

Contents lists available at [ScienceDirect](#)

Canadian Journal of Diabetes

journal homepage:
www.canadianjournalofdiabetes.com

Original Research

Diabetes Management and Education in Older Adults: The Development of a National Consensus of Key Research Priorities

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ARTICLE INFO

Article history:

Received 27 June 2015

Accepted 18 August 2015

Keywords:

consensus
diabetes
older adults
priorities

Mots clés :

consensus
diabète
personnes âgées
priorités

ABSTRACT

Objectives: Diabetes in older adults is increasing in its prevalence and complexity. To date, little research has been done to inform current diabetes management, including education and support, in older adults in Canada. The objective of this interactive national workshop was to develop key research priorities for future research related to diabetes in older adults.

Methods: Workshop participants comprised interprofessional healthcare providers, decision makers and policy makers from across Canada. Approximately 30 individuals attended an interactive 2-day meeting that included expert presentations and group consensus building using an electronic meeting system as well as nominal group techniques.

Results: The results of the 2-day meeting found more than 50 ideas that were summarized into 5 overall themes, with 14 subquestions, reflecting areas such as 1) identifying relevant outcomes for patients, providers and decision makers; 2) diabetes prevention; 3) the impact of diabetes on older adults and informal caregivers; 4) risk assessment tools and 5) effective models of care across a variety of healthcare settings.

Conclusions: To date, this workshop is the first of its kind and follows suit with other international working groups and associations. The research priorities developed through consensus from this workshop set forward a research agenda for diabetes in older adults in Canada.

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R É S U M É

Objectifs : La prévalence et la complexité du diabète augmentent chez les personnes âgées. À ce jour, les recherches sur la prise en charge actuelle du diabète, dont l'enseignement et le soutien, chez les personnes âgées du Canada sont insuffisantes. L'objectif de cet atelier interactif national était d'établir les principales priorités de la recherche pour la recherche future en matière de diabète chez les personnes âgées.

Méthodes : Parmi les participants, on comptait des prestataires de soins de santé interprofessionnels, des décideurs et des responsables de l'ensemble du Canada. Environ 30 individus ont participé à une réunion interactive de 2 jours qui comprenaient les exposés et la réalisation d'un consensus de groupe d'experts utilisant un système d'aide à la décision de groupe ainsi que la technique du groupe nominal.

Résultats : Les résultats de la réunion de 2 jours ont fait ressortir plus de 50 idées qui se résumaient en 5 grands thèmes subdivisés en 14 questions portant sur des domaines tels que: 1) l'identification des résultats pertinents pour les patients, les prestataires et les décideurs; 2) la prévention du diabète; 3) les répercussions du diabète sur les personnes âgées et les soignants informels; 4) les outils d'évaluation des risques; 5) les modèles de soins efficaces dans divers environnements hospitaliers.

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Conclusions : À ce jour, cet atelier qui est le premier en son genre suit l'exemple d'autres associations et groupes de travail internationaux. Les priorités en matière de recherche élaborées dans le cadre du consensus de ce groupe d'ateliers mettent de l'avant un programme de recherche sur le diabète chez les personnes âgées du Canada.

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Introduction

Diabetes prevalence rates continue to rise, particularly in older adults. The Public Health Agency of Canada's National Diabetes Surveillance Survey estimates that adults 60 years of age or older experience a 2-fold increase in diabetes prevalence (15.7%) over the national average (6.8%) and a 3-fold increase in prevalence (22.2%) at 70 years of age (1). A projected 4.5-fold increase in diagnosed diabetes in older adults was estimated between 2005 and 2010 (2). Diabetes mellitus is characterized as the body's inability to absorb excess glucose in the blood due to defective insulin secretion, defective insulin action or both (3). Type 2 diabetes composes the majority of diabetes cases nationally and globally and is often asymptomatic in early stages, remaining undiagnosed for long periods of time (4,5). It is estimated that half of older adults are unaware that they have diabetes because of the prevalence of comorbidities and polypharmacy that may otherwise mask typical symptoms (i.e. polyphagia, polyuria, polydipsia) (6). According to the Canadian Diabetes Association, 2.8 million Canadians currently live with diabetes, and the cost of diabetes to the health-care system was estimated to be as high as \$11.7 billion in 2010 (7).

With the increase in the aging population, combined with the unique metabolic needs of older adults with diabetes, the clinical management of diabetes has become increasingly difficult (8). Issues concerning multiple comorbidities, frailty and cognitive and functional decline add further layers to an already complex and heterogeneous approach to managing diabetes in older adults (2). Thus, national attention is warranted for the development and evaluation of innovative strategies to individualize care in older adults with diabetes who are frail or have complex medical issues. Age also increases the risk for other comorbidities, such as myocardial infarction, stroke and reduced cognitive and physical functioning. The risk for developing many of these comorbidities also increases with the diagnosis of diabetes. Specifically, individuals with diabetes are likely to experience myocardial infarctions 15 to 20 years earlier than individuals without diabetes (2). Similarly, a meta-analysis showed that the relative risk for developing dementia or Alzheimer disease was 1.47 (95% CI, 1.25 to 1.73) and 1.39 (CI, 1.16 to 1.66), respectively, for those affected by diabetes, compared to individuals who did not have diabetes (9). Mortality rates for adults aged 45 to 79 are 2 to 3 times greater than for individuals without diabetes (2). An American cohort study followed almost 60,000 older adults (>65 years of age) with and without diabetes for approximately 10 years and found a 9.2% increase in mortality rates and a 300% to 900% increase in the prevalence of lower-extremity complications (i.e. claudication, gangrene, neuropathy) in those with diabetes vs. those who did not have diabetes (6).

In addition, older adults are at high risk for polypharmacy, functional disabilities and common geriatric syndromes that include cognitive impairment, depression, urinary incontinence, falls and persistent pain (2,10). However, older adults with diabetes represent a heterogeneous group with spectrums ranging from healthy with diabetes to frail with diabetes and multiple comorbidities. Finally, diabetes-management priorities and treatment choices often differ between those for frail patients with complex issues and younger patients.

Challenges to Managing Diabetes in Older Adults

Older adults with diabetes are at greater risk for exhibiting a cluster of conditions that may impede their abilities to self-manage their diabetes, including cognitive decline, depression, functional disabilities and polypharmacy (11). Cognitive decline is estimated to be present in twice as many adults older than 70 years of age with diabetes as in those without, and this has been associated with poor diabetes control and an increased risk for severe hypoglycemia (12). Clinical depression has also been identified in more than one-third of patients over the age of 70 who have diabetes (13,14). Functional disabilities are almost twice as great in patients with diabetes as in those without, such as higher incidences of vision and hearing impairment and fear of hypoglycemia and falling than in their cohort without diabetes (15). Finally, older individuals with diabetes fill about 4 times more prescriptions than the general population, reflecting that aging, along with diabetes, predisposes individuals to other chronic comorbidities, adverse effects, drug interactions and pharmacokinetic alterations (16). To that end, the evident issue for older adults is safety and how best to manage their diabetes to reduce the likelihood of adverse or poor outcomes and to optimize quality of life.

Various clinical practice guidelines suggest that diabetes management be carried out by both the individuals affected by diabetes, through self-management behaviours such as blood glucose monitoring, as well as by an integrated diabetes healthcare team, including diabetes educators (i.e. nurses, dietitians), physicians and endocrinologists (17–19). Pharmacologic management in older adults is metabolically different than for those younger than 60 years of age, and diabetes healthcare teams should take these differences into consideration (2). Specifically, glycemic control targets, oral medications and insulin use, prevention and treatment of hypoglycemia and complications require individualized attention. For older adults, additional components of diabetes care that require consideration include polypharmacy, depression, cognitive impairment and physical impairment related to the potential for injurious falls (2,20). Therefore, strategies that best address the management of and education for diabetes in older adults are necessary.

A workshop was funded by the Canadian Institutes of Health Research with the intention of bringing together leaders in the area of diabetes management in older adults to create a national forum for discussion and collaboration regarding the clinical management of diabetes in older adults. The international landscape of research related to diabetes management in older adults was also discussed via an international collaborator, with a particular emphasis on challenges to valid research in this area, lessons learned and identification of future priorities for research.

To that end, the purpose of the workshop was to engage key stakeholders in discussions to identify priority areas for future development related to improving the clinical management of diabetes in older adults, of which key priority areas would be identified to guide a program of clinical, education and research priorities that would meet the needs of the diverse interests of stakeholders. Specifically, using the Graham et al knowledge-to-action framework (21), the workshop provided a forum to 1) synthesize current knowledge; 2) identify problem areas, challenges and gaps in the management of older adults with diabetes; 3) adapt knowledge and

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