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Canadian group approves A1c for diagnosing type 2 disease

Written by Joe McAllister on July 14, 2011 for CanadianHealthcareNetwork.ca

Move brings Canada closer to world standards

TORONTO | The Canadian Diabetes Association (CDA) has now accepted the use of glycated hemoglobin A1C for the diagnosis of type 2 diabetes.

Previously the association held that the fasting plasma glucose test or oral glucose tolerance test were the gold standards for diagnosing type 2 diabetes. Now those two methods have been joined by A1C, which brings Canada closer to the standards in the rest of the world. Last year, both the World Health Association and the American Diabetes Association separately decided that A1C could be used to diagnose type 2 diabetes.

The change does not exclude using CDA-approved traditional diagnostic tests such as fasting plasma glucose, random glucose with symptoms, or a two-hour plasma glucose during an oral glucose tolerance test.

The CDA clinical guidelines note that A1c is not recommended for diagnostic purposes in children, adolescents, pregnant women or people with type 1 diabetes; it may be misleading, and should not be used for diagnosing those with hemoglobinopathies, hemolytic anemia, thalassemias, iron deficiency, spherocytosis and severe hepatic or renal failure.

A confirmatory test, using one or more of the existing recommended diagnostic methods should still be done on a different day, with any discordance between the tests resulting in yet another test.

Glucose levels for each of the tests that the CDA says should be used to diagnose diabetes are contained in the accompanying chart.

Dr. Ronald Goldenberg, a consultant endocrinologist with North York General Hospital and LMC Endocrinology Centre in Thornhill, Ont., is one of the authors of the CDA guidelines. In an interview, he said it has been only in the last few years that A1c testing has become standardized enough that it could be used for screening and diagnosis.

The test might also be a better "marker of many other things" that constitute diabetes, including cardiovascular disease, impaired kidney function and diabetic nephropathy, while previous diagnostic

Recommendations for diagnosing diabetes

FPG ≥7.0 mmol/l
Fasting = no caloric intake for at least eight hours prior to test

OR

Casual PG ≥11.1 mmol/l + symptoms of diabetes
Casual = any time of the day, without regard to the interval since the last meal

Classic symptoms of diabetes = polyuria, polydipsia and unexplained weight loss

OR

2hPG in a 75-g OGTT ≥11.1 mmol/L

OR

A1C ≥6.5%
Using a standardized, validated assay, in the absence of conditions that affect the accuracy of the A1C
A repeat confirmatory laboratory test (FPG, casual PG, 2hPG in a 75-g OGTT, or A1C) must be done in all cases on another day in the absence of unequivocal hyperglycemia accompanied by acute metabolic decompensation.

It is preferable that the same test be repeated for confirmation. However,

tests usually were based on glucose blood levels that indicated an increase in retinopathy.

"It's a big deal," Dr. Goldenberg said of the changes, which were scheduled to be announced by the CDA in mid-July. The traditional gold-standard tests for diagnosing diabetes are difficult for doctors and patients: Fasting glucose requires an eight-hour fast and the results can vary from day to day as a result of diet and normal diurnal changes; an oral glucose tolerance test requires a patient to stay in the office for hours and orally consume a bad-tasting glucose concoction.

A1c, on the other hand, has less day-to-day variability since it measures blood glucose over a month.

repeated for confirmation. However, in individuals in whom type 1 diabetes is likely (younger or lean or symptomatic hyperglycemia, especially with ketonuria or ketonemia), confirmatory testing should not delay initiation of treatment to avoid rapid deterioration.

2hPG = 2-hour plasma glucose
FPG = fasting plasma glucose
OGTT = oral glucose tolerance test
PG = plasma glucose

Dr. Goldenberg suggested that A1c might be used together with fasting glucose for diagnostic purposes, while A1c alone will be used for monitoring patients who have already been diagnosed.

Dr. Maureen Clement, chair of the scientific section of the CDA, said A1c has been used more and more by Canadian doctors, so they will be familiar with that measure. She thinks it will be used, for example, to follow hypertensive patients at risk of diabetes who have had a fasting blood sugar reading which came back in the pre-diabetic range of 6.7 mmol/l.

"This is faster, and more convenient—and cheaper—than ordering the two-hour, 75 gram oral glucose tolerance test," she said in an e-mail interview.

Tags: Canadian Diabetes Association, Hemoglobin A1C, type 2 diabetes