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Discordance Between Fasting Blood Glucose and Hemoglobin A1c (HbA1c) Values in Individuals with Prediabetes

Prediyabetli Bireylerde Açlık Kan Şekeri ve Hba1c Değerleri Arasındaki Uyumsuzluk

LETTER TO THE EDITOR
EDİTÖRE MEKTUP

To the Editor,

We read with great interest the article published by Taş et al.[1] in the *Archives of the Turkish Society of Cardiology*. In this study, the researchers aimed to determine the relationship between spexin levels and echocardiographic findings in prediabetic patients with and without hypertension.

The authors defined prediabetes according to the American Diabetes Association as hemoglobin A1c (HbA1c) values 5.7–6.4%, a two-hour blood sugar level of 140–200 mg/dL, or fasting blood glucose (FBG) of 100–126 mg/dL (Table 1).[2] In Table 3 of the article, the authors reported the mean glucose values of the hypertensive group as 125.5 ± 19.7 mg/dL and those of the non-hypertensive group as 122.5 ± 20.4 mg/dL. They also stated that venous blood samples were collected in the morning after an overnight fast. Therefore, if the glucose values in Table 3 represent FBG, there is an inconsistency between FBG and HbA1c values. While the HbA1c values presented in Table 3 are consistent with the definition of prediabetes, FBG should be higher than the upper limit (≥ 126 mg/dL) in approximately 50% of the participants.

A possible explanation for this inconsistency may be a discordance between FBG and HbA1c levels, which has been reported previously with a prevalence ranging between 6% and 23%.[3-5] This discrepancy is more frequently observed in the general population than in patients with diabetes and has been attributed to various clinical factors, including race/ethnicity, male sex, older age, higher body mass index, fatty liver disease, and elevated postprandial glucose levels. Feng et al.[4] reported that the prevalence of HbA1c-defined diabetes and prediabetes (8.13% and 34.79%, respectively) was significantly higher than that of FPG-defined diabetes and prediabetes (4.70% and 8.97%, respectively) ($p < 0.001$). According to the definition of prediabetes in the guidelines, FPG tests should be verified with repeated measurements to account for fluctuations caused by temporary factors (e.g., stress or illness). Additionally, averaging multiple replicates is recommended to improve reliability and account for glucose variability.[2]

Table 1. Diagnostic Criteria for Diabetes and Pre-Diabetes According to the American Diabetes Association

Glycemic Indices	Prediabetes	Diabetes
Fasting plasma glucose*	5.6–6.9 mmol/L (100–125 mg/dL)	≥ 7.0 mmol/L (≥ 126 mg/dL)
	or	
2hPG (OGTT)	7.8–11.0 mmol/L (140–199 mg/dL)	≥ 11.1 mmol/L (≥ 200 mg/dL)
	or	
HbA1c	5.7–6.4% (39–47 mmol/mol)	≥ 6.5% (≥ 48 mmol/mol)

2hPG, Two-Hour Plasma Glucose; Hba1c, Glycated Hemoglobin; OGTT, Oral Glucose Tolerance Test.
*Fasting is defined as no caloric intake for at least 8 hours.

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The data presented by Taş et al.[1] suggests that a certain number of patients may exhibit discordance between FBG and HbA1c levels. Examining the percentage of patients who meet the prediabetic HbA1c criteria but have elevated FBG levels, as well as those with only prediabetic FBG levels, and assessing whether differences exist between these two groups may provide valuable insights into this study population. Such an analysis could offer important data for clinical practice.

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