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/m² is overweight and of 25 kg/m² is obese in India, which is lower than the worldwide cutoff of 25 and 30 kg/m², respectively.[3] 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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Letters to editor

A household drug utilization survey among diabetics in rural Malaysia

Dear Sir,

It is estimated that 1.6 million Malaysians above the age 30 years are suffering from type 2 diabetes mellitus. The prevalence of diabetes mellitus has showed a drastic increase of 80% over a period of 10 years, from 8.3% in 1996 to 14.9% in 2006 for the same age group. According to another estimate, one-third of those who have type 2 diabetes mellitus in Malaysia are unaware about their condition. This is a very alarming situation and it is not only important to create awareness among the people about the disease, but also it is necessary to formulate and provide clear and concise guidelines to all healthcare providers on the current practice in the management of type 2 diabetes mellitus. This study was carried out to assess the community drug utilization pattern among type 2 diabetic patients in one of the selected villages in rural Malaysia. This village was selected for the appraisal of the health status of its residents and also due to proximity to our institution.

A 3-day community-based, antidiabetic drug utilization survey was undertaken as a part of a larger community diagnosis survey, which was conducted to assess the disease pattern of people living in village Hilir, State of Kedah, Malaysia in November 2008. A total of 390 people belonging to 84 households were interviewed by using a predesigned interview method. The respondents were asked to show the drugs available in their house to the investigators as a part of surveillance and medical care received by diabetic individuals. The study was approved by the Institutional Ethics Committee and confidentiality of the subjects was maintained.

Thirty-eight (9.74%) individuals suffering from type 2 diabetes mellitus were identified and interviewed using a specially designed questionnaire to assess their antidiabetic drug utilization patterns. Twenty (52.6%) diabetic patients were in between 30 and 50 years of age. The remaining 18 patients (47.4%) were above the age group of 50. Out of the 38 diabetic patients, 22 patients were male and 16 were female. Eleven patients had body mass index (BMI) more than 30 kg/m², 13 diabetics were overweight (BMI between 25 and 30 kg/m²), and the rest were normal or underweight at the time of study.

The mean number of drugs per prescription of the diabetic individuals was 2.3. The medicines consisted of one or two antidiabetic drugs along with other drugs such as drugs for hypertension, ischemic heart disease, multivitamin and antioxidant tablets, lipid lowering drugs, etc.

Thirty-three patients (86.8%) opted for treatment through government primary healthcare clinics (allopathic drug treatment). Three patients (7.9%) availed traditional medical treatment by Bomoh (traditional healers) in the village and had no plans to shift to allopathic treatment in the near future. Two (5.3%) patients received no treatment since the diagnosis of diabetes mellitus type 2 was done (4 and 6 years ago, respectively, in both the individuals). The reason for not receiving treatment in these two individuals was their nonwillingness to take any form of treatment.

For the 33 patients on allopathic treatment, the top four antidiabetic drugs prescribed were glibenclamide (10 cases), metformin (9 cases), rosiglitazone (7 cases), and acarbose (6 cases).

References