

INTISARI

Latar Belakang: Obesitas merupakan masalah kesehatan global yang berkaitan dengan gangguan metabolisme glukosa. Pada kondisi obesitas dapat terjadi hiperglikemia kronik yang berkembang secara bertahap tanpa gejala klinis yang jelas sebagai bagian dari disfungsi regulasi glukosa. Deteksi dini gangguan metabolisme glukosa penting terutama pada subyek dengan obesitas. Penelitian mengenai dampak obesitas pada subyek sehat terhadap perubahan parameter HbA1c di Indonesia masih terbatas.

Tujuan: Mengevaluasi hubungan obesitas berdasarkan indeks massa tubuh (IMT) dengan HbA1c pada peserta MCU

Metode: Observasional analitik, potong lintang menggunakan data sekunder pada peserta MCU di RSUP Dr.Sardjito periode tahun 2020–2023. Kriteria inklusi usia ≥ 18 tahun, memiliki data berat badan dan tinggi badan, memiliki data HbA1c. Kriteria eksklusi *underweight* berdasarkan IMT dan riwayat DM. Karakteristik subjek penelitian secara deskriptif. Data numerik berdistribusi normal (hemoglobin, hematokrit, MCV dan angka trombosit) disajikan rerata $\pm$ SD dan analisis uji beda Anova. Data numerik yang tidak terdistribusi normal yakni usia, IMT, HbA1c, GDP, MCH, MCHC dan angka leukosit disajikan dalam median (nilai minimum-nilai maksimum) dan analisis Kruskal wallis. Data kategorikal(kategori usia, jenis kelamin, klasifikasi IMT, klasifikasi dari HbA1c,Hb,hematokrit,leukosit dan trombosit) dalam proporsional dan analisis Chi-square. Analisis korelasi uji Spearman. Analisis korelasi dilanjutkan analisis parsial untuk variabel usia, jenis kelamin, hemoglobin dan glukosa puasa untuk mengetahui konsistensi setelah mengendalikan variabel perancu.Batas kemaknaan $p < 0,05$

Hasil: Penelitian ini melibatkan 197 subyek. Usia 48(21–82) tahun, 107(54,3%) laki-laki dan 90(45,7%) perempuan. IMT 24,8(18,7–43,0)kg/m². 94 subjek (47,7%) obesitas, *normal weight* 56 subyek (28,4%) dan *overweight* 47 subjek (23,9%). Median kadar HbA1c 5,7(4,8–14,7)%, rerata hemoglobin 14,2 $\pm$ 1,7g/dL. GDP 89(62–393)mg/dL. Rerata hematokrit adalah 43,1 $\pm$ 4,9%. Terdapat perbedaan yang bermakna secara statistik pada IMT, HbA1c, dan GDP seiring peningkatan IMT ($p < 0,01$).Indeks massa tubuh berkorelasi positif lemah dengan HbA1c pada subyek MCU ($\rho = 0,300$; 95%CI 0,161–0,438; $p < 0,001$), tidak dipengaruhi oleh usia, jenis kelamin, kadar hemoglobin maupun kadar glukosa puasa (ρ parsial= 0,287;0,269;0,267;0,204; $p < 0,05$).Hanya kelompok obesitas berkorelasi positif sangat lemah bermakna dengan HbA1c ($\rho = 0,104$,95%CI=0,099–0,586, $p < 0,01$).

Simpulan: IMT berkorelasi positif dengan HbA1c.

Kata Kunci: Obesitas, IMT, HbA1c, *Medical Check-Up*.

ABSTRACT

Background: Obesity is a global health problem associated with impaired glucose metabolism. Obesity can cause chronic hyperglycemia that develops gradually without obvious clinical symptoms as part of glucose regulation dysfunction. Early detection of impaired glucose metabolism is crucial, especially in obese subjects. Research on the impact of obesity on changes in HbA1c parameters in Indonesia is still limited.

Objective: To evaluate the relationship between obesity based on body mass index (BMI) and HbA1c in MCU participants.

Methods: An observational, analytical, cross-sectional study using secondary data on MCU participants at Dr. Sardjito General Hospital in the period 2020–2023. Inclusion criteria were age ≥ 18 years, available weight and height data, and available HbA1c data. Exclusion criteria were underweight based on BMI and a history of diabetes. Subject characteristics were descriptive. Normally distributed numerical data (hemoglobin, hematocrit, MCV, and platelet count) were presented as mean $\pm$ SD and analyzed using ANOVA. Non-normally distributed numerical data, namely age, BMI, HbA1c, FBG, MCH, MCHC, and leukocyte counts, were presented as medians (minimum-maximum values) and analyzed by Kruskal-Wallis analysis. Categorical data (age category, gender, BMI classification, classification of HbA1c, Hb, hematocrit, leukocytes, and platelets) were analyzed using proportional and Chi-square analyses. Spearman correlation analysis was performed. The correlation analysis was followed by partial correlation analysis for age, gender, hemoglobin, and fasting glucose to determine consistency after controlling for confounding variables. The significance level was $p < 0.05$.

Results: This study involved 197 subjects. Ages ranged from 48 (21–82) years, with 107 (54.3%) men and 90 (45.7%) women. BMI ranged from 24.8 (18.7–43.0) kg/m^2 . Ninety-four (47.7%) subjects were obese, 56 (28.4%) normal weight, and 47 (23.9%) overweight. Median HbA1c level was 5.7(4.8–14.7)%, mean hemoglobin $14.2 \pm 1.7 \text{ g/dL}$. GDP 89(62–393) mg/dL . Mean hematocrit was $43.1 \pm 4.9\%$. There were statistically significant differences in BMI, HbA1c, and GDP with increasing BMI ($p < 0.01$). Body mass index had a weak positive correlation with HbA1c in MCU subjects ($\rho = 0.300$; 95%CI 0.161–0.438; $p < 0.001$), independent of age, gender, hemoglobin level, or fasting glucose level (partial $\rho = 0.287$; 0.269; 0.267; 0.204; $p < 0.05$). Only the obese group had a very weak positive correlation with HbA1c ($\rho = 0.104$; 95%CI=0.099–0.586; $p < 0.01$).

Conclusion: BMI is positively correlated with HbA1c.

Keywords: Obesity, BMI, HbA1c, Medical Check-Up