Hemoglobin A₁c levels were associated with increased cardiovascular disease and all-cause mortality in persons with and without diabetes


Etiology

Hemoglobin A₁c levels were associated with increased cardiovascular disease and all-cause mortality in persons with and without diabetes. A 1% increase in HbA₁c levels was associated with a 20% to 30% increase in cardiovascular events and all-cause mortality in men and women 45 to 79 years of age. This relation was independent of diabetes status.

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Commentary

Diabetes mellitus is a major risk factor for CVD, and unlike hypertension, smoking, and dyslipidemia, it is becoming more common over time.

The diagnostic criteria for diabetes include fasting plasma glucose ≥ 7.0 mmol/L or 2-hour postload plasma glucose levels ≥ 11.1 mmol/L, values above which the risk for microvascular complications of diabetes, such as retinopathy, nephropathy, and neuropathy, increases. These values correspond approximately to an HbA₁c level of 7%. However, there is considerable epidemiologic evidence that the risk for CVD begins to increase at lower glycemic levels than would be considered "abnormal"—levels that would not be associated with increased microvascular disease risk (1). The study by Khaw and colleagues adds to this evidence because of its large study population and particularly large number of female participants.

In this study, 72% of the excess CVD risk that was attributable to higher HbA₁c levels occurred in patients with HbA₁c levels of 5.0% to 6.9%. In light of this evidence, perhaps the cutpoint for a "normal" HbA₁c level should be revised downward, as has been done for cholesterol and blood pressure. It would also be desirable to develop and validate cardiovascular risk calculators that include HbA₁c level as a predictor variable, as has been done for patients with type 2 diabetes in the UKPDS Risk Engine (2). In the meantime, HbA₁c levels provide an additional measure of an individual patient’s CVD risk.

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References
