Use of A1C for Diagnosis of Type 2 Diabetes in Adults

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Physicians have been using A1C for the diagnosis of Type 2 diabetes with increasing frequency in recent years. Last year several groups including the American Diabetes Association and WHO recommended an A1C of 6.5% or higher as one criterion for the diagnosis of diabetes.

The Canadian Diabetes Association 2008 Clinical Practice Guidelines were released before these recommendations and the updated guidelines will not be due out until 2013. It is timely for our patients that the CDA released a Position Statement in the July issue of the Canadian Journal of Diabetes on the “Use of Glycated Hemoglobin (A1C) in the Diagnosis of Type 2 Diabetes in Adults” (http://www.diabetesclinic.ca/en/pdf/CJD--July%202011--Position_Statement.pdf)

A1C is now recognized as one of several diagnostic criteria for the diagnosis of diabetes but is not without its issues. A validated standardized assay must be used. There are several factors and other conditions that might lead to an increased or decreased A1C leading to under- or overdiagnosis.

It has been estimated that if A1C is used as the sole criterion, between 2 and 7 million fewer adults in the US would be identified as having diabetes.

The advantage of A1C measurement is the lack of a need for a fasting state or the more cumbersome glucose tolerance test. It is not to be used for diagnosis in children or adolescents and not in Type 1 diabetes. Caution in the interpretation of results should be used in hemoglobinopathies, iron deficiency, severe chronic kidney or liver disease and certain ethnic groups and other conditions outlined in the position statement.

The CDA has made several recommendations in the position statement including use of a confirmatory test as follows- “in the absence of unequivocal hyperglycemia accompanied by acute metabolic decompensation, a repeat confirmatory laboratory test (FPG, casual PG, 2hPG in a 75-g OGTT, A1C) must be done in
all cases on another day. It is preferable that the same test be repeated for confirmation. If results of two different tests are available, and both are above the diagnostic cut-points, the diagnosis of diabetes is confirmed. When results of more than one test are available and are discordant, the test with a result above the diagnostic cut-point should be repeated and the diagnosis made on the basis of the repeat test.” Personally, I often use it as a second test when one is abnormal—eg a single fasting of 7.2 mmol/L.

Other organizations have suggested an A1C of 6.1-6.4% should be labeled as “at risk” but the CDA does not currently recommend using an A1C<6.5% to diagnose prediabetes.

I hope this helps clarifies the role of A1C in the diagnosis of Type 2 diabetes. This will potentially have an impact on the workload at our Provincial Diabetes Program sites given the shift of patients from “at risk” to diabetes. As always, feel free to contact me regarding diabetes related management issues or concerns.

**Diabetes Management - Collaborative Family Practice Visits**

Over the past year, diabetes educators from the Provincial Diabetes Program have participated in a new initiative in diabetes care and management. In an effort to improve access to diabetes educators and increase collaboration, family physicians were approached to seek their interest in establishing diabetes focused clinic days within their practice sites.

By collaborating with the family doctor and identifying the knowledge and practice gaps of the client with diabetes, the diabetes educator is able to recommend appropriate treatments, referrals or changes to therapy and support the client in their self management of this chronic disease.

Over the past year, in total 10 clinical sites agreed to participate which included the involvement of 18 physicians. In most physician office sites the diabetes clinic day was arranged one day per month.

O’Leary and Harborside Health Centers’ diabetes clinic days were structured to include the services of Dr. Santhosh Lakshmi, endocrinologist from Prince County Hospital’s Department of Internal Medicine.

Through this new approach to primary diabetes care, we hope to improve outcomes in clinical targets such as A1C, serum lipid levels, and blood pressure. These target values are outlined in CDA’s 2008 Clinical Practice Guidelines.

Feedback from physicians and clients has been overwhelmingly positive. Physicians report a clinical benefit for the client and the office staff in providing diabetes care through this collaborative approach.

Over the 12 month review period, 261 clients were seen by diabetes educators in family practice settings, with an overall average A1C decrease of 0.638%. This is excellent as we know research, particularly the UKPDS study, has demonstrated that a 1.0% reduction in A1C was associated with a 37% decline in the risk of microvascular complications, a 43% reduction in risk of amputations or death from peripheral vascular disease and a 14% reduction of myocardial infarction.

Although only 36% of clients have reached a target A1C of <7%, it should be noted that of the remaining 64% who are still above target, 51% have an A1C of between 7 - 8%. Within the study period,
55.4% of clients reduced their A1C from baseline and 23.5% of this group improved their A1C such that they have now reached a target A1C of ≤7%.

Other areas of concern that require future intervention include: lipid targets, (despite 70% of patient being on statin therapy), BP targets and annual screening for microalbumin.

The use of clinical flow sheets within family practice settings continues to be recommended as way to organize diabetes care for clients on an ongoing basis.

**Update - Use of Resistance Bands**

Studies have shown that training for 4 to 5 months using resistance exercise can improve A1C by roughly 1% in both men and women with diabetes and results are additive when aerobic and resistance exercise are combined.

As noted in our last newsletter, the Provincial Diabetes Program has implemented classes to instruct clients on the appropriate use of resistance bands to increase their activity level.

We are pleased to inform you that classes are now available in Montague, Summerside, Charlottetown and O’Leary. People can be referred to these classes by a member of the Provincial Diabetes team. The diabetes educator will assess the client’s health and risk factors to ensure he/ she is appropriate for this type of physical activity prior to registering them for the class. A small fee of five dollars per class is requested to cover the cost of the exercise bands and materials.

**Needle Length for Insulin Injections**

Proper injection technique by clients using insulin is essential for achieving good diabetes management, reducing absorption variability and attaining optimal drug effect.

The goal is to reliably deliver the medication into the subcutaneous space, without leakage or discomfort. Choosing an appropriate needle length is crucial to accomplishing this goal. Needle lengths that were previously recommended for SC injection are now recognized to be too long for many adults (e.g. 12.7mm) and for most children (e.g. 8mm) as they increase the risk of IM injections.

Historically, clinicians practiced with the belief the bigger the person is, the longer the needle length that is recommended. However, body mass index (BMI) does not affect skin thickness. A study of 388 adults with a BMI range of 19.4 to 64 kg/ m² found that the mean skin thickness was 2.2mm at the arm, 1.9 mm for the thigh, 2.2mm for the abdomen and 2.4 mm at the buttocks, irrespective of BMI. (1).

New recommendations have been released by an international groups of experts who conducted a systematic literature study for all peer reviewed studies and publications. The draft recommendations were then reviewed and revised by the 127 experts from 27 countries (including Canada) at the TITAN (Third Injection Technique Workshop in Athens) workshop in September, 2009 (2).

The recommendations of this expert group include:

- children and adolescents should use a 4, 5 or 6mm needle. A 4mm needle may be inserted at 90 degree without a lifted skin fold in many children and adolescents. Some, especially thinner ones, may still need to lift a skin fold.

- 4, 5 and 6mm needles may be used by any adult patient including obese adults
and do not generally require the lifting of a skin fold, particularly 4mm needles.

- Injections with shorter needles (4, 5 or 6mm) should be given in adults at 90 degrees to the skin surface.
- There is no medical reason for recommending needles >8mm. Initial therapy should begin with the shorter lengths.
- Patients already using needles ≥8 mm should lift a skin fold or inject at 45 degrees in order to avoid IM injections.

The TITAN report also provides recommendations on several others aspects of insulin therapy including: the psychological challenges of injections, insulin storage and suspension, proper use of pens and syringes, proper skin fold technique, and rotation of injection sites to name a few.

References


Congratulations

Congratulations are extended to two staff members of the Provincial Diabetes Program, Tanya Murphy, RD and Martha St.Pierre, RN who were successful in completing the national certification exam offered through the Canadian Diabetes Educator Certification Board. Within the Provincial Diabetes Program, seven registered nurses and four registered dietitians have obtained this certification and as such can use the title “CDE”. A Certified Diabetes Educator has demonstrated a standard of excellence in the field of diabetes education by achieving this national certification.

Update to PEI Drug Program Formulary

As of May 16th, 2011, the rapid acting insulin glulisine (Apidra®) is now covered through the PEI Drug Program Formulary. This is the third rapid-acting analogue insulin covered by the province. Insulin aspart (Novorapid®) and lispro (Humalog®) are the other types available.

Apidra is available in vial or pre filled pen format. It is distributed in Canada by Sanofi-Aventis, who also supply the long acting basal analogue insulin glargine (Lantus®).

Clients must be registered through the Diabetes Control Program in order to receive coverage for their diabetes medications. The client is responsible to pay a small co-pay under this program.

Need to reach us?

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