Current status of diabetes management in elderly Koreans with diabetes[☆]

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Abstract

Knowledge about the current status of diabetes management is indispensable for the improvement of diabetes management. We performed a survey to investigate the current trend of diabetes management in elderly Koreans, at eight hospitals located throughout the country. A total of 539 patients with type 2 diabetes older than 65 years (men = 224, women = 315) were recruited. Their mean age was 71.5 ± 4.9 years and BMI 24.3 ± 3.4 (men = 23.6 ± 2.8, women = 24.9 ± 3.7) kg/m^2, and 38.2% of the patients were obese (BMI ≥ 25 kg/m^2, men = 29.5%, women = 44.4%). The mean duration of the diabetes was 13.1 ± 9.2 years. Although 37.3% of the patients had A1C below 7.0%, 33.8% of the patients had A1C more than 8.0%. Three hundred and sixty three patients (67.4%) were treated with oral hypoglycemic agents and 175 patients (32.5%) were treated with insulin or combination with oral agents. The glycemic control was better in patients treated with oral agents (oral agent group = 7.7 ± 4.6%, insulin group = 8.5 ± 1.9%). Although mean SBP and DBP were 131.4 ± 16.7 and 75.9 ± 10.4 mmHg, respectively, 67.4% of the patients had hypertension and 38.2% of the patients with hypertension did not reach the goal (<130/80 mmHg). Of 539 elderly patients, 253 patients (47.4%) had dyslipidemia (LDL-C ≥ 4.1 mmol/l and/or triglyceride ≥ 2.5 mmol/l and/or HDL-C < 1.1 mmol/l) and 72.7% of the patients with dyslipidemia took the lipid lowering agents. However, 47.4% of them did not achieve the goal (LDL-C < 2.6 mmol/l and/or triglyceride < 1.7 mmol/l and/or HDL-C > 1.1 mmol/l). Twenty-eight patients (5.5%) had been admitted to the hospital because of severe hypoglycemia. Half of the patients (57%) had microvascular complications (retinopathy, neuropathy or overt proteinuria), and 28% of the patients had macro-vascular complications (CVD, stroke or peripheral vascular disease). As elderly diabetic patients are usually

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polymorbid, diabetes mellitus in old age is needed a more comprehensive approach to not only the treatment of hyperglycemia but also of hypertension, dyslipidemia and other associated diseases.

1. Introduction

A recent survey in the US, NHANES III, suggests that approximately 20% of the population has a diabetes by the age 75 [1]. As the number of elderly people is increasing in Korea, the prevalence of diabetes is also increasing. According to the 2001 Korean National Health and Nutrition Examination Surveys data, the prevalence of diabetes in population aged over 60 years was 18% in male and 21% in female [2]. At least half of these patients were unaware they had a diabetes. Because elderly patients with diabetes are living longer and are likely to use increasing amounts of health care resources in the next decades, diabetes in aged adults may ultimately be the most important epidemic of the 21st century. Knowledge about the current status of diabetes management is indispensable for the improvement of diabetes management. According to data from the Korean National Health and Nutrition Examination Survey in 1998, the fasting glucose levels of diabetic patients more than 60 years old were not different from patients younger than 60 years old [3]. However, there were no other metabolic data such as A1C, it was impossible to examine the status of diabetes management in detail. Unfortunately there are few data on the treatment of diabetes in the Korean elderly. To investigate the trend of diabetes management in the elderly, a survey was done at eight university hospitals located throughout the country in South Korea.

2. Patients and methods

This survey was conducted from 1 June 2005 to 31 September 2005 at eight hospitals located throughout the country. A total of 539 outpatients older than 65 years with type 2 diabetes (men = 224, women = 315) were recruited. Participants were invited to complete a questionnaire which included information on their residence, smoking, the amount of alcohol consumption, marital status, occupation, educational background, familial history of diabetes, duration of diabetes, type and amount of exercise, dietary habits, frequency of self-monitoring blood glucose (SMBG), experience of diabetes education and history of hypoglycemia. K-ADL was examined to measure the self-activity of daily living [4], which is the Korean version of ADL, comprised of dressing, washing the face, bathing, eating, transferring to and from a chair, and defecation and urination. A higher score indicates fewer self-activities. Height, weight and waist circumference were measured in the morning with the subjects wearing light clothing but no shoes. Blood pressure was measured with a mercury sphygmomanometer on the right arm with the subjects in a sitting position after a 5 min rest. Hypertension was defined as systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg and/or current medication with anti-hypertensive drugs. Dyslipidemia was defined as a serum LDL-cholesterol ≥100 mg/dl and/or triglyceride ≥150 mg/dl and/or HDL-cholesterol <40 mg/dl and/or current medication with anti-dyslipidemic drugs.

Diabetic complications, ascertained via review of medical records, were recorded as retinopathy (non-proliferative or proliferative), neuropathy (absence of ankle jerks and reduced vibratory sensation, impairment on nerve conduction studies or autonomic function tests), nephropathy (24 h urine protein ≥300 mg/day), cerebrovascular disease (cerebral infarction) and ischemic heart disease (angina, myocardial infarction or history of coronary artery graft/coronary angioplasty).

Data are presented as mean values ± S.D. Statistical analysis was performed using SPSS for WINDOWS (SPSS Inc., Chicago, IL, USA). Two-sample comparisons of individual characteristics were performed by Student's t-test or χ^2 test. Differences were considered significant at the $P < 0.05$ level for all these tests.

3. Results

3.1. Subjects demographics/anthropometrics

A total of 539 patients older than 65 years with type 2 diabetes, nearly all living in urban areas, participated in this survey. Their demographic and anthropometric indices are shown in Table 1. Their mean age was 71.5 ± 4.9 years and BMI 24.3 ± 3.4 (men = 23.6 ± 2.8, women = 24.9 ± 3.7) kg/m^2, and 38.2% of the patients were obese (BMI ≥ 25 kg/m^2, men = 29.5%, women = 44.4%). The mean duration of diabetes was