dan Youden's index 57,14%. Kesimpulan pada penelitian ini antara lain, indeks RBC memiliki sensitivitas tertinggi yaitu 90% dan indeks Green dan King memiliki spesifisitas tertinggi yaitu 97,14%. Indeks Matos dan Carvalho memiliki performa diskriminasi terbaik dibandingkan indeks lainnya dengan Youden's index 57,14%. Matos dan Carvalho dapat digunakan untuk mendiskriminasi BTT dan ADB khususnya pada populasi penelitian ini.

Kata kunci: indeks diskriminasi, hematologis, mikrositik, BTT, anemia

HEMATOLOGICAL DISCRIMINATION INDEX AS A TOOL FOR DISTINGUISHING BETA THALASSEMIA AND IRON DEFICIENCY ANEMIA

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ABSTRACT

Microcytic hypochromic anemia is the most common type of anemia found in cases of Beta Thalassemia Trait (BTT) and Iron Deficiency Anemia (IDA). The prevalence of these two diseases is relatively high in developing countries, especially in Indonesia, and they are clinically challenging to differentiate. Limited screening facilities give rise to discrimination indices as an alternative solution to detect thalassemia trait from iron deficiency anemia. In Indonesia, a performance comparison between Matos and Carvalho index, Mentzer index, Green and King index, England and Fraser index, RBC index, Shine and Lal index, and Srivastava index has never been conducted. This study aims to determine the highest sensitivity, specificity, and Youden's index in discriminating BTT and ADB using these seven indices. This cross-sectional study utilized archival primary data from the hematological profiles of 65 subjects diagnosed with microcytic hypochromic. Subjects were grouped into BTT and IDA based on gold standard examinations with ferritin test and Hb analysis. The CRP test is used as a supporting test for ferritin testing. Index calculations were performed using formulas and compared with gold standard test results. Data were analyzed using Excel and SPSS. The research results show that out of 65 subjects, 55 of them were female with a median age of 22 years. MCV and MCH values did not differ significantly between BTT and ADB groups. Matos and Carvalho indices had the highest performance in discrimination BTT and IDA with sensitivity of 80%, specificity of 77.1%, and Youden's index of 57.14%. Conclusions from this study include that the RBC index has the highest sensitivity at 90%, and the Green and King index has the highest specificity at 97.14%. Matos and Carvalho indices have the best discriminatory performance compared to other indices with a Youden's index of 57.14%. Matos and Carvalho can be used to discriminate BTT and IDA, especially in this research population.

Keywords: discrimination index, hematologist, microcytic, BTT, anemia