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Review

Adherence to national diabetes guidelines through monitoring quality indicators—A comparison of three types of care for the elderly with special emphasis on HbA1c

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ABSTRACT

Aim: To compare adherence to Swedish guidelines for diabetes care between elderly people living at home with or without home health care, and residents of nursing homes.
Methods: Medical records of 277 elderly people aged 80 and older, with known diabetes in a Swedish municipality, were monitored using quality indicators to evaluate processes and outcomes.
Results: Monitoring, in accordance to diabetes guidelines, of HbA1c, lipids, blood pressure and foot examinations was lower among residents of nursing homes ($p < 0.001$). The HbA1c value of ≤6.9% (52 mmol/mol) was achieved for 48% of those in nursing homes with medication, 35% and 39%, for those living at home with or without home health care, respectively. Insulin was used to a greater extent in nursing homes. Metformin was frequently used, even at reduced e-GFR. Systolic BP ≤140 mmHg was achieved by 71% vs 80% and 85% of those living at home, those with home health care and residents of nursing homes in the respective groups.
Conclusions: Adherence to guidelines was deficient particularly in nursing homes. Clearer guidelines and interventions aimed at the improvement of quality in diabetes care in elderly people and sustainable coordination between health care providers is needed.

Abbreviations: ATC, Anatomical Therapeutic Classification System; BMI, Body mass index; DBP, Diastolic blood pressure, mmHg.; DM, Diabetes Mellitus; DCCT, Diabetes Control and Complications Trial; e-GFR, Estimated glomerular filtration rate, mL/min/1,73m^2, estimated from serum creatinine by the Modification of Diet in Renal Disease (MDRD) equation; EPRS, Electronic patient record system; fP-chol, Fasting plasma-cholesterol, mmol/L; fP-LDL, Fasting plasma low density lipoprotein, mmol/L; GP, General Practitioner; HbA1c, Haemoglobin A1c, mmol/mol; ICD10, International Classification of Diseases; IFCC, International Federation of Clinical Chemistry; Kg, Kilogram; NDR, National Diabetes Registry (Sweden); NGSP, National Glycohemoglobin Standardization Program; OAD, Oral antidiabetic drugs; P-crea, Plasma creatinine, μmol/L; SBP, Systolic blood pressure, mmHg; SU, Sulphonylureas.

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Contents

1. Introduction

The proportion of the population over 80 is increasing in Sweden (5.5%) due to greater life expectancy and improved health status [1]. The reported prevalence of diabetes in Sweden among the population of those 75–84 is increasing, affecting 14% of the male population and 17% of the female [2]. The management of diabetes for the elderly requires well-implemented routines within the health care system [3]. During the last years, several international guidelines including disease management for the elderly have been published [4–7].

Lately, recommendations ranging from stringent glycemic control [8] to emphasis on the need for individualized glycemic targets have been presented [9]. Recent studies indicate that the elderly are over treated, with excessively strict glycaemic controls [10], suggesting the necessity of improving the quality of diabetic care [3,11]. However, Swedish guidelines from 2010 apply chiefly to the general diabetic population [12], and do not address the heterogeneous group of elderly patients [13,14]. It is important to consider the benefit and harm of decisions concerning individualized targets. Data from observational studies displayed a *U*-shaped curve showing increased mortality risks at low HbA1c levels, and an increased risk of any complication at high levels [15]. Elderly people in Sweden have access to home-based, advanced medical health care to facilitate independent home living. In time, care needs may increase and long-term care with continuous medical assistance in a community dwelling or nursing home may be provided. A county employed nurse in the municipality, together with general practitioners (GP) and diabetes specialized nurses in primary health care form the link to quality care for the elderly. Public hospitals provide emergency care, highly specialized medical care, monitoring of Type 1 diabetes and the management of patients with severe diabetic complications.

The Swedish National Board of Health and Welfare [16] showed deficiencies in adherence to National guidelines for monitoring diabetes care, between elderly people living at home compared to residents of nursing homes. Non-adherence was addressed to all health care providers, to eliminate disparity in the municipalities and counties. Even the Organization for Economic Co-operation and Development [1] encourages improvements in the Swedish health care system, through measurements of the quality of care to assure improved coordination between health care providers. The purpose of this study was to outline adherence to guidelines by comparing the monitoring of diabetes care of the elderly aged 80 or older, living in different forms of senior housing.

2. Methods

The study population was derived from a small municipality in southeastern Sweden, in Kalmar County, consisting of both rural and urban areas. At the time of data collection, the studied municipality comprised 26,175 individuals (13,165 men and 13,010 women) and a total of 5.8% were 80–105 years of age [17]. The municipality is served by one public hospital providing both in- and out-patient care. Three primary healthcare centres with a total of 15 GPs and 4 diabetes specialist nurses follow up almost all patients with Type 2 diabetes.

Municipal nurses, mostly without diabetes specialist training, provide diabetes care for residents living in nursing homes, and for the elderly with home health care. All GPs supervise the 23 nursing homes with a total of 224 residents. All blood sample analyses and diabetic retinopathy screenings are performed at the public hospital. There are no private health care providers practicing in the municipality. The healthcare centres and hospital are equipped with electronic patient record systems (EPRS), while the EPRS version used in municipal health care is not accessible for other health care providers. All visits are registered in the EPRS by national identity number, and the registration of diagnoses is mandatory using the ICD 10-based classification system [18]. The EPRS has an integrated drug prescribing module where all prescriptions are automatically registered according to the Anatomical Therapeutic Classification System [19] and a laboratory module.

The present cross sectional study was performed between June 2011 and May 2013. The EPRS identified 304 patients 80 and older with a diagnosis of diabetes. Twenty-seven were