



Contents lists available at [ScienceDirect](http://ScienceDirect.com)

Canadian Journal of Diabetes

journal homepage:
www.canadianjournalofdiabetes.com



Case Reports

The Effect of Nurse Practitioner-Led Intervention in Diabetes Care for Patients Admitted to Cardiology Services

Suqing Li BMSc, MD ^{a,*}, Sylvia Roschkov RN, MN, NP, CDE ^{a,b}, Blair J. O'Neill MD ^a,
Constance L. Chik MD, PhD ^b, Ross T. Tsuyuki PharmD, MSc ^{a,c},
Gabor T. Gyenes MD, PhD ^a

^a Mazankowski Alberta Heart Institute, Division of Cardiology, Department of Medicine, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada

^b Division of Endocrinology and Metabolism, Department of Medicine, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada

^c Epidemiology Coordinating and Research (EPICORE) Centre, Department of Medicine, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada

ARTICLE INFO

Article history:

Received 12 October 2015

Received in revised form

23 June 2016

Accepted 27 June 2016

Keywords:

Nurse Practitioner

Type 2 Diabetes

Cardiology

Mots clés :

infirmier praticien

diabète de type 2

cardiologie

ABSTRACT

Objective: To determine the benefits of diabetes nurse practitioner (DNP) intervention on glycemic control, quality of life and diabetes treatment satisfaction in patients with type 2 diabetes (T2DM) admitted to cardiology inpatient services at a tertiary center.

Patients and Methods: Patients admitted to the cardiology service with T2DM who had sub-optimal control (HbA1c >6.5%) were approached for the study. Diabetes care was optimized by the DNP through medication review, patient education and discharge care-planning. Glycemic control was evaluated with 3-month post-intervention HbA1c. Secondary outcomes of lipid profiles, quality of life and treatment satisfaction were evaluated at baseline and at 3 months with fasting lipids, Audit of Diabetes-Dependent Quality of Life questionnaires (ADDQoL) and Diabetes Treatment Satisfaction Questionnaires (DTSQ) respectively. **Results:** With almost 49% of patients admitted to the Mazankowski Alberta Heart Institute having HbA1c <6.5%, only 23 patients completed the study over a 12 month period. We found a significant decrease in HbA1c values at 3 months post-intervention from 8.0% (SD = 1.2) to 6.9% (SD = 0.7), $p = 0.002$. LDL showed a significant decrease at 3-months from 1.7 mmol/L (SD = 0.7) to 1.1 mmol/L (SD = 0.6), $p = 0.011$. Overall median ADDQoL impact scores improved at follow-up, from -1.4 to -0.4, $p = 0.0003$. Overall no significant changes in DTSQ scores were seen.

Conclusions: Short-term DNP intervention in T2DM patients admitted to the inpatient cardiology service was associated with benefits in areas of glycemic control and various domains of QoL. Our study provides support for the involvement of DNP in the care of cardiology inpatients at tertiary centers.

© 2016 Canadian Diabetes Association.

R É S U M É

Objectif : Déterminer les avantages de l'intervention de l'infirmier praticien spécialisé en diabète (IPSD) sur la régulation de la glycémie, la qualité de vie et la satisfaction quant au traitement du diabète des patients atteints du diabète de type 2 (DT2) admis au service de cardiologie en milieu hospitalier d'un centre tertiaire.

Patients et méthodes : Les patients atteints du DT2 admis au service de cardiologie qui démontraient une régulation sous-optimale (HbA1c > 6,5 %) étaient sollicités pour participer à l'étude. La revue d'utilisation des médicaments, l'éducation du patient et la planification des soins au congé de l'hôpital réalisés par l'IPSD optimisaient les soins aux diabétiques. La régulation de la glycémie était évaluée par la HbA1c 3 mois après l'intervention. Les critères d'évaluation secondaires qui comprenaient les profils lipidiques, la qualité de vie et la satisfaction quant au traitement étaient respectivement évalués au début et après 3 mois par les lipides à jeun, le questionnaire sur la qualité de vie ADDQoL (Audit of Diabetes-Dependent Quality of Life) et le questionnaire sur la satisfaction quant au traitement DTSQ (Diabetes Treatment Satisfaction Questionnaires).

* Address for correspondence: Post-Graduate Medical Education, 2-76 Zeidler Ledcor Centre, Edmonton, Alberta T6G 2X8, Canada.

E-mail address: Suqing@Ualberta.ca

Résultats : Parmi près de 49 % des patients admis à l'Institut de cardiologie Mazankowski de l'Alberta (Mazankowski Alberta Heart Institute) qui avaient une HbA1c < 6,5 %, seuls 23 patients ont complété l'étude sur une période de 12 mois. Nous avons observé une diminution significative des valeurs de la HbA1c 3 mois après l'intervention allant de 8,0 % (ÉT = 1,2) à 6,9 % (ÉT : 0,7), $p = 0,002$. Les valeurs du LDL ont montré une diminution significative après 3 mois allant de 1,7 mmol/l (ÉT = 0,7) à 1,1 mmol/l (ÉT = 0,6), $p = 0,011$. Les scores d'impact globaux médians de l'ADDQoL se sont améliorés lors du suivi, de -1,4 à -0,4, $p = 0,0003$. Dans l'ensemble, aucun changement significatif dans les scores du DTSQ n'était observé.

Conclusions : L'intervention à court terme de l'IPSD chez les patients atteints du DT2 admis au service de cardiologie en milieu hospitalier était associée aux avantages dans le domaine de la régulation de la glycémie et dans divers domaines de la QdV. Notre étude appuie la participation de l'IPSD dans les soins aux patients hospitalisés en cardiologie des centres tertiaires.

© 2016 Canadian Diabetes Association.

Introduction

The prevalence of type 2 diabetes in patients admitted to cardiology services continues to increase, paralleling the obesity epidemic in our society. In patients admitted to cardiology units, up to 40% have established or newly diagnosed type 2 diabetes mellitus (1). In 2013, 1.9 million people in Canada over the age of 12 had diabetes, and the rate of diabetes has doubled in the past decade (2). More than 22.7% of Canadians with diabetes have associated cardiovascular disease and have 2 to 4 times increased mortality rates as the result of these diseases, further strengthening the close relationship between diabetes and cardiovascular disease (3).

Given short lengths of stay focused on acute cardiac issues, cardiology services often are unable to prioritize optimizing patients' diabetes control. Thus, when patients are admitted to cardiology services, their diabetes control is generally left in the hands of general practitioners following discharge. Recent data have demonstrated the benefits of having diabetes nurse practitioners (DNPs) involved in the care of patients with type 2 diabetes who have been admitted for acute coronary syndromes (ACSs) (4,5). These benefits include more time for patient education and expertise as well as cost-effectiveness. Multiple studies have shown the value of DNP management in improving cardiovascular risk factors, diabetes and overall patient care satisfaction (4,5).

The goals of this study were to provide a descriptive picture of the quality of diabetes care for patients admitted to cardiology wards and to evaluate the postdischarge outcomes of inpatient DNP-led cardiology interventions in a large tertiary centre for diabetes control, including glycated hemoglobin (A1C) levels, lipid profiles, including total cholesterol, low-density and high-density lipoprotein cholesterol (LDL-C, HDL-C) levels and triglyceride levels as well as overall patient satisfaction with care and their quality of life (QOL).

Methods

Study design and ethics

A pre- and postinterventional study was conducted to evaluate the impact of DNP care management in patients' glycemic control and overall perceptions of and satisfaction with diabetes care and QOL. This design was selected because of concerns about randomization to a "usual care" group. Ethics approval was obtained from the Health Research Ethics Board of the University of Alberta prior to initiation of the study.

Setting and patients

The Mazankowski Alberta Heart Institute (MAHI) is 1 of the largest providers of specialized cardiac care in western Canada. Our study examined patients admitted to the inpatient cardiology units (critical care unit and wards) with type 2 diabetes who were suboptimally controlled and could have benefitted from addi-

tional management. Outpatient clinics and cardiac surgery inpatients were excluded.

Patients with type 2 diabetes admitted to cardiology wards and critical care units at the MAHI were screened against inclusion/exclusion criteria (Table 1). Patients were included if they had type 2 diabetes, if they had been admitted to a cardiology ward for at least 48 hours and had had recent (within past 3 to 6 months) A1C levels of $\geq 6.5\%$. Patients with A1C levels of $< 6.5\%$ were excluded from the study.

Procedures

A member of the study team (cardiology resident or medical student) approached patients who met the inclusion criteria to provide the details and risks and benefits of the study and to obtain consent. Once consent had been obtained, the Audit of Diabetes-Dependent Quality of Life questionnaire (ADDQOL) and Diabetes Treatment Satisfaction Questionnaire (DTSQ) were explained and left for the patient to complete. The DNPs were then notified of the patients' locations, and they provided diabetes teaching and medication optimization within 24 hours.

Sample-size calculation

With a sample size of 100 patients, if the observed percentage of patients achieving A1C levels $< 6.5\%$ is 50%, then the lower end of the 95% confidence level (CI) will be $> 39\%$. With a sample size of 80 patients and the following assumptions: a standard deviation of 1.1 (from the Implementing New Strategies with Insulin Glargine for Hyperglycaemia Treatment [INSIGHT] study;) and a 2-sided alpha of 0.05, there is a 90% chance of detecting a mean decrease in A1C levels of 0.4%. Because this is a practice-based trial, the sample-size calculation for the change from baseline was inflated to 100 so as to account for possible losses to follow up.

Intervention

The DNPs delivered diabetes education and adjusted medications based on recommendations from the Canadian Diabetes Practice Guidelines algorithm (6) (Table 2). Patient education was done in the span of a single 30- to 45-minute session after consent was obtained. At time of discharge, the DNPs reviewed outpatients'

Table 1
Inclusion/exclusion criteria

| Inclusion criteria | Exclusion criteria |
|--|------------------------------------|
| Diagnosis of type 2 diabetes, including newly diagnosed patients | Diagnosis of type 1 diabetes |
| Men and women ≥ 18 years | Patients with A1C levels $< 6.5\%$ |
| Patient is willing to participate and is able to give consent | Prior inclusion in the study |

Download English Version:

<https://daneshyari.com/en/article/5654639>

Download Persian Version:

<https://daneshyari.com/article/5654639>

[Daneshyari.com](https://daneshyari.com)