Uji diagnostik berbagai indeks eritrosit untuk membedakan anemia defisiensi besi dengan thalassemia trait di RSCM = Diagnostic test of erythrocyte indices for differentiang iron deficiency anemia and trait thalassemia in Cipto Mangunkusumo Hospital / Yohanes Salim

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Abstrak

[ABSTRAK
Anemia defisiensi besi dan thalassemia β trait merupakan penyebab tersering anemia mikrositik hipokrom di Indonesia. Kedua penyakit tersebut sulit dibedakan hanya dengan pemeriksaan hematologi, oleh karena itu diperlukan pemeriksaan tambahan seperti feritin dan analisis hemoglobin. Namun tidak semua laboratorium dapat melakukan pemeriksaan ini. Banyak penelitian yang membedakan kedua penyakit tersebut dengan indeks eritrosit. Namun indeks eritrosit memiliki nilai diagnostik yang berbeda di setiap negara dan belum ada data di Indonesia. Penelitian ini melakukan uji diagnostik Indeks Mentzer, RDW, Green-King, Sirdah, dan mencari nilai cut-off baru yang memberikan nilai diagnostik lebih baik.
Penelitian terdiri dari 98 subyek definitif anemia defisiensi besi dan 80 subyek thalassemia β trait. Nilai diagnostik Indeks Mentzer untuk anemia defisiensi besi adalah sensitivitas 83.6%, spesifisitas 66.2%, NPP 75.2%, NPN 76.8%, RKP 2.4, RKN 0.2. Nilai diagnostik Indeks Mentzer untuk thalassemia β trait adalah sensitivitas 66.2%, spesifisitas 83.6%, NPP 76.8%, NPN 75.2%, RKP 4.0, RKN 0.4. Nilai diagnostik Indeks RDW untuk anemia defisiensi besi adalah sensitivitas 91.8%, spesifisitas 75%, NPP 81.8%, NPN 88.2%, RKP 3.6, RKN 0.1. Nilai diagnostik Indeks RDW untuk thalassemia β trait adalah sensitivitas 75%, spesifisitas 91.8%, NPP 88.2%, NPN 81.8%, RKP 9.1, RKN 0.2. Nilai diagnostik Indeks Green-King untuk anemia defisiensi besi adalah sensitivitas 96.9%, spesifisitas 67.5%, NPP 78.5%, NPN 94.7%, RKP 2.9, RKN 0.04. Nilai diagnostik Indeks Green-King untuk thalassemia β trait adalah sensitivitas 67.5%, spesifisitas 96.9%, NPP 94.7%, NPN 78.5%, RKP 22.0, RKN 0.3. Nilai diagnostik Indeks Sirdah untuk anemia defisiensi besi adalah sensitivitas 92.8%, spesifisitas 58.7%, NPP 73.3%, NPN 87.0%, RKP 2.2, RKN 0.1.Nilai diagnostik Indeks Sirdah untuk thalassemia β trait adalah sensitivitas 58.7%, spesifisitas 92.8%, NPP 87.0%, NPN 73.3%, RKP 8.2, RKN 0.4. Nilai cut-off baru Indeks Mentzer adalah 13.44, RDWI 233.4, Green-King 75.06, dan Sirdah 32.52.
Keempat indeks eritrosit dapat diaplikasikan untuk orang Indonesia dengan Indeks Green-King sebagai indeks yang terbaik.
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ABSTRACT

Iron deficiency anemia and β trait thalassemia are the most common causes of microcytic hypochromic anemia in Indonesia. Differentiation between them is difficult when solely based on a hematology examination, so additional laboratory tests are required such as ferritin and hemoglobin analysis. However, not all laboratories can perform these tests. Many erythrocytes indices have been proposed to determine whether a blood sample is more suggestive for iron deficiency anemia or β trait thalassemia. Unfortunately these indices have different diagnostic value in many countries and there is no data about diagnostic value in Indonesia. This study performs diagnostic test Mentzer, RDW, Green-King, and Sirdah Index and develops a new cut-off point that could make a better diagnostic value.
This study consists of 98 subjects of iron deficiency anemia and 80 subjects of β trait thalassemia. Diagnostic values of Mentzer Index for iron deficiency anemia were sensitivity 83.6%, specificity 66.2%, PPV 75.2%, NPV 76.8%, LR+ 2.4, LR- 0.2. Diagnostic values of Mentzer Index for β trait thalassemia were sensitivity 66.2%, specificity 83.6%, PPV 76.8%, NPV 75.2%, LR+ 4.0, LR- 0.4. Diagnostic values of RDW Index for iron deficiency anemia were sensitivity 91.8%, specificity 75%, PPV 81.8%, NPV 88.2%, LR+ 3.6, LR- 0.1. Diagnostic values of RDW Index for β trait thalassemia were sensitivity 75%, specificity 91.8%, PPV 88.2%, NPV 81.8%, LR+ 9.1, LR- 0.2. Diagnostic values of Green-King Index for iron deficiency anemia were sensitivity 96.9%, specificity 67.5%, PPV 78.5%, NPV 94.7%, LR+ 2.9, LR- 0.04. Diagnostic values of Green-King Index for β trait thalassemia were sensitivity 67.5%, specificity 96.9%, PPV 94.7%, NPV 78.5%, LR+ 22.0, LR- 0.3. Diagnostic values of Sirdah Index for iron deficiency anemia were sensitivity 92.8%, specificity 58.7%, PPV 73.3%, NPV 87.0%, LR+ 2.2, LR- 0.1. Diagnostic values Sirdah Index for β trait thalassemia were sensitivity 58.7%, specificity 92.8%, PPV 87.0%, NPV 73.3%, LR+ 8.2, LR- 0.4. The new cut-off point of Mentzer, RDW, Green-King, and Sirdah Index was 13.44, 233.4, 75.06, and 32.52 respectively.
All indices can be applied for Indonesian people, among which Green-King Index had the best diagnostic value, Iron deficiency anemia and β trait thalassemia are the most common causes of microcytic hypochromic anemia in Indonesia. Differentiation between them is difficult when solely based on a hematology examination, so additional laboratory tests are required such as ferritin and hemoglobin analysis. However, not all laboratories can perform these tests. Many erythrocytes indices have been proposed to determine whether a blood sample is more suggestive for iron deficiency anemia or β trait thalassemia. Unfortunately these indices have different diagnostic value in many countries and there is no data about diagnostic value in Indonesia. This study performs diagnostic test Mentzer, RDW, Green-King, and Sirdah Index and develops a new cut-off point that could make a better diagnostic value.
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