Research Article

Presence of co-morbidities in patients suffering from diabetes mellitus type-2 attending two clinics in delhi

Abstract

India is a hotbed of diabetes with the highest number of diabetics in the world (62 million) and it is predicted that by 2030 the disease might afflict as high as 79.4 million individuals. Often the individuals with diabetes mellitus type-2 have other metabolic abnormalities-the clustering of which contributes to the overall morbidity and mortality profile. Comorbidity, defined as the occurrence of one or more chronic conditions in the same person with an index-disease, occurs frequently among patients with diabetes. Multiple health conditions lead to a faster deterioration of health and poses a great burden on the healthcare delivery system and patient's pocket as well. It is a cross sectional study involving the data obtained from 144 patients with diabetes mellitus type-2 attending 2 diabetes clinics in Delhi between July-Sept 2016. Out of the total patients, 37 (25.7%) were females. The average age of the patients was 52.4 years, their average BMI was 27.3 kg/m^2 and their average HbA1c was 8.9. Hypertension and dyslipidemia are the most common co-existing conditions with diabetes, followed by neuropathy and sleep apnea. Diabetes care program should also focus on rigorously treating co-morbidities, as these are often associated with patient's discomfort and dismay.

Akanksha Rathi,[1] Ritesh Bansal,[2] Kakalee Saha[3]

[1]Assistant Professor, Baba Saheb Ambedkar Medical College & Hospital, India
[2]Fellow in Advanced Diabetology, Division of Endocrinology and Diabetology, India
[3]Medical Advisor, Lifespan Diabetes & Cardiometabolic Clinic, India

Correspondence: Akanksha Rathi, Assistant Professor, Baba Saheb Ambedkar Medical College & Hospital, Delhi, India,, Tel 991-121-418-7, Email akanksharathi.dr@gmail.com

Introduction

Diabetes is a big public health problem that is affecting both developed and developing economies with a worldwide prevalence of 387 million (8.3%), which is predicted to be 592 million by 2035.[1] India is a hotbed of diabetes with the highest number of diabetics in the world (62 million) and it is predicted that by 2030 the disease might afflict as high as 79.4 million individuals.[2] In 2015, over 1 million deaths were attributed to diabetes.[3] Often the individuals with diabetes mellitus type-2 have other metabolic abnormalities-the clustering of which contributes to the overall morbidity and mortality profile.[4] These deaths are mainly through the increased risk of cardio-vascular disease (CVD), which is responsible for up to 80% of them.[4] The World Health Organization predicted a 50% increase in deaths from diabetes over next 10 years, and by 2030, diabetes is projected to be the seventh leading cause of death.[5]

Comorbidity, defined as the occurrence of one or more chronic conditions in the same person with an index-disease, occurs frequently among patients with diabetes.[6,7] While the UK Prospective Diabetes Study (UKPDS) found that complications of diabetes affect quality of life more than overall treatment intensity,[8] many patients find treatment itself burdensome.[9,10] Multiple health conditions lead to a faster deterioration of health and poses a great burden on the healthcare delivery system and patient's pocket as well.[11-19] There is a paucity of studies that reveal the various co-morbidities occurring in patients suffering from diabetes so this study was carried out with the aim of improving the existing knowledge in this field.

Materials and methods

It is a cross sectional study involving the data obtained from 144 patients with diabetes mellitus type-2 attending 2 diabetes clinics in Delhi between July-Sept 2016. The Electronic Medical Records (EMR) of these patients were analyzed retrospectively and included in the study. A brief medical history was obtained having information like age, sex, occupation, duration of diabetes and any other chronic disease or morbidity. Blood pressure was measured using a standard electronic BP monitor in sitting position. Hypertension (HTN) was confirmed by taking 2 readings 15 minutes apart. Height was measured to the nearest millimeter with a wall-mounted Harpenden stadiometer and weight was measured with electronic scales to the nearest 0.1 kg.[20] Body mass index (BMI) was calculated in kg/m2.[21] Blood sample was collected the next day after 8 hours of fasting and tested for fasting glucose and HbA1c.

Clinical and bio-chemical characteristics are expressed as mean and standard deviation. Descriptive statistics are given with the help of proportions and percentages. Since the study involved the use of data that has already been collected, a waiver was obtained from the institutional ethics review board of the organization (Lifespan Diabetes and Metabolic chain of clinics). The data was kept under lock and key and only the investigator who was responsible for data collection was allowed access to the same. Confidentiality was maintained so that no personal details of the patients are ever revealed.

Results

A total of 144 diabetic patients were included in the study that attended the clinics between September and December 2016. Out of the total patients, 37 (25.7%) were females. The average age of the patients was 52.4 years, their average BMI was 27.3 kg/m^2 and their average HbA1c was 8.9. The various co-morbidities have been explained in Table 1. The comorbidities are not mutually exclusive and some patients have more than one comorbidity. As is evident from the table, hypertension and dyslipidemia are the most common co-existing conditions with diabetes, followed by neuropathy and sleep apnea.

Discussions and conclusion

The most prevalent co-morbidities in the current study are hypertension and dyslipidemia, which is not consistent with other studies that reveal that depression and musculoskeletal conditions are common in diabetes.[7,22-24] Our data suggests that patients are often unaware that they are suffering from depression, and there is a need

of a screening tool to diagnose depression that was not used in the current study. Also, musculoskeletal pains become a part & parcel of lives of diabetic patients and they do not give the history of the same unless asked for. Diabetes care programs should also focus on rigorously treating co-morbidities, as these are often associated with patient's discomfort and dismay. The presence of these conditions poses an additional burden on the deteriorating health of the diabetic patients as they can lead to various life-threatening complications and these patients also end up spending more on their health condition.[11–19] Hence, comorbidities should be taken care of, as and when they develop and their treatment should not be delayed.

Table 1 Classification of Co-Morbidities in diabetic patients (n=144)

S. No	Co-Morbidity	N (%)
1	Hypertension	62 (43.1)
2	Dyslipidemia	51 (35.4)
3	Neuropathy symptoms	22 (15.3)
4	Sleep apnea	11 (7.6)
5	Retinopathy symptoms	7 (4.9)
6	Hypothyroidism	7 (4.9)
7	Arthritis	5 (3.5)
8	Coronary Artery Disease	4 (2.8)
9	Nephropathy symptoms	3 (2.1)
10	Fatty liver	2 (1.4)
11	Varicose veins	2 (1.4)
12	Lung Disease	2 (1.4)
13	Gall stones	1 (0.7)
14	Cancer	1 (0.7)
15	Urinary tract infections (recurrent)	1 (0.7)
16	Peripheral Vascular Disease	1 (0.7)
17	Cataract	1 (0.7)
18	Cataract	1 (0.7)

The limitation of the study is the small number of covariates included in this study due to the use of secondary data that did not allow for finding associations with the outcome variables. Another limitation was the small sample size. A larger study with more number of patients should be done to know prevalence of comorbidities in diabetic patients. Also, such a study will be in a better position to comment upon the independent variables affecting co morbid conditions.

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Conflicts of interest

None.

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