Asian Journal of Psychiatry 7 (2014) 58–65

Contents lists available at ScienceDirect

Asian Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ajp

Erectile dysfunction in patients with diabetes mellitus: Its magnitude, predictors and their bio-psycho-social interaction: A study from a developing country

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ARTICLE INFO

Article history:
Received 18 May 2013
Received in revised form 24 October 2013
Accepted 28 October 2013

Keywords:
Diabetes
Erectile dysfunction
Predictors

ABSTRACT

Background: Persons suffering from diabetes mellitus (DM) are at higher risk of developing erectile dysfunction (ED). Several factors contribute to ED in patients of DM. Only few studies have attempted to explore physical, psychological and social factors in a single study. The aim of the index study was to measure the prevalence of ED in patients of DM and to determine the contributory role of various socio-demographic, physical, and psychological variables.

Method: One hundred and thirteen ($N = 113$) consenting consecutive male married diabetic patients were assessed on International Index of Erectile Function Questionnaire (IIEFQ-5), Dyadic Adjustment Scale (DAS) and Beck's Depression Inventory (BDI) to measure erectile performance, quality of marriage and depressive symptoms respectively. Pretested Bengali versions of these scales were used in the index study.

Results: Prevalence of ED was 38.94%. ED group significantly differed from non-ED group in current age, family type, type of treatment for diabetes, presence of micro/macrovascular complications, history of current tobacco use, quality of marriage, and presence of depressive symptoms. In logistic regression analysis current age, body mass index (BMI) and presence of depressive symptoms had significant predictive role on occurrence of erectile dysfunction.

Conclusion: Prevalence of ED among diabetic patients is high compared to general population. Both physical and psychosocial factors predict the occurrence of ED in this group. So, both physicians and psychiatrists should remain aware about the multi-faceted causative role of ED in DM.

1. Introduction

Sex is not just a physical act. It has strong underpinnings on physiologic, affective and cognitive domains which are not mutually exclusive. Though sexual activity is considered to be one of the important indicators of quality of life but in developing countries like India, it is often neither discussed by the patients nor addressed by the physician because of lack of knowledge, awareness and socio-cultural taboos (Hackett, 2009).

Around 366 million people are suffering from DM globally and the burden is expected to go up to 552 million by 2030, in which the largest increase in prevalence will take place in the developing countries (International Diabetes Federation, 2013). Individuals suffering from DM are at higher risk for sexual dysfunctions and prevalence of ED has been shown to be much higher than any other types of sexual dysfunction (Thomas and LoPiccolo, 1994; Feldman et al., 1994; Ryan, 1997; Fedele et al., 2000). The prevalence rate varies widely from 35% to 75% in different cross-sectional studies depending upon the methodology. Several risk factors were identified for diabetic ED e.g. higher age of the sample (McCulloch et al., 1980; Feldman et al., 1994; Veves et al., 1995), longer duration of diabetes, poor glycemic control, BMI (Klein et al., 1996; Romeo et al., 2000), presence of microvascular complications (Fedele et al., 2000), presence of comorbid physical illness (e.g. hypertension, dyslipidemia), sedentary lifestyle, smoking habit (Malavige and Levy, 2009) etc. Several long term studies were also conducted in this area. In a longitudinal epidemiological study, the Massachusetts Male Aging Study (Feldman et al., 1994), the age

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http://dx.doi.org/10.1016/j.ajp.2013.10.012

adjusted prevalence of diabetic ED was found to be 28% in comparison to 9.6% among the general population; it was also found that men with treated diabetes had more than three times the probability of having ED than men without diabetes. Moreover, ED in diabetic men occurring 10–15 years earlier, was more severe and associated with a poorer quality of life than non-diabetic men with ED. In another long term study it was found that 50% of ED appeared within 10 years of diagnosis of diabetes; in as many as 12% of the whole sample, ED was the presenting symptom. In the same study, ED onset was found to have occurred 10–15 years earlier in men with diabetes compared to general population (Lewis, 2001). Junuzovic et al. (2010) compared diabetic potent man with those with ED and statistically significant difference was noted in smoking, duration of smoking, hypertension, BMI and serum level of glycosylated hemoglobin (HbA1c); among them HbA1c and age were identified as the most significant risk factors. Most of the previous studies in this domain were reported from the west where socio-cultural understanding regarding sexual activities is quite different from the developing countries. So, we also consider certain socio-cultural factors (e.g. quality of marriage) which seem to be relevant for sexual function of a specific community (e.g. Indian population).

Therefore, many factors contribute to diabetic ED which has strong bio-psycho-social underpinnings and a holistic approach should be employed to manage it (Lewis, 2001). We could lay our hands to very few literatures where all relevant demographic, physical as well as psychosocial variables were considered simultaneously. Moreover, most of the studies were conducted in western set-up. Evidences are scant from developing countries like India. Therefore, we made an attempt to estimate the magnitude of ED in diabetic population and to identify the demographic, physical and psychosocial predictors of diabetic ED. It will help both physicians and psychiatrists to remain aware about the risk factors of diabetic ED and help them to deliver a treatment which can improve the overall quality of life in this population.

2. Methods

2.1. Setting

This cross-sectional study was carried out in a tertiary-care teaching hospital in eastern part of India over a period of one and half year. The study protocol was approved by the Institute's Ethics Committee.

2.2. Study population and procedure

The study was conducted in once a week diabetic clinic of a tertiary care teaching hospital in Eastern India. Total number of clinic days during 1.5 years study period was 62 with average number of new patients with diagnosis of diabetes mellitus defined by the American Diabetes Association (ADA) (Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, 1997) registered in a week was 14 and total patients registered during the study period was 868. Among them 36% were female and 13% were un-married, were excluded from the index study. Rest (51%) of the patients ($N = 442$) who were male married diabetic, were requested to participate in the study. 160 patients agreed to participate and provided their informed consent. Sixteen patients were further excluded who were too ill physically for further assessment and 6 were excluded who had comorbid mental illnesses other than major depressive disorder (MDD) screened by the Mini-International Neuropsychiatric Interview (M.I.N.I). Rest of the patients were asked to respond on a socio-clinical profile sheet by a single Diabetician and on International Index of Erectile Function Questionnaire (IIEFQ-5), Dyadic Adjustment Scale (DAS), Beck's Depression Inventory (BDI) successively by a qualified Psychiatrist, taking a total time of around one and half hour. Another 25 patients did not complete the whole assessment process and left in the middle of the interview because they had to avail public transport to get back to their home which was far off. The index study was approved by the Institution Ethics Committee.

Regarding sample size calculation, because the prevalence figures varied widely, from 35% to 75% (Feldman et al., 1994; Fedele et al., 2000), we estimated the prevalence to a mean figure of 50% (Fig. 1). Further, to capture the wide range of reported prevalence, the precision value (d) was set to 10 per cent (so as to yield a 95% confidence interval of 40–60%). With this, using standard statistical software (Daniel, 1999), the required sample size was 97 (range 87–107).

2.3. Instruments

The following instruments, as required, were used.

2.3.1. Socio-clinical profile sheet

It was specially designed for the purpose of this study. It included socio-demographic (e.g. patient's current age, sex, marital status, religion, education, occupation, family income, family type, locality of current residence) and clinical variables [e.g. type of

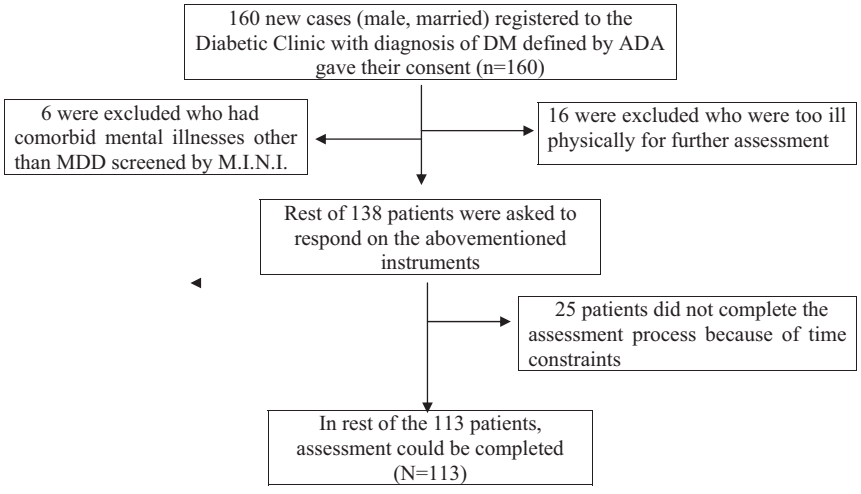

Fig. 1. Flow chart of sampling procedure.