

# Free essay on new diagnostic tool for diabetes

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## **A NEW DIAGNOSTIC TOOL FOR DIABETES**

According to WHO recommendation of 2011, a new diagnostic criteria for the diagnosis of diabetes has been proposed. The proposed method is use of HbA1c levels for the analysis of diabetes and its related outcomes. More than as a diagnostic tool, it is used as a prognosis marker. The level of Hb1Ac indicates the severity of diabetes and how grave the disease can turn into. It can also be used as a screening test to determine the chances of developing diabetes in high risk patients, that is, the patients having a sedentary lifestyle, improper eating habits, pre existing heart diseases, patients with a positive family history of diabetes, history of pancreatic affections, liver diseases etc.

Haemoglobin as we know is the pigmented cell that carries oxygen to different parts of the body. There are types of haemoglobin, among which Haemoglobin A or adult haemoglobin is one. This Adult Haemoglobin has further subtypes out of which 1c is an important variant. The levels of HbA1c are seen to be increasing with increase in blood glucose levels (they are believed to get coated in the presence of high blood sugar levels). But it does not depend on the daily fluctuation of the blood glucose levels. It indicates the blood glucose level of approximately over a period of 2-3 months. Thus it can be called as a good prognostic marker. It will help in identifying the progress of the disease, how well the glucose levels have been controlled, how effective the treatment provided seems to be, the benefits of the dietary regulations and exercises ( if done properly).

Normally, the HbA1c levels should be lesser than 6% (48mmol/ mol) of the total haemoglobin. In diabetics it is often seen above 7%. Levels beyond

normal are suggestive of serious complications related to diabetes. Special care should be taken to maintain the levels below 6% but keeping in mind that the patient does not become hypoglycaemic. Although a level higher than normal is suggestive of diabetes, but it is not a confirmatory test for diagnosis, blood sugar test still holds the potential for a correct diagnosis. According to WHO, a level above 6% of HbA1c showing no symptoms of diabetes should be taken into serious consideration, the test should be repeated again. If found high repeatedly, then the patient may be labelled as a high risk patient of developing diabetes. Another test for HbA1c levels should be done again after 6 months to confirm the diagnosis of diabetes or at least to eliminate the risk.

There can be certain conditions where the levels of HbA1c are not dependable, the levels either become higher or lower without any underlying cause directly related to diabetes. Conditions pertaining to kidney failure or excessive alcohol consumption can lead to increased levels or the levels can fall below normal in conditions related to blood, like excessive loss of blood and certain forms of anaemia. These false results may be misleading.

Unlike the blood sugar test, HbA1c test does not require the patient to fast. The test can be undergone any time of the day even immediately after having a full meal.

In a research by the American Diabetes Association in 2013, the relation between HbA1c and hypoglycaemia was established. It was found that the risk of severe hypoglycaemia was higher in patients with a good or normal glycaemic control or below normal HbA1c levels. Whereas, age, duration of being diabetic or the type of medication taken, had no effect on the

hypoglycaemia- HbA1c relationship.

Although considered a diagnosis of choice for establishing levels of glycemic control and severity of the illness, HbA1c hardly serves any purpose in patients with renal diseases, specially the one undergoing dialysis. In a patient of recurrent dialysis, anaemia is normally found to be evident. And as we know, in anaemia the levels of haemoglobin itself falls drastically.

Henceforth, the level of HbA1c will also be misleading. Even a patient with severe diabetic complications along with kidney disease or any other condition which may lower the haemoglobin levels will have a significantly low level of HbA1c.

Thus patients belonging to the high risk group should keep a continuous check on their HbA1c levels. The test should be done at least twice a year. This will help in preventing the occurrence of diabetes. Also the patients with previously diagnosed diabetes, already under medication, should take the test at least once in every 3 months. This will not only keep them informed about any further health hazards, but they will also get to know the effectiveness of the medication they are taking, the success of the daily regimen they are following and the result of the dietary restrictions they are undergoing as a part of the treatment. But it should always be kept in mind, that this is not the ultimate standard for diagnosing diabetes. Testing the levels of fasting blood sugar and random blood sugar are still the most important diagnostic marker.

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