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Erectile dysfunction among diabetic patients attending a tertiary hospital in central India.

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ABSTRACT **Background** Erectile dysfunction can affect all aspects of a patient's life including physical, emotional, social, sexual, and relationships. The main aim of this study is to determine the prevalence and determinants of erectile dysfunction among diabetic patients attending a tertiary hospital in Central India. **Methods** A hospital based cross-sectional study was conducted on 249 male diabetic patients attending a tertiary hospital in Central India from January 1 – March 30, 2017. **Results:** The mean age of study participants was 43.39 years and the mean duration of diabetes diagnosis was 6.22 years. The overall prevalence of erectile dysfunction was 69.9%, with 32.9% suffering from mild, 31.7% moderate, and 5.2% severe erectile dysfunction. **Conclusion** The prevalence of erective dysfunction in this study population was very high.

KEYWORDS : Erectile dysfunction

Introduction

Erectile dysfunction (ED), or impotence, can be defined as an inability to initiate and have a persistence erection firm enough to have satisfying sexual intercourse. In relation to the increasing prevalence of chronic conditions, such as Diabetes Mellitus (DM), chronic complications such as ED are also rising [1]. The rate of occurrence of ED in men with DM is two to three times higher than in men without DM. Moreover, men with diabetes may experience ED as much as 10 to 15 years earlier than men without diabetes [2].

Studies conducted on prevalence rates of ED among diabetic men produce various results which generally range from 35–90%. For instance, ED rates among diabetic men were over 50% in the United States, 35–78% in Mexico, 41% in the Netherlands, 80-90% in Saudi Arabia, and 77% in the Isfahan province of Iran [3,4]. Moreover, studies have demonstrated high rates of ED in Africa. The prevalence of ED is 72.5% in Nigeria and 55.1% in Tanzania, with 12.8% of participants suffering from mild dysfunction, 11.5% from moderate, and 27.9% from severe dysfunction [5,6].

Sexual function is an important indices of quality of life. The presence of ED has been negatively associated with men's social interactions, emotional and psychological well-being, and partner relationships'. It is important to note that ED is one of the most treatable complications of diabetes; the literature demonstrated that over 95% of cases can be successfully treated [7].

Thus, this study will provide evidence regarding the sexual health, specifically ED, of diabetic patients and will contribute to efforts to improve the quality of life of diabetic patients including the prevention of undesirable psychosocial consequences.

Materials and methods

A hospital based cross-sectional study was conducted on 249 male diabetic patients attending a tertiary hospital in central India. A systematic random sampling technique was used to identify participants. Adult male patients age ≥ 18 years with a diagnosis of DM were included in the study. The diagnosis of DM was made by physicians (internists) working at each study hospital. We utilized the World Health Organization criteria of a Fasting Blood Sugar (FBS) ≥126 mg/dl to diagnose a patient with DM. Fasting blood sugar was measured using a glucometer immediately before breakfast when the patient arrived at the diabetic/chronic disease follow-up clinic of each respective study hospital. To assess for erectile function a pre-test and structured interviewer administered questionnaire adopted from the abridged 5-item version of the International Index of Erectile Function (IIEF-5) was used [8].

Results

Two hundred forty nine (249) patients were interviewed to achieve the study aim with a 100% response rate. The mean age of study participants was 43.39 ± 14.7 years (range: 19–83 years). The mean duration of a DM diagnosis was 6.22 years (range: 1 month – 30 years). Most participants were farmers (49.8%), followed by government employees (19.3%).

The participant's life style factors demonstrated that 40.6% drink alcohol, 2.8% smoke cigarettes, and 81.9% did not engage in regular exercise. Clinical characteristics of the participants indicated that the mean FBS level of study participants was 187.5 mg/dl, with 35.3% of participants in the normal range (<126 mg/dl) and 64.7% of participants above the normal range (≥126 mg/dl) implying that the majority of participant's had poor control of their glycemic status at the time the study was conducted. Additionally, the mean BMI of respondents was 20.77 kg/m2 (range: 13.8-14.9 kg/m2). Results indicated that 71.5% of study participants were in normal range for BMI (BMI = 18.5 – 24.9 kg/m2), 19.3% were underweight (BMI < 18.4Kg/m2), and 9.2% were overweight (BMI = 25-29.9Kg/m2). No obese patients (BMI > 30 kg/m2) were found in this study. The majority of participants (90.4%) were within the normal range for blood pressure (BP < 120/.90) while the rest of participants had either Stage 1 (8.4%) or Stage 2 (1.2%) hypertension. Forty participants (16.7%) had additional chronic disease beside DM. The most common chronic disease co-existing with DM was hypertension which accounted for 9.2% of cases. The breakdown for type of DM was 63.1% were Type 1 and the remaining 36.9% were Type 2 DM (Table 1).

Multivariate logistic regression analyses show that there was an association between ED and age, income, and duration of diabetes. Respondents whose age was above 60 years old were 15 times more likely to develop ED as compared to those less than 30 years of age (AOR = 15.013, CI:3.212 – 70.166, p = .001). Moreover, study participants who had a diagnosis of DM for more than 10 years were 3.77 times more likely to develop ED as compared to those who had a diagnosis of diabetes for less than 10 years (AOR = 3.77, CI:1.291-11.051, p = 0.015). On the other hand, study participants whose monthly income was above $50 were 0.249 less likely to have ED as compared to those with an income below $25 (AOR = 0.285, CI: 0.132-0.615 p = .001). Otherwise, no associations were found between ED and BMI, co-morbidity, glycemic control, and alcohol consumption (Table 2).

Discussion

The study confirms that the prevalence of ED among DM patients is high (69.9%) of which 5.2% had severe ED that required immediate intervention. The high prevalence of ED among DM patients is in line with several studies. The prevalence of erectile dysfunction among diabetic men which has been reported across the world varies between 35–90%. The result of this study are within this range. Moreover, the study finding coincide with the results from Nigeria in which the prevalence of ED is higher in diabetics than in other chronic diseases which reaches up to 72.7%. In another study in Iran, sexual dysfunction was detected in 77% of diabetic men, and in Saudi Arabia the prevalence ranges from 80–90%. However, there is some discrepancy with the study conducted at Tanzania, and Iran which is 55 and 59.5% respectively. The reason may be attributed to differences in the socio-cultural context of study participants and the methodology. In this study, the chart review and in-person interviews may have uncovered additional cases of ED that would not have been found with only one data collection method. Beside this, in the United States the prevalence of ED among the general population is 18.4% versus 51.3% in diabetic population. But the data collection tool used in this study was a one item question which is very different from this study [10].

A review of current perspectives on diabetes and sexual dysfunction show the prevalence of ED is reported ≥ 50% in male with diabetes worldwide which is congruent with the results of this study. Past literature has also demonstrated that advanced age, longer duration of diabetes, co-morbidity with hypertension, hyperlipidemia, glycemic control, smoking, sedentary lifestyles, being overweight, and obesity are the common independent predictors for ED. However, this study demonstrates that only advanced age, longer duration of diabetes, and lower income were significantly associated with ED in Ethiopia. This might be due to discrepancy of methodology, data collection tools, the sample size, and socio-economic differences of study participants [11]. On the other hand, a study conducted in Italy and Israeli men on erectile dysfunction in Type 1 and Type 2 DM demonstrates similar finding on the independent predictor variables [12 13].

The study further confirms that duration of diabetes, age, and monthly income are the independent predictors for ED and its severity. Several reasons including age related physiological changes in the testicles and decline in male sex hormones have been attributed to the increasing incidence of ED in older men [5]. On the other hand, obesity, glycemic control, co-morbidity, and taking additional drugs and drinking alcohol were not associated with ED. But in some studies these variables have been associated [4, 14].

Among the 166 patients in this study who had ED only eight sought medical help in order to be treated for the disease. Almost all patients (97%) had not been screened or treated for ED. This disparity might be attributable to patients' feeling embarrassed, not considering ED a treatable disease, and fear of side effects.

Conclusion:

The prevalence of ED in the study population was very high. The prevalence of ED among Type 2 DM patients was relatively higher than Type 1 DM. Almost all patients (97%) had not been screened or treated for ED. Increasing age, relatively lower income, and longer duration of DM were significant predictors of ED.

List of tables

TABLE 2: Cross tabulation clinical variables with presence of erectile dysfunction in diabetic patients

Drink alcohol			
Yes	66 (70.9)	27 (29.1)	93
No	84 (70.6)	35 (29.4)	119
FBG (mg/dl)			
<126	56 (74.6)	19 (25.4)	75
≥126	94 (68.6)	43 (31.4)	137

TABLE 1: Cross tabulation clinical variables with presence of erectile dysfunction in diabetic patients attending hospitals

Clinical variables	Erectile dysfunction	No erectile dysfunction	Row total
Type of DM			
Type 1	86 (67.2-)	42 (32.8-)	128
Type 2	64 (76.2-)	20 (23.8-)	84
BMI			
Under weight	27 (65.9)	14 (34.1)	41
Normal	107 (72.3)	41 (27.7)	148
Over weight	16 (69.5)	7 (30.4)	23
Obesity	0 (0.0)	0 (0.0)	0
Blood pressure			
Normal range	131 (69.3)	58 (30.7)	189
Stage 1	17 (85.0)	3 (15.0)	20
Stage 2	2 (66.6)	1 (33.4)	3
Duration of diabetes (years)			
<5	80 (66.1)	41 (33.9)	121
5–10	38 (70.3)	16 (29.7)	54
>10	32 (86.5)	5 (13.5)	37
Smoker			
Yes	5 (71.4)	2 (28.6)	7
No	145 (70.3)	60 (29.7)	205

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