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REVIEW ARTICLE

Type 2 diabetes in the First Nations population: a case example of clinical practice guidelines

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ABSTRACT

Context: Type 2 diabetes (T2D) is a major public health concern and has reached epidemic proportions in the Canadian First Nation population. Reasons for this epidemic are the consequences of low socioeconomic status, and challenges to screening, primary prevention, management and access to care.

Issue: This article presents the authors' opinions of the healthcare needs specific to the First Nation population in Canada with respect to management of T2D.

Lessons learned: The authors argue that the current Canadian Diabetes Association Clinical Practice Guidelines are insufficient to provide a basis for health care and funding policies related to T2D management in the First Nation population. The authors present their own recommendations in relation to funding policies and the appropriateness of services for the First Nation population.

Key words: Canada, community-based interventions, First Nation, health promotion, knowledge exchange, participatory research, Type 2 diabetes.

Context

Type 2 diabetes is a metabolic disorder characterized by the presence of hyperglycemia due to defective insulin secretion and/or action. This chronic disease typically damages organs such as the kidneys, eyes, nerves, heart and blood vessels[1]. One in five First Nation adults have been diagnosed with diabetes and are more than 4 times more likely than the general population to be diagnosed with hypertension[2]. Hypertension increases the likelihood of ischemic heart disease and other disorders, such as visual, peripheral and cerebral vascular function. In addition, the relative risk of these diseases and comorbidities increases with obesity, overweight and/or smoking. As a result, it is crucial to control hypertension in the presence of T2D.

Type 2 diabetes is typically an adult diagnosed disease but it is becoming more common in children and adolescents, especially in the First Nation population[3]. The emergence of T2D in youth is believed to be associated with considerable changes in physical activity and nutrition patterns[4]. Changes to lifestyle can result in overweight and obesity and in youth this is a growing concern. Obesity refers to an excessive amount of adipose tissue in relation to lean body mass. Studies have indicated that obesity and T2D are increasing in the general population but this is particularly prevalent in the First Nation population[5]. Rates of obesity and T2D were virtually non-existent in the First Nation population 10-15 years ago but are now at epidemic proportions[6,7].

Research in 2004 found that 41% of First Nation children aged 2–17 years were overweight and 20% were considered obese[8]. Other studies have shown similar results; 34.6% of First Nation boys and 45.2% of girls between the ages of 2–5 years were overweight or obese in the Province of Ontario, Canada. In Manitoba, Canada, the rates were much higher: 85% of girls younger than 8 years were overweight or obese as were 80% of boys[8]. These numbers clearly indicate that overweight and obesity are not peculiar to one region but are prevalent throughout Canada.

Although these rates are alarming in the First Nation population, T2D is a disease also increasing in the wider Canadian population. In response to the growing burden of chronic disease in general, and T2D in particular, the Canadian Diabetes Association published the Clinical Practice Guidelines (CPG) in 2008. This publication reviews the appropriate care of adults who have T2D and provides recommendations for care. While these guidelines address challenges in diabetes management, they are meant for the general Canadian population and do not consider populations with specific needs in diabetes management.

The First Nation population have very specific health needs and would benefit from guidelines specific to their needs. In addition, many First Nation people live in rural, remote and/or isolated communities with unique geography and cultural diversity. To address these disparities in need and in order to consider successful disease management, it is appropriate and timely to develop CPG specific to the First Nation population.

Issue

The following discussion examines the current CPG with relevance to T2D prevention and management in the First Nation population. Gaps existent in the guidelines specific to First Nation care are reviewed and recommendations made for future consideration.

Review of existing knowledge and rationale

Type 2 diabetes is a serious health problem with many First Nation communities and is now a major health problem for First Nation children[8]. Previous studies have indicated that community-based intervention programs initiating diabetes prevention campaigns have been successful in increasing knowledge, dietary self-efficacy, and dietary improvements[9-13]. All these studies used a participatory research approach working with a particular community or group of communities with similar challenges of adopting healthy

lifestyle choices. These studies all faced the same challenges of working with communities; that is, the need to ensure there is community support and leadership for the project, that community members are involved in all phases of project development and delivery, and that the project is sustainable.

The results from all these studies indicate that although there was no change in body mass index (BMI), there were positive changes in diet patterns, awareness concerning healthy food choices and the skills to shape a health intervention program that is specific to local conditions. These findings reflect a critically important first step in developing targeted health promotion program planning for obesity and T2D in First Nation population.

Clinical Practice Guidelines review and authors' recommendations

In 2008, the Canadian Diabetes Association published CPG for the prevention and management of diabetes in Canada. The guidelines describe appropriate care of adults who have T2D and provide recommendations for care. Given the high rates of diabetes in the First Nation population it is noteworthy that these guidelines only highlight T2D in First Nation peoples in a 'special populations' section and not throughout the document itself[14]. Likewise, the document does not take into consideration the unique challenges that the First Nation population face in access to healthcare services and education about the need for regular monitoring of glycemic control. For example, the CPG recommend daily monitoring of blood glucose for individuals taking insulin or oral hypoglycemic medications but they note that self-monitoring should be individualized according to the type of treatment and level of control. Additionally, depending on control of blood glucose, medications may be adjusted (eg, metformin alone vs the addition of a dipeptidyl peptidase-4 inhibitor)[1,15].

For a population who often live in rural, remote and/or isolated regions of the country, monitoring glycemic control can be very challenging. Continuity of care by one healthcare professional is not always possible and ease of access to medications is challenging at best. The nearest pharmacy can be hours away and delivery of medications can be delayed, depending on road conditions, weather or the availability of human resources. The CPG do not address issues of access, a major challenge for all areas of health care for marginalized populations.

Likewise, the CPG state that people with T2D are more likely to develop vascular disease up to 15 years earlier than those without the disease. However, the general population typically do not develop T2D until they are in their 40s or 50s. For the First Nation population, the onset of diabetes occurs at a much younger age and the population is, therefore, at greater risk of developing vascular disease even earlier than their middle-aged counterparts. Further research is needed to examine the long-term health impacts of developing vascular disease at an earlier age than previously predicted in the literature.

The CPG also broadly define and discuss lifestyle modifications and diabetes. Many of the guidelines' recommendations for nutrition and physical activity suggest that patients should be referred to and supported by exercise specialists. In other words, structured physical activity is recommended. Yet, are the recommendations culturally appropriate? Rural, remote and/or isolated communities rarely have access to exercise specialists or structured physical activity. There is a significant gap in knowledge of how an exercise program could be supported at the community level. Although the CPG do recommend culturally appropriate programs should be initiated and led by communities themselves in order to be sustainable, there is no information available in the CPG as to how this would be promoted.

Specific to the First Nation population section of the CPG, the need is identified to initiate primary prevention programs through collaborative efforts among community leaders, healthcare professionals and funding agencies. Although it has been established that collaboration is the best approach in program development, the CPG fall short of identifying

and addressing these pragmatic challenges. As an example, community-research partnerships are important but are often not sustainable. Funding is often provided on an annual basis or on a one-time grant opportunity. Until core funding can be allocated to these programs, sustainable program delivery will be limited. In addition, staff retention is often difficult in rural and remote communities. Continuity of care is threatened each time there is a change in staff, and this can further decrease access to care. Furthermore, for a prevention program to be initiated and sustainable, community members must support the efforts. In many communities the socioeconomic status is low and support of prevention projects can be challenging. Likewise, there is a lack of published evidence that concludes interventions result in a decreased incidence of T2D. For these reasons, careful consideration must be given to combating these challenges and exploring ways to create innovative sustainable health promotion and prevention programs for a growing clinical and public health concern.

In order to address these challenges with program delivery, suggestions have been made to improve access by partnering with mobile units; increase community 'buy-in' by providing culturally appropriate services; enhance sustainability by training local staff; and improve health outcomes by providing continual support[16,17]. The literature has supported the argument that these factors must be addressed in order to provide care for the First Nation population. However, the question remains 'why isn't it done?'

There are several reasons that can be presumed. First, there are limitations on core funding that threaten sustainable program delivery. Likewise, access to appropriate healthcare services is a problem, especially in the rural, remote and northern regions of Canada. Partnering with mobile units increases access but winter travel is often dangerous and services can only be provided on a seasonal basis.

Additionally, having a true understanding of culture is imperative to program success. It has been stated that programs must be initiated by the community and ownership of any program must belong to the community and not outside researchers or service providers. Although this approach is known to be the most successful, there is still a lack of knowledge about how to initiate the process. Studies have been conducted to help narrow the gap for diabetes care strategies but specific strategies aimed at improving screening for complications, improving metabolic control and treatment gaps are critical. Likewise, the need for a multidisciplinary team approach to diabetes care that incorporates First Nation knowledge is fundamental[17]. For these reasons, education is an important component to establish in program development and should be considered reciprocal. Community members must be provided training in a culturally sensitive way that empowers their skills and knowledge at the community level. Researchers and healthcare professionals from outside the community must respect community norms and work within those parameters without instilling their own Western ideologies. As previously stated, it is unlikely that the uptake of a program will be significant if the goals and benefits to the community are distant and long term. Immediate results and short-term goals are likely to be indicators of programmatic success.

Lessons learned

The current CPG do emphasize that First Nation populations are at an increased risk of developing T2D. Key messages include focusing on all diabetes risk factors, identifying modifiable risk factors, increasing uptake of screening for diabetes and following the CPG for treatment of diabetes. These key messages speak to what 'should' be done for management of T2D but very little consideration is given to 'how' it can be successfully implemented. Identifying issues that put the First Nation population at risk of T2D is paramount in controlling the disease.

Geographic locations, access to healthy food choices and diabetes education have been identified as major concerns in studies cited[9-13]. It is important to be careful, however, not to develop a blanket approach to program delivery. One suggestion may be to train a diabetes educator in each community, especially in communities where there are high

rates of T2D or communities at increased risk of developing diabetes. Such an approach would be instrumental in controlling this disease and assisting with preventative measures to improve health outcomes in communities.

It should be noted that one model is not transposable to all communities. The methodology of developing a program would be similar in scope but the outcome will vary depending on the needs of that community. Too often it is assumed that one model will fit all communities, although communities have stated time and again that is not the case. It is necessary to continue to work towards the development and implementation of successful intervention programs while also being cognisant of the fact that in order to do so health professionals and health researchers need to know more about the community with which they work. This can only be accomplished by building upon the strengths of that community and ensuring they are an active strategic partner[18,19].

Guided by a participatory approach that empowers First Nation governance, a partnership that engages people is clearly a sustainable method of program delivery. As clinicians, we assume that we are the experts in disease management and give little consideration for the knowledge that exists at the community level. Community healthcare professionals and individuals alike are all too familiar with the challenges they face with accessing health care. They are the experts in the field and not the clinician. It is essential to bridge the gap between clinician based expertise and community based knowledge. This approach can be complementary but it is rarely considered.

The development of CPG tailored towards First Nation populations are certainly warranted. A First Nation specific CPG could address issues in delivering programs to such populations and provide recommendations on best practices incorporated throughout Canada. Furthermore, a First Nation CPG should be a working document that helps to inform health professionals and community members alike.

Recommendations

A considerable amount of research has been conducted to examine risk factors for First Nation populations in developing T2D. However, there is still a substantial amount of work to be done. In order for this work to be successful, health promotion and intervention programs must incorporate community cultural knowledge, community skills, and build community capacity. Guidelines such as the Canadian CPG must recognize there are health concerns specific to First Nation populations. Additionally, communities must significantly contribute to developing their own clinical practice guidelines.

Contrary to current use, these guidelines are not for clinician use alone but can be adopted by policy-makers within the community to assist them with developing their health plans. It is recommended that communities are engaged with clinicians to develop their own CPG as the first step in ensuring the First Nation voice is heard and their health issues appropriately addressed in relation to T2D prevention and management. Engaging a community begins with becoming informed about the local culture and history, followed by the acknowledgement and respect of First Nation knowledge systems as central to research. Finally, within the context of community engagement, the strengths and resilience of First Nation cultures must be recognized[20].

It is important to acknowledge that one model of engagement will not be appropriate for all communities due to the vast diversity among communities. Conversely, the methodology and approach to community engagement is transposable. Building relationships and learning about the history of the community and the leadership structure is recommended as a starting point of engagement. Furthermore, communities should be involved in the process from the development of the plan through to its closing.

There are typically three levels of community engagement, with: (i) Chief and council; (ii) healthcare professionals; and (iii) the community at large. The Chief and council are the first point of contact because support is required at the

leadership level to proceed with any community engagement. Following their support, healthcare professionals such as public health nurses, community health representatives or health directors are included. Finally, once support is obtained from these two levels, community members are then engaged through a community meeting to ask for their support in proceeding with the plan to develop their own guidelines. It is essential to acknowledge engagement is not an 'event' but a continual process throughout the duration of initiation, planning, execution, monitoring and close. In programs the co-author has facilitated, this method of engagement is widely accepted.

Developing CPG specific to the First Nation population would be facilitated much the same way as any research project. Once support is provided by Chief and council a community meeting is hosted that provides a general overview of the project's goals. Specific goals and objectives on how the guidelines should be executed are guided by feedback from community members. This open-ended approach provides the community the opportunity to have ownership of the project while ensuring the issues that matter most to individuals and families are highlighted. Data collected from this meeting are analyzed and compiled into a draft report which is given back to the community for validation. This is an essential component of engagement to confirm there is no misrepresentation of data. Following confirmation of data, it is recommended that a community steering committee be formed to facilitate the process and to ensure the ideas and recommendations put forward at the initial community meeting are addressed and the project is executed.

Respectful community engagement is the one recommendation that the authors suggest in developing CPG that are appropriate for First Nation use. Any attempt to facilitate such a process without involvement from parties that are most impacted by such guidelines will not be supported or put into practice. Furthermore, multiple community participation following these standardized methodologies will result in CPG that are holistic and culture specific.

Community based participatory research is the only approach to developing clinical guidelines that will be acknowledged by the people who need these guidelines most.

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