INTISARI

KORELASI ANTARA INDEKS MASA TUBUH (IMT) DAN PERSEN LINGKAR LENGAN ATAS (%LLA) DENGAN STATUS BESI PADA PENDONOR DARAH DI YOGYAKARTA

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Latar belakang: Jumlah persediaan darah di Indonesia belum dapat memenuhi kebutuhan, salah satu penyebabnya adalah penolakan donor darah akibat anemia defisiensi besi. Dampak negatif defisiensi besi diantaranya turunnya daya tahan tubuh terhadap infeksi dan berkurangnya kinerja intelektual. Pemeriksaan cadangan besi yang paling sensitif dan reliabel saat ini adalah feritin serum, tetapi dalam syarat donor darah hanya menggunakan indikator hemoglobin karena dinilai lebih murah. Oleh sebab itu diperlukan skrining variabel lain yang mempengaruhi status besi untuk mengurangi penolakan donor.

Tujuan: Mengetahui korelasi antara status besi berdasarkan parameter indeks masa tubuh (IMT) dan persen lingkar lengan atas (%LLA) dengan status besi pada pendonor darah di Yogyakarta.

Metode: Penelitian dilakukan dengan rancangan *cross-sectional*. Sampel penelitian adalah pendonor darah di UTD Kota Yogyakarta yang dipilih berdasarkan *consecutive sampling,* berumur 17-60 tahun, dan memenuhi kriteria inklusi. Sampel dibagi menjadi tiga kelompok berdasarkan IMT: gizi normal 18,5-24,9; berat badan lebih 25-27; obesitas >27. Berdasarkan %LLA sampel dibagi empat kelompok, yaitu: gizi kurang ≤90%, gizi baik 90-110%, gizi lebih 111-120%, obesitas >120% LLA standar. Pengambilan darah intravena untuk analisa feritin serum, besi serum, saturasi transferin, dan hemoglobin. Data dianalisa statistik menggunakan uji *Spearman* dan regresi linier dengan SPSS.

Hasil: Sampel yang memenuhi kriteria penelitian 49 orang, 11 perempuan dan 38 laki-laki. Rata-rata feritin serum 65,8 ± 44,2 ng/ml; besi serum 76,4 ± 31,7 µg/mg; saturasi transferin 25,2 ± 10,1 %; dan hemoglobin 14,1 ± 1,2 g/dl. Berdasarkan uji *Spearman* terdapat korelasi negatif antara status gizi dengan parameter IMT dengan besi serum (p=0,030 r=-311) dan saturasi transferin (p=0,025 r=-0,321). Tidak terdapat korelasi yang yang signifikan antara IMT dan feritin serum (p=0,087) dan hemoglobin (p=0,361). Tidak terdapat korelasi antara status gizi berdasarkan parameter %LLA dengan status besi dengan p>0,05. Berdasarkan analisis multivariat status besi yang berhubungan dengan IMT adalah feritin serum, besi serum, dan saturasi transferin.

Kesimpulan: Terdapat korelasi negatif antara IMT dengan besi serum dan saturasi transferin pada pendonor darah di Yogyakarta. Tidak terdapat korelasi antara status gizi berdasarkan parameter IMT dan %LLA dengan feritin serum dan hemoglobin pada pendonor darah di Yogyakarta.

Kata Kunci : IMT, %LLA, status besi, pendonor darah

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ABSTRACT

CORRELATION BETWEEN BODY MASS INDEX (BMI) AND PERCENTAGE OF MID UPPER ARM CIRCUMFERENCE (%MUAC) WITH IRON STATUS IN BLOOD DONORS AT YOGYAKARTA

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Background: Blood availability in Indonesian has not yet met the blood requirement. One of the causes is donor rejection due to iron deficiency anemia. Iron deficiency leads to immune weakening against infection and intellectual declination. The most sensitive and reliable method to assess iron supply is serum ferritin examination. However recent blood transfusion merely requires hemoglobin as iron indicator. Therefore, other methods of screening on iron supply are needed to prevent donor rejection.

Objective: To investigate the correlation between iron status based on body mass index (BMI) and percentage of mid upper arm circumstance (%MUAC) and iron status on blood donors in Yogyakarta.

Methods: This study was carried out with cross-sectional design. Study sample were blood donors aged 17-60 years. at Blood Transfusion Unit in Yogyakarta which were recruited using consecutive sampling methods. Subjects were divided into three BMI groups: normal 18.5-24.9; overweight 25-27; obese >27. Subject were also divided into four %MUAC groups: undernourished ≤90%, well-nourished 90-110%, overweight 111-120%, and obese >120% MUAC standar. Intravenous blood was obtained to analyze ferritin serum, transferrin saturation, and hemoglobin. Data were analyzed ststistically using Spearman test and linear regression.

Results: Forty-nine samples were eligible, 11 women and 38 men enrolled in this study. Mean of ferritin serum was 65,8 ± 44,2 ng/ml; iron serum was 76,4 ± 31,7 µg/mg; transferrin saturation was 25,2 ± 10,1 %; and hemoglobin 14,1 ± 1,2 g/dl. Spearman test showed, there was a negative correlation between nutritional status and BMI and iron serum (p=0,030 r=-311) and transferrin saturation (p=0,025 r=-0,321). No significant correlation was found between BMI and ferritin serum (p=0,087) and hemoglobin (p=0,361), as well as nutritional status based on %MUAC and iron status (p>0.05). Multivariate analysis showed iron status correlating with BMI are ferritin serum, iron serum, and ferritin saturation.

Conclusions: Negative correlation existed between BMI and iron serum, transferrin saturation in donors. No correlation was found between nutritional status based on BMI and %MUAC with ferritin serum and hemoglobin of blood donors in Yogyakarta.

Key Word : BMI, %MUAC, iron status, blood donors

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