COMMENT ON ROONEY ET AL.

Global Prevalence of Prediabetes. Diabetes Care 2023;46:1388–1394

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I read the immensely important article published by Rooney et al. (1) in which the authors estimated the prevalence of prediabetes regionally, nationally, and globally by defining impaired fasting glucose (IFG) or impaired glucose tolerance (IGT). I took this as an opportunity to discuss the impact of different diagnostic criteria of prediabetes on its prevalence.

Due to different cutoff values of blood glucose for diagnosing diabetes or prediabetes based on IFG and IGT, it is difficult to catch diabetes-related pathology and developing diabetes. Due to this limitation, it is less used because it is poorly reproduced in adults and children (2). Glycated hemoglobin (HbA_{1c}), an indicator of long-term glucose control, has proven to be an attractive diagnostic criterion for its convenience and stability. However, its use raises questions about its reliability in certain populations, such as those with anemia, hemoglobinopathies, or erythrocyte turnover disorders. The choice of diagnostic criteria significantly affects the reported prevalence of prediabetes. This in turn has implications for public health planning, resource allocation, and preventive measures. The incidence of prediabetes defined by the World Health Organization criteria is higher in comparison with the American Diabetes Association criteria (3).

It is challenging to determine precise trends in the global burden of prediabetes due to changes in diagnostic criteria in recent years, with various methods used for diagnosis of prediabetes and different defining criteria, which directly affect the prevalence of diabetes. Hence, there is wide variation in reported prevalence in literature.

A stricter criterion may lead to earlier detection and intervention and potentially decrease the risk of developing type 2 diabetes. However, this could also increase prevalence rates and cause undue alarm or burden health care systems. Conversely, a lenient criterion may lead to missed opportunities for early intervention.

From a biochemical perspective, variations in diagnostic criteria reflect the complex nature of glucose metabolism. Glucose homeostasis involves a complex interplay between insulin secretion, insulin sensitivity, hepatic glucose production, and peripheral glucose uptake. Factors such as genetic predisposition, dietary habits, physical activity, and adipose tissue distribution contribute to interindividual variability in glucose regulation.

In addition, recent research has revealed the heterogeneity of prediabetes. Not all individuals diagnosed with prediabetes share the same metabolic profile. Some individuals may show IFG, while others show IGT, highlighting the multifaceted nature of this condition. This complexity requires a more personalized approach to diagnosis, treatment, and prevention.

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