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Original Research

Type 2 Diabetes Mellitus Management in Canada: Is It Improving?

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ABSTRACT

Objective: To gain insight into the current management of patients with type 2 diabetes mellitus by Canadian primary care physicians.
Method: A total of 479 primary care physicians from across Canada submitted data on 5123 type 2 diabetes patients whom they had seen on a single day on or around World Diabetes Day, November 14, 2012.
Results: Mean glycated hemoglobin (A1C) was 7.4%, low-density lipoprotein (LDL-C) was 2.1 mmol/L and blood pressure (BP) was 128/75 mm Hg. A1C $\leq$7.0% was met by 50%, LDL-C $\leq$2.0 mmol/L by 57%, BP $<$130/80 mm Hg by 36% and the composite triple target by 13% of patients. Diet counselling had been offered to 38% of patients. Of the 87% prescribed antihyperglycemic agents, 18% were on 1 non-insulin antihyperglycemic agent (NIAHA) (85% of which was metformin), 15% were on 2 NIAHAs, 6% were on $\geq$3 NIAHAs, 19% were on insulin only and 42% were on insulin + $\geq$1 NIAHA(s). Amongst the 81% prescribed lipid-lowering therapy, 88% were on monotherapy (97% of which was a statin). Among the 83% prescribed antihypertensive agents, 39%, 34%, 21% and 6% received 1, 2, 3 and $>$3 drugs, respectively, with 59% prescribed angiotensin-converting enzyme inhibitors and 35% angiotensin II receptor blockers.
Conclusions: The Diabetes Mellitus Status in Canada survey highlights the persistent treatment gap associated with the treatment of type 2 diabetes and the challenges faced by primary care physicians to gain glycemic control and global vascular protection in these patients. It also reveals a higher use of insulin therapy in primary care practices relative to previous surveys. Practical strategies aimed at more effectively managing type 2 diabetes patients are urgently needed.

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R É S U M É

Objectif : Obtenir un aperçu de la prise en charge actuelle des patients ayant le diabète sucré de type 2 par les médecins canadiens de premiers recours.
Méthodes : Un total e 479 médecins de premier recours de l'ensemble du Canada ont soumis des données sur 5123 patients ayant le diabète de type 2 chez qui ils ont observé durant une seule journée lors ou autour de la journée mondiale du diabète, le 14 novembre 2012.
Résultats : L'hémoglobine glyquée moyenne (HbA1c) a été de 7,4 %, le cholestérol à lipoprotéines de basse densité (C-LDL) de 2,1 mmol/L et la pression artérielle (PA) à 128/75 mm Hg. Une HbA1c $\leq$ 7,0 % a été obtenue chez 50 % des patients, un C-LDL $\leq$ 2,0 mmol/L chez 57 %, une PA $<$ 130/80 mm Hg chez 36 % et un critère composite triple chez 13 %. Le counseling en diététique a été offert à 38 % des patients. Parmi les 87 % prenant des agents antihyperglycémiques, 18 % ont pris 1 agent antihyperglycémique non insulinique (AAHNI; dont 85 % ont pris la metformine), 15 % ont pris 2 AAHNI, 6 % ont pris $\geq$ 3 AAHNI, 19 % ont seulement pris de l'insuline et 42 % ont pris de l'insuline et $\geq$ 1 AAHNI. Parmi les 81 % qui suivaient un traitement hypolipidémiant, 88 % ont suivi une monothérapie (dont 97 % ont pris une statine). Parmi les 83 % qui prenaient des agents antihypertensifs, 39 %, 34 %, 21 % et 6 % ont reçu respectivement 1, 2, 3 et $>$ 3 médicaments, dont 59 % ont pris des inhibiteurs de l'enzyme de conversion de l'angiotensine et 35 % des antagonistes des récepteurs de l'angiotensine II.
Conclusions : L'enquête canadienne sur le statut du diabète sucré souligne les lacunes persistantes en matière de traitement associées au traitement du diabète de type 2 et les défis à relever par les médecins de premier recours pour obtenir une maîtrise de la glycémie et une protection vasculaire globale chez ces patients. Cela révèle également une plus grande utilisation de l'insulinothérapie dans les centres de soins primaires qui concernent les enquêtes précédentes. Des stratégies pratiques dont le but est une prise en charge plus efficace des patients ayant le diabète de type 2 s'imposent de manière urgente.

Introduction

Clinical practice guidelines (CPGs) from professional organizations around the world collectively advocate that patients with type 2 diabetes mellitus should have their risk factors managed in an aggressive and timely manner (1–5). These recommendations are largely based on seminal type 2 diabetes-focused trials demonstrating significant improvements in vascular complications and reduced mortality through comprehensive and multifactorial behavioural modification and pharmacotherapy strategies (6,7). However, despite concerted and widespread efforts to translate these evidence-based recommendations into routine clinical practice as well as increasing pharmacologic options, practice reviews conducted in different countries and settings continually indicate that optimal management of type 2 diabetes patients remains challenging (8–15).

Based on data collected between September 2002 and February 2003, the Diabetes in Canada Evaluation (DICE) Study determined that 51% of patients were successful at achieving a glycated hemoglobin (A1C) of $<$7.0% (10). The Diabetes Registry to Improve Vascular Events (DRIVE) study, using data collected between March 2005 and March 2006, revealed that 53% of the study population had an A1C of $\leq$7.0% (8) leading the investigators to postulate that the 2003 Canadian Diabetes Association (CDA) CPGs (3) had minimal impact on glycemic control in Canada up to that point.

In anticipation of the publication of the 2013 CDA CPGs in early 2013, the national cross-sectional Diabetes Mellitus Status in Canada (DM-SCAN) survey was undertaken to gain insight into the current management of type 2 diabetes patients in the Canadian primary care setting. A secondary goal was to identify management gaps that may provide directional input on how best to effectively design strategies aimed at improving the care of these patients.

Methods

From September to December 2012, standard letters from the DM-SCAN Steering Committee were sent to primary care physicians across Canada inviting them to participate in the DM-SCAN survey. The invitation was distributed through e-mail and facsimiles by the Canadian Heart Research Centre (CHRC) to lists of Canadian primary care physicians, participants in prior or ongoing registries within the CHRC, through standard hard copy invitations distributed by the CDA at its annual professional session and the CHRC at continuing medical education meetings, and by representatives of the sponsoring company. Physicians were requested to first complete a 10-question survey on their practice location and setting, how many type 2 diabetes patients they typically see in a week, whether they routinely discuss the symptoms and treatment of hypoglycemia, what they consider to be the greatest barriers in type 2 diabetes management and what educational platforms they felt would benefit their patients and practice. Physicians who completed the needs assessment survey were asked to complete a 1-page anonymized data collection form on patients with the clinical diagnosis of type 2 diabetes whom they had seen on a single clinic day as part of routine clinical practice on or as close as possible to the 2012 World Diabetes Day (November 14). Patient demographics, clinical history, anthropometric and laboratory data as well as management strategies used by the physician to achieve glycemic targets and global vascular protection were documented. Physicians were reimbursed for their efforts. The final program materials were reviewed and endorsed by the CDA and Diabète Québec before ethics approval was obtained. The program synopsis was reviewed and approved before survey initiation by OPTIMUM Clinical Research, an independent central ethics review board.

Data management and statistical analysis

Completed physician surveys and data collection forms were submitted either electronically via a secure website or faxed to the CHRC by 19 December 2012. Faxed data were scanned into an electronic database (TELEform, Version 10.0, Cardiff Software, San Diego, CA). Point prevalence data are presented. Continuous variables are summarized as mean (standard deviation [SD]) and discrete variables are reported as counts and percentages. Categorical variables between groups were compared using the Pearson's chi-square or Cochran-Armitage trend tests where appropriate. Multivariable logistic regression analyses, using the