Glycated hemoglobin: From management to diagnosis of diabetes

Dear Sir,

Glycated hemoglobin (HbA1c) is a well-established test for monitoring the long-term control of glucose levels in diabetic patients. Its estimation gives information about the glycemic control of the patient over the last 2–3 months. It can be analyzed in a nonfasting, random sample, which does not cause much inconvenience to the patient. Additionally, it is not just a value at one point-like fasting or postprandial blood glucose, it is a better clinical parameter. Although HbA1c is being used as the test of choice for chronic management of diabetes, it was not widely used for its diagnosis so far. However, some early reports of its use in the diagnosis of diabetes are noteworthy.[1]

Recently, the International Expert Committee Report with members appointed by the American Diabetes Association, the European Association for the study of diabetes, and the International Diabetes Federation have recommended a new role for HbA1c. The committee has reviewed the diagnostic criteria for type 2 diabetes mellitus, and the literature reports indicating a strong correlation of microvascular complications and HbA1c, e.g., retinopathy has stronger correlation to HbA1c levels but a less consistent association with the plasma glucose.[2,3]

The most important reason that HbA1c was not being recommended as a diagnostic test for diabetes during previous diabetes expert committee meetings, was lack of availability of standardized assays across the globe. An updated examination of the laboratory measurements of glucose and HbA1c by the current expert committee indicated that with advances in instrumentation and standardization, the accuracy and precision of HbA1c at least match those of glucose assays.[4]

These observations suggest that a reliable measure of chronic glycemic levels such as HbA1c, which captures the degree of glucose exposure over time and which is related more intimately to the risk of complications than episodic measures of glucose levels, may serve as a better biochemical marker of diabetes and should be considered a diagnostic tool. Other advantages of HbA1c are its less biologic variability, substantially less preanalytical variability, and no need of fasting or timed samples.[4]

The expert committee has concluded that an HbA1c level of 6.5% is sufficiently sensitive and specific to identify individuals who are at risk of developing retinopathy and should be diagnosed as diabetic. The decision was aided by parallel decision to recommend effective preventive strategies for the highest at risk group with HbA1c between 6 and 6.5%.[4]

These recommendations are very important for India, which has the largest diabetic population in the world. In India, unlike the situation in west, patients with diabetes have relatively low body mass index (BMI). Ministry of health has already taken initiative in this regard and decreased the cut off for definition of overweight and obesity in India. According to new diagnostic definition, a person having BMI of 23 kg/m^2 is overweight and of 25 kg/m^2 is obese in India, which is lower than the worldwide cutoff of 25 and 30 kg/m^2, respectively.[5] HbA1c might help in early diagnosis of these patients, which may not be possible with the use of plasma glucose levels as diagnostic tool.

It is important to remember that whichever of HbA1c or plasma glucose estimations are used for diagnosis, both initial and confirmatory testing should be performed with the same test as these tests are not completely concordant.[4]

The enthusiasm of clinicians and patient affordability are going to be the limiting factor in optimal utilization of this new diagnostic yardstick for diabetes in our country.

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