

Atypical diabetes: clarifying the muddy waters

We are writing this letter in response to Steenkamp and colleagues' recent review article.¹ We have several concerns about the content of this review particularly in the context of the Canadian diabetes landscape.

There is no discussion in the review around the controversy that surrounds the diagnoses of ketosis-prone diabetes and latent-autoimmune diabetes of adulthood (LADA). Many clinicians believe these are not separate entities but are within the spectrum of type 2 diabetes and type 1 diabetes, respectively. There is no mention of the occurrence of diabetic ketoacidosis in both adults and children with type 2 diabetes. This has been well published over the last two decades in both adults and children.²⁻⁴

The authors use somewhat dated terminology, such as "the classic juvenile form of diabetes." Both the Canadian Diabetes Association and the American Diabetes Association discontinued the use of this terminology more than 15 years ago.

The Canadian Diabetes Association has worked hard to provide useful age-specific definitions and management guidelines; these are available online for health care providers.⁵

The authors state that metformin is first line therapy for most patients with type 2 diabetes. This is not consistent with the Canadian Diabetes Association Clinical Practice Guidelines where lifestyle modification is first line therapy in children and also in adults. Perhaps it should have been clarified that metformin would be the first-line pharmacotherapeutic agent.

Mention of the polymorphism of the HNF 1 α gene found in the Oji-Cree of northeastern Manitoba and northwestern Ontario is warranted. This polymorphism contributes to the development of type 2 diabetes in the Oji-Cree, who have among the highest reported rates of type 2 diabetes in both adults and youth.^{6,7} Regional differences are

important to reinforce to ensure optimal diagnoses and intervention.

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Author response

This article was written for the practising primary care clinician, who may occasionally take care of a patient with diabetes who doesn't seem to fit into our typical diabetes classification paradigm. It is not a comprehensive review of the topic for the expert practising endocrinologist.

LADA is a slowly progressive form of type 1a diabetes, and while it may not be distinct from type 1 diabetes, it has certain autoimmune and phenotypic features that distinguish it from childhood type 1 diabetes. Ketosis prone diabetes (KPD) is not simply type 2 diabetes presenting with ketoacidosis. This group of patients is still poorly understood, and much work needs to be done in furthering our understanding of the basic pathophysiology of this heterogeneous group of diabetes. Emerging metabolomics data suggest that in individuals within certain subsets of

KPD, a distinctive novel pathogenic process of defective energy production and ketosis may be at play.

Given space limitations, we were unable to describe specific populations with monogenic diabetes, but we hope that our focused discussion of HNF1A monogenic diabetes will stimulate consideration of this type of diabetes.

We agree that regional variation and location of practice are highly relevant. For example, in our hospital, which serves a large, underserved, heterogeneous urban population, ketosis-prone diabetes is the most common reason for admission to the intensive care unit with ketoacidosis. Type 1a diabetes is less common in our particular setting.

Naturally, diet and lifestyle modification form the cornerstone of all diabetes therapeutics. We acknowledge that controversies surrounding diabetes classification continue to exist, but recognition of a possible atypical diabetes phenotype is an important part of primary diabetes care.

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Beyond resuscitate and do-not-resuscitate

We applaud Hébert and Selby¹ for examining the difficulties of responding to iatrogenic or potentially readily reversible critical incidents in patients with a do-not-resuscitate order. Several Canadian health authorities have already replaced do-not-resuscitate orders with more nuanced medical order frameworks (Goals of Care Designations² in Alberta and Medical Orders for Scope of Treatment³ at Fraser Health, BC) to better reflect patient values and medical care appropriate to their context.

These medical orders are determined through a process of communication between a patient, surrogate decision-makers and health care providers. The orders convey information about the types of interventions to be

used or withheld, the location of care and most importantly the general intention of care. System-wide policies and procedures ensure that the order and documented discussions travel with the patient. These frameworks are implemented with advance care planning initiatives⁴ normalizing early reflection and communication, which can assist in health care decision-making.

Although not a panacea for ethical dilemmas, such frameworks greatly inform decision-making. They are an improvement over binary resuscitate or do-not-resuscitate orders and prior conversation details buried in health records.

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The authors respond

We thank Simon and colleagues¹ for their response to our article.² We applaud the initiatives they describe. We think it important that they combine the Goals of Care Designations

with the documentation of the discussions leading to the decisions made by each individual patient. We are encouraged by the uptake of these ideas in many jurisdictions and look forward to their adoption across Canada.

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About bloody time

Coincidentally, I read Dr. Shuchman's article¹ regarding the risks of iron deficiency with frequent blood donation while I was laying in a chair in Toronto donating whole blood. I am a frequent blood donor myself, and over the last year I have watched with growing trepidation the ever-decreasing level of my hemoglobin at the point of donation. A course of iron supplementation seems to have done the trick, and I am actually feeling quite a bit more energetic as well. I am happy to hear that Canadian Blood Services will be piloting routine ferritin testing, although there is some recent evidence suggesting that reducing body iron stores may have beneficial effects on blood pressure, blood glucose and other metabolic parameters.² In the absence of frank anemia, one wonders if there is an optimal ferritin level which balances the potential for chronic disease prevention and the risk of fatigue. Hopefully, future studies will guide us in this regard.

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