



ELSEVIER

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

Primary Care Diabetes

journal homepage: <http://www.elsevier.com/locate/pcd>PCDE  
primary care diabetes europe

## Original research

# Changes in the management of type 2 diabetic patients in family medicine practices in the Bursa region

Olgun Göktaş<sup>a,\*</sup>, Özen Öz Gül<sup>b</sup>, Erdinç Ertürk<sup>b</sup><sup>a</sup> Department of Family Medicine, Uludağ University Family Health Center, Bursa, Turkey<sup>b</sup> Department of Internal Medicine Division of Endocrinology and Metabolism Faculty of Medicine, Uludağ University, Bursa, Turkey

## ARTICLE INFO

## Article history:

Received 19 December 2015

Received in revised form

1 October 2016

Accepted 12 October 2016

Available online xxx

## Keywords:

Diabetes mellitus

Family medicine

Monitoring of diabetes

Treatment of diabetes

Bursa—Turkey

## ABSTRACT

**Aim:** The aim of the study was to investigate the treatment and monitoring patterns of type 2 diabetes patients in the Bursa region over the last 5 years since the implementation of family practice in Turkey in 2010.

**Methods:** A total of 216 volunteer family doctors working in family health centers took part in this study. The records of 44,819 diabetic patients who visited these doctors between January 1, 2010 and December 31, 2014 were inspected retrospectively. Apart from the identity of the patients, morphometric data, including the type of medication used for diabetes and the HbA1C, serum creatinine and LDL cholesterol values, were recorded.

**Results:** A total of 38.9% (17,416 patients) of the patients in the study were male and 61.1% (27,403 patients) were female. The average age was 59.7 years with a range of 13.2 years. Although the patients' average body mass index (BMI) did not change over the 5 years monitoring, average blood pressure (BP), and serum creatinine and LDL cholesterol levels decreased significantly. The hemoglobin A1c levels were significantly lower after 2010 compared to the 2010 data. Upon examining the medication prescribed for the patients, we determined that the use of metformin and insulin increased, whereas the prescription of thiazolidinedione (glitazone) decreased. There was a significant increase in the amount of patient data recorded over the last 5 years.

**Conclusions:** Despite the increased level of data entry in these patients with type 2 diabetes, the surveillance of diabetes parameters according to treatment guidelines remains suboptimal. There continues to be a need to engage family practitioners on ongoing education and practice enhancement programs.

© 2016 Primary Care Diabetes Europe. Published by Elsevier Ltd. All rights reserved.

## 1. Introduction

Recently, diabetes mellitus has become a problem of epidemic proportions worldwide and is the most frequent cause of

\* Corresponding author. Fax: +90 224 294 0187.

E-mail address: [olgun.goktas@hotmail.com](mailto:olgun.goktas@hotmail.com) (O. Göktaş).<http://dx.doi.org/10.1016/j.pcd.2016.10.004>

1751-9918/© 2016 Primary Care Diabetes Europe. Published by Elsevier Ltd. All rights reserved.

kidney failure, blindness and amputation of extremities [1]. Additionally, diabetic patients develop coronary and cerebral vascular disease at a younger age, and therefore morbidity and mortality as a result of widespread vascular involvement has become more prevalent. Long-term studies have shown that the most effective way to protect against these complications is to regulate blood sugar levels [1]. Diabetes is a progressive disease that involves complications and associated diseases, which has made it increasingly difficult to regulate blood sugar levels. To slow the complications and epidemic rise of diabetes, protection and check-up programs need to be implemented; in the first instance, continuing education must be provided to update primary health care physicians.

Because blood sugar levels constantly change throughout the day, the measurement used is the hemoglobin HbA1c level, which is the best indicator of the glycemic level. Long-term retrospective studies demonstrated that reducing the HbA1c levels of diabetic patients to the levels observed in healthy individuals prevented a large proportion of the complications [2,3]. However, some studies showed that aiming for low glycemic levels increased the possibility of hypoglycemia and could cause complications and mortality associated with hypoglycemia [4]. Although they are not in total agreement, national and international medical associations have determined a target for glycemic levels in diabetic patients based on these studies and have advised their members accordingly [5,6]. Various pharmacological treatments are used effectively alongside non-pharmacological treatments to regulate glycemic levels in diabetic patients. The choice of pharmacological treatments has increased in recent years and has begun to provide more effective glycemic regulation for patients. However, some types of medication have been shown to have side effects when used long-term and have been withdrawn from use.

The Bursa region has a population of almost 3 million people. Because the management of diabetic patients cannot be performed by the approximately 80 endocrinology and internal medicine doctors in the Bursa region, involving family doctors in this practice is very important. Although family practice has existed for a long period of time, patients' data and prescriptions have only been recorded and tracked in an electronic environment since 2010. In this study, we investigated how the changing options for monitoring and treating diabetes have altered the approaches of family doctors. Using family doctors' records as a basis, our goal was to observe the extent to which glycemic level targets were reached, the medical treatment options used and the changes in treatment that occurred since the introduction of digital patient monitoring in Turkey in 2009. We also analyzed how changes in national and international guidance were reflected in family medical practice.

## 2. Methods

This study used data from diabetic patients provided by 216 family doctors who agreed to join the study out of 726 doctors who were invited by email. Data from all diabetic patients of the participating doctors recorded over a one year period between January 1, 2010, and December 31, 2014, in the Fam-

ily Medicine Information Recording System were examined retrospectively. A total of 44,819 diabetic patients visited the 216 family doctors, thereby providing the doctors with experience. In addition to the patients' ages, genders, types of diabetes and ages of diabetes onset, we evaluated their BMIs, medications used, creatinine levels and lipid profiles. Because insufficient recordings concerning the patients' foot examinations, urinary albumin measurements and eye examinations were available; these factors were not included in the scope of the study. We used an average HbA1c level to determine whether the glycemic levels were achieved. All patients with an HbA1c level under 7% were counted as reaching the target. All measurements from 2010 to 2014 were evaluated annually to determine changes in targets and treatments over the years. Patients who provided written consent to their family doctors regarding the use of their data and information were included in our study. The trial was conducted in accordance with the Declaration of Helsinki and the principles for Good Clinical Practice and was approved by the local ethics committee.

A Shapiro-Wilk test was performed on all obtained data to determine whether the variables conformed to a normal distribution. Descriptive statistics for the continuous variables conforming to a normal distribution were presented as the mean  $\pm$  standard deviation, whereas the data for continuous variables not conforming to a normal distribution were presented as the median (minimum-maximum). For categorical variables, the descriptive statistics was provided as the frequency and percentage. A Chi-squared trend analysis test was performed to examine whether the categorical variables changed over time. Probability levels were determined from the trend analysis results. Pearson's Chi-squared and Fisher's Freeman Halton tests were used to compare categorical variable groups, and the Mann-Whitney U test was used to compare continuous variable groups;  $p < 0.05$  was considered statistically significant. The One Way Anova variance analysis test was used for the comparison of the frequencies of repeated drug use by years. The statistical analysis was performed using the SPSS v.21 (IBM SPSS Statistics, IBM Corporation, NY, USA) program.

## 3. Results

A total of 44,819 patients with a diagnosis of diabetes mellitus were monitored by 216 doctors working in the Bursa region. Of these patients, 2087 (4.7%) were monitored for type 1 diabetes and the remaining patients were monitored for type 2 diabetes. A total of 38.9% ( $n = 17,416$ ) of the patients were male and 61.1% ( $n = 27,403$ ) were female, and the average age was  $59.7 \pm 13$  years. The average BMI was  $30.8 \pm 5.6$  kg/m<sup>2</sup>, the average systolic blood pressure was  $127.2 \pm 13.5$  mmHg and the average diastolic blood pressure was  $78.7 \pm 8.3$  mmHg.

There was no significant change in BMI was observed, there was a decrease in the average blood pressure, serum creatinine and LDL cholesterol levels over the 5 years patient monitoring period (Table 1). From the glycemic perspective, the HbA1c values were significantly higher at the  $p < 0.05$  level during the first year (2010) compared with the later years, but the results for the later years were very similar. The HbA1c levels were significantly lower during the last years.

Download English Version:

<https://daneshyari.com/en/article/5571408>

Download Persian Version:

<https://daneshyari.com/article/5571408>

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