

Obesity and Diabetes in an Aging Population



Time to Rethink Definitions and Management?

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KEYWORDS

- Elderly population • Diabetes • Prediabetes • Obesity • Heterogeneous
- Lifestyle interventions

KEY POINTS

- Establishing a diagnosis of prediabetes or diabetes in an elderly population may require more than 1 measure of glycemia.
- The geriatric population represents a heterogeneous group of individuals in whom vigilance and a tailored approach are warranted.
- Management of diabetes in an elderly population requires examining each patient's comorbid conditions, functional status, life expectancy, and preferences.
- Obesity is highly prevalent. Older individuals benefit as much as, or to a greater degree, from intensive lifestyle interventions to reduce weight compared with younger obese individuals.

INTRODUCTION

Diabetes mellitus (DM) represents a group of disorders characterized by hyperglycemia; microvascular complications including retinopathy, nephropathy, and peripheral neuropathy; and an increased risk of cardiovascular disease. The diagnosis of diabetes is based on fasting and post-glucose load blood glucose thresholds. The

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most recent American Diabetes Association (ADA) criteria for the diagnosis of diabetes and prediabetes are summarized in **Box 1**.¹

However, glucose levels in the population are a continuum. Therefore, these diagnostic criteria to distinguish between normal and diabetic levels are arbitrary. Glucose levels are also used to define prediabetes (ie, impaired fasting glucose and impaired glucose tolerance).

More than 30% of older adults in the United States meet these ADA criteria for diabetes,^{2,3} and approximately 40% of people with a known diagnosis of diabetes are older than 65 years.² The number of people more than 65 years of age with diabetes is projected to increase by 4.5-fold between 2005 and 2050.^{4,5} Because many other older people meet ADA criteria for prediabetes, less than 30% of the US population more than 65 years of age have normal glucose levels.²

The glucose cutoffs for diabetes and prediabetes were selected because of predictions of increased risk of microvascular and neuropathic complications. Progressively higher glucose levels from the normal to the prediabetic to the diabetic range are associated with a progressively higher risk of cardiovascular disease, as shown in **Fig. 1**.⁶⁻⁹

However, for individuals who meet criteria for prediabetes but not diabetes, the risk may be modest and hard to separate from overlap with the other components of metabolic syndrome (obesity, low high-density lipoprotein level, high triglyceride levels, and increased blood pressure).^{10,11} None of these criteria make adjustments for age, because these cutoffs predict risk for diabetes complications in all age groups.

Recent changes to the diagnostic criteria for prediabetes and diabetes include the addition of hemoglobin A1c (HbA1c) (see **Box 1**),¹ which also predicts microvascular complications. Advantages to HbA1c as a diagnostic test compared with glucose measurements include convenience (it can be obtained at any time of day and without regard to caloric intake), less day-to-day variability, and international standardization of the assay. However, there are many situations in which HbA1c does not accurately

Box 1

ADA criteria for the diagnosis of diabetes and prediabetes

Criteria for the diagnosis of diabetes: 4 options

Hemoglobin A1c (HbA1c) level greater than or equal to 6.5%^a

Performed in a laboratory using National Glycohemoglobin Standardization Program (NGSP)-certified method standardized to The Diabetes Control and Complications Trial (DCCT) assay

Fasting plasma glucose (FPG) greater than or equal to 126 mg/dL (7.0 mmol/L)^a

Fasting defined as no caloric intake for greater than or equal to 8 and less than or equal to 12 hours

Two-hour post glucola (PG) greater than or equal to 200 mg/dL (11.1 mmol/L) during OGTT (75 g)^a

Random PG greater than or equal to 200 mg/dL (11.1 mmol/L)

In persons with symptoms of hyperglycemia or hyperglycemic crisis

Criteria for the diagnosis of prediabetes: 3 options

HbA1c level 5.7% to 6.4%

FPG 100 to 125 mg/dL

Two-hour PG 140 to 199 mg/dL during oral glucose tolerance testing (OGTT) (75 g)

^a In the absence of unequivocal hyperglycemia, results should be confirmed using repeat testing.

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