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Association between Body Mass Index And Glycated Albumin in Patients with Diabetes Undergoing Hemodialysis

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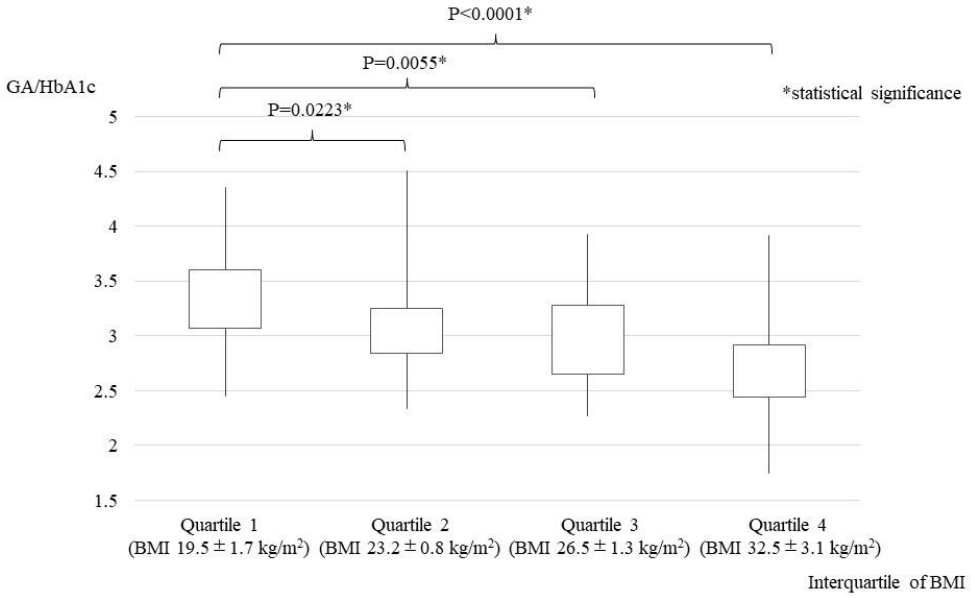
Objectives : In hemodialysis (HD) patients, glycated hemoglobin (HbA1c) is often lower than actual glycemic control, and glycated albumin (GA) can be used alternatively clinically. Conversely, obesity has been reported to be a factor associated with low GA; factually, patients with obesity undergoing dialysis often experience high HbA1c among those with low GA.
Methods : This cross-sectional cohort study determined the association between BMI, GA, and HbA1c. We included 144 patients with diabetes undergoing HD at four clinics. Age, sex, BMI, dialysis vintage, Kt/V, HbA1c, GA, and various clinical parameters were investigated. The Spearman's rank correlation coefficient was used to determine the correlation between GA and HbA1c. The ratio of GA to HbA1c (GA/HbA1c) was determined and its association with BMI quartile (quartile 1, low BMI; quartile 4, high BMI) was investigated. Dunnett's test using quartile 1 was used for comparisons between groups. Multivariate logistic regression analysis with a stepwise selection method was used to identify independent factors associated with GA/HbA1c. For subgroup analysis, we selected the BMI ≥25 kg/m2 group and conducted a similar study.
Results : The mean age was 63±13 years, 124 (86.1%) were men, dialysis vintage was 4.3±4.6 years, HbA1c was 6.3±1.3%, and GA was 18.9±4.6%. GA was significantly correlated with HbA1c ($R=0.75$, $p<0.0001$). Compared with quartile 1 (BMI; 19.5±1.7 kg/m2), GA/HbA1c significantly decreased in quartiles 2 (BMI; 23.2±0.8 kg/m2), 3 (BMI; 26.5±1.3 kg/m2), and 4 (BMI; 32.5±3.1 kg/m2). On multivariate logistic regression analysis, only BMI (standardized β, -0.53; 95% confidence interval, -0.06–-0.04) was significantly correlated with GA/HbA1c. Similar results were obtained in the subgroup analysis of BMI ≥25 kg/m2 group (67 patients).
Conclusions : In patients with diabetes undergoing hemodialysis with higher BMI, GA may be underestimated and its interpretation is important.

1-Figure APCN 2024.jpg

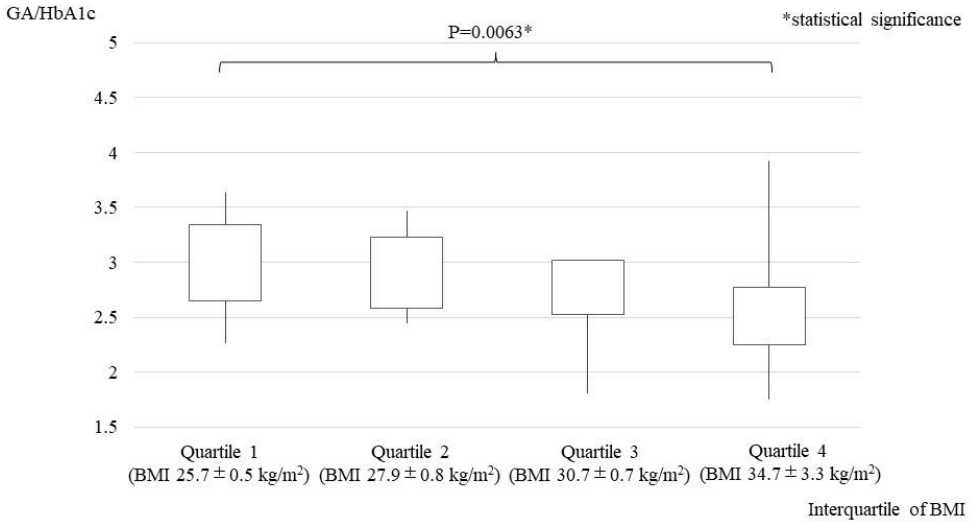
Association between BMI and GA/HbA1c in 144 patients with diabetes undergoing hemodialysis



Abbreviation: BMI, body mass index; GA, glycated albumin; HbA1c, glycated hemoglobin

1-Figure APCN 2024.jpg

Association between BMI and GA/HbA1c in 67 patients those with BMI ≥25 kg/m2



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