

Diabetes and Vascular Disease Research

<http://dvr.sagepub.com/>

Evaluation of sexual function in women with type 2 diabetes mellitus

Seyedeh Seddigh Fatemi and Seyed Morteza Taghavi

Diabetes and Vascular Disease Research 2009 6: 38

DOI: 10.3132/dvdr.2009.07

The online version of this article can be found at:

<http://dvr.sagepub.com/content/6/1/38>

Published by:



<http://www.sagepublications.com>

Additional services and information for *Diabetes and Vascular Disease Research* can be found at:

Email Alerts: <http://dvr.sagepub.com/cgi/alerts>

Subscriptions: <http://dvr.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations: <http://dvr.sagepub.com/content/6/1/38.refs.html>

>> [Version of Record](#) - Jan 1, 2009

[What is This?](#)

Evaluation of sexual function in women with type 2 diabetes mellitus

SEYEDEH SEDDIGEH FATEMI, SEYED MORTEZA TAGHAVI

Abstract

Sexual health is an important, but often neglected, component of diabetes care. In contrast to erectile dysfunction among men with diabetes, female sexual dysfunction has not been well studied among diabetic women. The aim of this study was to assess the prevalence of sexual dysfunction in women with type 2 diabetes compared to that in an age-matched control group.

In all, 50 married women with type 2 diabetes attending the outpatient endocrine clinic of Ghaem Hospital between April 2007 and March 2008 were selected. Fasting plasma glucose and glycosylated haemoglobin were measured and sexual function was assessed by questionnaire. Scores in each domain of sexual function were compared with those of 40 non-diabetic controls.

Sexual function scores for the sexual drive, arousal, vaginal lubrication, orgasm and overall satisfaction domains were all lower in the diabetic women (p value < 0.05). Duration of diabetes and age correlated negatively with all domains of sexual function. There was no significant relationship between sexual function and body mass index (BMI), glycaemic control, education or employment status.

Diabetes significantly impairs the sexual performance of diabetic women. Determinants of sexual function include age and duration of diabetes.

Diabetes Vasc Dis Res 2009;6:38–9
doi:10.3132/dvdr.2009.07

Key words: diabetes, sexual dysfunction, type 2 diabetes mellitus, women.

Introduction

Sexual disorders have been studied extensively in diabetic men,^{1,2} but the sexual function of diabetic women has only recently received attention.^{3–6} The prevalence of sexual dys-

function in diabetic men approaches 50%, whereas in diabetic women it seems to be slightly lower.^{3,7,8} Neuropathy, vascular impairment and psychological complaints have been implicated in the pathogenesis of decreased libido, low arousability, decreased vaginal lubrication, orgasmic dysfunction and dyspareunia among diabetic women. However, discrepancies exist between different reports.^{3,6} The aim of this study was to assess the prevalence rate of sexual dysfunction in women with type 2 diabetes, comparing them with an age-matched control group.

Methods

Fifty women with type 2 diabetes, in stable relationships, who visited the outpatient endocrine clinic of Ghaem Hospital between April 2007 and March 2008 were recruited. Patients were eligible for inclusion if they had type 2 diabetes, were < 45 years of age, were pre-menopausal and did not have other health problems. An age-matched group of women visiting our clinic for routine annual check-up of thyroid function (but who were euthyroid at follow-up) were invited to form the control group. A venous blood sample to determine fasting plasma glucose (Liasys auto analyzer – Italy) and glycosylated haemoglobin (HbA_{1C}) (Nycocard HbA_{1C} kit, Norway) levels was collected from all diabetic women after 10 hours' fasting. Patients and control subjects were asked to complete a questionnaire prepared from the DSM-IV (American Psychiatric Association Diagnostic and Statistical Manual) algorithm regarding sexual satisfaction⁹ and the Arizona Sexual Experience Scale (ASEX) form,¹⁰ with the aid of a general physician. The questionnaire included five questions about sexual drive, sexual arousal, vaginal lubrication, orgasm and sexual satisfaction, with replies graded as: extremely easy, very easy, somewhat easy, somewhat difficult, very difficult and never. The maximum score was 30 and the minimum score was 5. Higher scores indicate higher sexual dysfunction. Data were presented and analysed using SPSS, Version 11.5 Software and a p value less than 0.05 ($p < 0.05$) was considered to be significant.

Results

The mean age of the diabetes and control groups was 38.6 ± 6.6 (34–45) and 42.1 ± 5.3 (32–44) years, respectively. The mean body mass index (BMI) in diabetes patients was 29.5 ± 5.4 kg/m² and in the control group was 21.8 ± 6.0 kg/m². The mean fasting glucose in patients was 123.2 ± 69.4 mg/dL (6.78 mmol/L) and the mean HbA_{1C} was $9.0 \pm 1.9\%$. Seventy-four percent of subjects were housewives and 26% worked outside the home. Thirty-two percent of subjects had primary school education, 36%

Immunology Department, Bu-Ali Research Center, Mashhad University of Medical Sciences, Bu Ali Square, Ferdowsi Square, Mashhad 9196773113, Islamic Republic of Iran.

Seyede Fatemeh Seddigh Fatemi, General Physician and Researcher, Immunogenetics Department

Endocrine Research Center, Internal Medicine Department, Ghaem Hospital, Ahmadabad Blvd, Paraster Street, Mashhad, Islamic Republic of Iran, 9176699199, Iran.

Seyed Morteza Taghavi, Assistant Professor of Endocrinology

Correspondence to: Dr Seyede Fatemeh Seddigh Fatemi

Immunology Department, Bu-Ali Research Center, Mashhad University of Medical Sciences, Bu Ali Research Center, Bu Ali Square, Ferdowsi Square, Mashhad 9196773113, Islamic Republic of Iran.

Tel: 00 98 915 110 4669; Fax: 00 98 511 711 2596

E-mail: fatemis1@mums.ac.ir

Table 1. Comparison of scores in five sexual domains in diabetic and control women

| | Sex drive | Arousal | Lubrication | Orgasm | Satisfaction |
|----------|-----------|---------|-------------|--------|--------------|
| Patients | 231 | 228 | 224 | 256 | 242 |
| Controls | 153 | 152 | 152 | 151 | 137 |
| p value | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 |

had high school education and 20% had a university education. Six percent of patients were treated with insulin and the remainder with oral antidiabetic agents.

Sexual function scores in the sexual drive, arousability, vaginal lubrication, orgasm, and overall satisfaction domains were all lower (p value <0.05) in the diabetic women (table 1).

In diabetic patients, sex drive was strong (extremely, very or fairly strong) in about 30% and weak (somewhat, very or absent) in 70% of patients. These ratios in the control group were 74% and 26%, respectively.

Sexual arousal in diabetic patients was categorised as easy (extremely, very or fairly) in about 32% and difficult (somewhat, very or absent) in 68% of patients. These ratios in the control group were 78% and 22%, respectively.

In diabetic patients, vaginal lubrication was easily achieved (extremely, very or fairly) in about 34% and poor (somewhat, very or absent) in 66% of patients, compared to 78% and 22%, respectively, in the control group.

Orgasm in diabetic patients was easily achieved (extremely, very or fairly) in about 16% and difficult (somewhat, very or absent) in 84% of patients, compared to 74% and 26%, respectively, in the control group.

In diabetic patients sexual satisfaction was described as satisfying (extremely, very or fairly) in about 36% and weak (somewhat, very or absent) in 64% of patients. Comparable figures in the control group were 84% and 16%, respectively.

Total sexual function score for sexual drive, sexual arousal, vaginal lubrication, orgasm and sexual satisfaction was 1,181 in patients and 745 in the control group; and the mean total ASEX score in each group was 23 (± 6.4) and 14 (± 7.4), respectively (p value < 0.05).

Duration of diabetes correlated negatively with all domains of sexual function. There was no significant relationship between the sexual function score and BMI or glycaemic control.

Discussion

Sexual health is an important, but often neglected, component of diabetes care and recent studies mostly confirm that sexual dysfunction occurs in diabetic women.

Tyrer *et al.* studied the effects of diabetes on vaginal lubrication in 82 insulin-dependent diabetic women and showed that inadequate vaginal lubrication is present in 10% of diabetic subjects compared with 2% of the control sample.¹¹ Meeking *et al.* studied sexual function in 161 type 1 and 2 diabetic women and reported that 64% of diabetic women experience reduced sexual drive. Loss of vaginal lubrication

was present in 70% of patients; 36% of women complained of reduced sensation and 47% experienced reduced sexual pleasure.¹² In a later study, Schreiner-Engel *et al.* reported that type 2 diabetes had a negative impact on sexual desire, orgasmic capacity, lubrication and sexual satisfaction.¹³ In our study, the results were similar to those from most other studies and indicate the increased incidence of sexual dysfunction in women with type 2 diabetes.

One possible limitation of the study is that patients with treated thyroid disease may be subclinically hypothyroid, which may affect sexual function. However, if this were influencing the results it would indicate an even greater effect of diabetes on sexual function.

Conclusions

Diabetes significantly impairs the sexual performance of diabetic women. Determinants of sexual function include age and duration of diabetes. Sexual dysfunction needs to be considered in the assessment of both male and female diabetic patients.

Acknowledgement

We gratefully acknowledge support from the Mashhad Endocrine Research Center.

Conflicts of interest statement

None declared.

References

1. Corona G, Mannucci E, Mansani R *et al.* Organic, relational and psychological factors in erectile dysfunction in men with diabetes mellitus. *Eur Urol* 2004;**46**:222-8.
2. Penson DF, Latini DM, Lubeck DP, Wallace KL, Henning JM, Lue TF. Comprehensive Evaluation of Erectile Dysfunction (ExCEED) database: do impotent men with diabetes have more severe erectile dysfunction and worse quality of life than the general population of impotent patients? Results from the Exploratory Comprehensive Evaluation of Erectile Dysfunction (ExCEED) database. *Diabetes Care* 2003;**26**:1093-9.
3. Enzlin P, Mathieu C, Vanderschueren D, Demyttenaere K. Diabetes mellitus and female sexuality: a review of 25 years' research. *Diabet Med* 1998;**15**:809-15.
4. Enzlin P, Mathieu C, Van den Bruel A, Bosteels J, Vanderschueren D, Demyttenaere K. Sexual dysfunction in women with type 1 diabetes. *Diabetes Care* 2002;**25**:672-7.
5. Erol B, Tefekli A, Ozbey I *et al.* Sexual dysfunction in type II diabetic females: a comparative study. *J Sex Marital Ther* 2002;**28**(suppl 1):55-62.
6. Erol B, Tefekli A, Sanli O *et al.* Does sexual dysfunction correlate with deterioration of somatic sensory system in diabetic women? *Int J Impot Res* 2003;**15**:198-202.
7. Guay AT. Sexual dysfunction in the diabetic patient. *Int J Impot Res* 2001;**13**(suppl 5):S47-S50.
8. Jackson G. Sexual dysfunction and diabetes. *Int J Clin Pract* 2004;**58**:358-62.
9. American Psychiatric Association. DSM-IV-TR: Diagnostic and statistical manual for mental disorders. 4th edn. Washington DC: American Psychiatric Press, 2000.
10. McGahuey CA, Gelenberg AJ, Laukes CA *et al.* The Arizona Sexual Experience Scale (ASEX): reliability and validity. *J Sex Marital Ther* 2000;**26**:25-40.
11. Tyrer G, Steel JM, Ewing DJ, Bancroft J, Warner P, Clarke BF. Sexual responsiveness in diabetic women. *Diabetologia* 1983;**24**:166-71.
12. Meeking, Fosbury, Cummings, Alexander, Shaw, Russell-Jones. Sexual dysfunction and sexual health concerns in women with diabetes. *Sexual Dysfunction* 1998;**1**:83-7.
13. Schreiner-Engel P, Schiavi RC, Vietorisz D, Smith H. The differential impact of diabetes type on female sexuality. *J Psychosom Res* 1987;**31**:23-33.