Original Research Article

Prevalence of Diabetes Mellitus among Western Riyadh Population

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ABSTRACT

Study Design and Objective: This was a cross-sectional hospital based study aimed to screen the prevalence of Diabetes Mellitus among population of Al- Quwayiyah province at Western Riyadh, Kingdom of Saudi Arabia.

Material and Methods: during the period between January and December 2013, a number of 2604 diabetic patients were interviewed and investigated for diabetes. Laboratory and clinical data were collected and analyzed using SPSS program.

Results: The prevalence of diabetes mellitus was found to be 2.06%, most of them (more than 90%) were of type 2. Most patients were obese, and about 20% of them had one or more of the following: heart disease, hypertension, fatty liver, and thyroid disease.

Conclusion: Prevalence of diabetes mellitus in Western Riyadh is high and risk factors and complications are common.

Key Words: Diabetes mellitus, Prevalence, Riyadh KSA.

INTRODUCTION

Diabetes mellitus (DM) is a chronic disorder with devastating cardiovascular, renal, and neuropathic complications.[1] Diabetes is in top10, and perhaps top 5, of the most significant diseases in the developed world. [2] It is estimated that the number of patients with diabetes, about 125 million in the 1990's and 220 million in 2010, will rise to greater than 350 million in 2025. [3] Such dramatic increase will have significant health and economic implications on all countries. However, the resource burden of the pandemic will impact most unfavorably on the developing nations. [3]

Surveys showed that DM affects 5% to 10% of the adult population in industrialized Western countries. In Europe, Scandinavia and the United Kingdom have the highest rates of diabetes. [4] The prevalence of diabetes in the United States increased by epidemic proportions between 1994 and 2007, with nearly 24 million people diagnosed as having diabetes. [5]

Reported prevalence data from the Gulf region revealed high rates in Bahrain (25.7%) [6] and Oman (16.1%). [7]

Considering the age range of 30-70 years, DM was found in 23.7% of Saudians, [8, 9] in 13.5% of Egyptians, [10] in 9.9% of Tunisians, [11] in more than 10% of Pakistanians. [12]

Factors involved in influencing the prevalence of diabetes mellitus include socioeconomic status, age, sex, genetic susceptibility, lifestyle and other environmental factors. It has been shown that the prevalence of diabetes is constantly on the rise and this is believed to result from urbanization and socioeconomic developments, which are associated with rapid changes in lifestyle. [13, 14]

This study aimed to find out the prevalence of Diabetes Mellitus among population of Western Riyadh.

MATERIALS AND METHODS

Number of participants in this study was 2604 diabetic patients. They attended Al- Quwayiyah general hospital (western Riyadh) during the period between January and December 2013, aged between 7 years and 88 years, and with duration of disease from few weeks to 35 years. About 68% of the patients were females and 32% were males. Data collection and clinical assessment were done according to the questionnaire which provided information about age, sex, diabetes type, family history, weight, and the presence of any other disease.

The data were recorded and analyzed by using statistic package for social science (SPSS) version 13 on programmed computer.

RESULTS

Prevalence Rate = $\frac{\text{Total Number of Existing Cases in 2013}}{\text{Total population in 2013}}$ X100

Number of existing cases in 2013 is 2604 and Total population in 2013 is 126161, therefore,

Prevalence Rate is 2.06.

Table (1) shows the frequency and percentage of type 1 and type 2 DM in the study group.

Table (1) Shows high prevalence of type 2 compared with type 1 in the study group.

Type of Diabetes	Frequency	Percentage
Type 2 DM	2500	96 %
Type 1 DM	104	4 %

In patients with Type 1 diabetes mellitus, family history was positive in 8 patients (7.7%) and negative in 96 patients (92.3%). In patients with Type 2 diabetes mellitus, family history was positive in 2476 patients (99%) and negative in 24 patients (1%).

Table (2) shows the frequency of obesity and complications in diabetic patients.

Table (2) Shows the presence of obesity and other diseases in the study group

Variable	Frequency	Percentage
Obese Patients (body mass index ≥ 25)	2560	98.3%
Non-Obese Patients (body mass index ≤ 25)	44	1.7%
Positive Hypertension	884	32.9 %
Negative Hypertension	1720	66.1%
Patients with heart disease	588	22.6 %
Patients without heart disease	2016	77.4%
Patients with Fatty Liver	444	17.1 %
Patients with Normal Liver	2160	82.9%
Presence of Thyroid disease	488	18.7 %
Absence of Thyroid disease	2116	81.3%

DISCUSSION

The World Health Organization (WHO) 1999 reports showed that Type 1 DM comprises 10% and Type 2 DM 90%

of people with diabetes around the world. [15] The WHO 2012 reports showed 5% for Type 1 DM and 95% for Type 2 DM. [16] In this study, prevalence of Type 1 DM was 4% and prevalence of Type 2 DM was 96%. The prevalence of diabetes in this study was higher in women (68%) compared with men (32%). This agrees with American studies which showed that diabetes mellitus in women was (58.4%) compared with men (41.6%). [17]

As found in the present study, type 2 diabetes has a stronger link to family history than type 1 diabetes. Studies of twins have shown that genetics play a very strong role in the development of type 2 diabetes. Robert Wagner et al [18] found that family history is an important pre diabetic risk factor.

As usually observed clinically, most of type 2 diabetic patients have higher Body Mass Index (BMI). Chronic obesity leads to metabolic disturbances and increased insulin resistance that can develop into Type 2 DM. [19] In the present study, most of the patients (98.3%) were obese (high BMI).

Patients with one organ-specific autoimmune disorder are at risk of developing another autoimmune disorder. Patricia [20] published that diabetic patients have a higher prevalence of thyroid disorders compared with the normal population. In the present study, 18.7% of the diabetic patients had thyroid disorders.

Fatty liver is usually secondary to diabetes, however, this combination can be seen also in obese patients. [21] In the current study, 17.1% of patients had fatty liver. It has been consistently reported by Kim KS et al [22] that increasing degrees of obesity in diabetes are accompanied by greater rates of hypertension and cardiovascular disease, the same was found in this study .

CONCLUSION

Prevalence of diabetes mellitus in Western Riyadh is high (2.06). Risk factors (obesity and family history) and complications (cardiovascular disease, fatty liver, thyroid disorders) are not uncommon.

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