Sexual Functioning and Distress among Premenopausal Women with Uncomplicated Type 1 Diabetes

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ABSTRACT

Introduction. Current studies indicate that women with type 1 diabetes (T1DM) have a high prevalence of sexual disorders although data on the prevalence of sexual dysfunction are limited when sexual distress is included.
Aim. The frequency and the possible correlates of distressful sexual disorders in a highly selected group of type 1 diabetic women.
Methods. The sexual function, sexual distress, and general health status were assessed in 44 premenopausal women with uncomplicated T1DM and 47 healthy controls, using the Female Sexual Function Index (FSFI), the Female Sexual Distress Scale (FSDS), and the General Health Questionnaire–28 (GHQ–28).
Main Outcome Measures. The impact of sexual distress on the frequency of female sexual dysfunction (FSD).
Results. The frequency of sexual disorders according to the FSFI was significantly higher in diabetic compared to control women (25% vs. 8.5%, respectively, $P < 0.05$). Diabetic women had significantly lower median (first to third quartile) total FSFI score compared to control group (30.55 [26.08–33.08] vs. 33.50 [30.70–34.30], $P = 0.001$). Desire, arousal, and satisfaction were the sexual domains significantly affected in the diabetic group. Diabetic women had significantly higher median (first to third quartile) FSDS score compared to control group (6.5 [2.3–15.8] vs. 4.0 [1.0–10.5] $P = 0.043$). FSD (combined pathological FSFI and FSDS scores) was present in higher proportion of diabetic women (15.9%) compared to controls (2.1%) ($P = 0.020$). GHQ–28 score was comparable between the groups. However, in the diabetic group, FSD was related with anxiety, depression, and low educational level. Diabetes-related factors were not associated with FSD.
Conclusions. Pre-menopausal women with uncomplicated T1DM have significantly higher frequency of FSD compared to healthy controls, when the criterion of sexual distress is included. Psychosomatic and contextual factors implicated in sexual distress are correlates of FSD. **Dimitropoulos K, Bargiota A, Mouzas O, Melekos M, Tzortzis V, and Koukoulis G. Sexual functioning and distress among premenopausal women with uncomplicated type 1 diabetes. J Sex Med 2012;9:1374–1381.**

Key Word. Female Sexual Dysfunction; Sexual Distress; Type 1 Diabetes; Sexual Disorders; Premenopausal; Diabetic Women

Introduction

Current data indicate that women with diabetes are at increased risk for sexual function disorders [1,2]. Discrepancies still exist regarding the prevalence and the possible pathogenic mechanisms and the type of diabetes that prevails [3–13]. Lack of standardized definitions of female sexual dysfunction (FSD), absence of well-validated scales, inadequate characterization of diabetes (particularly with regard to type and glycemic control), neurovascular complications, psychological adjustment to diabetes, presence or absence of co-morbid depression and no distinction of

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pre- and post-menopausal women account for the different findings in the literature.

According to the current definitions, sexual disorders must have a significant negative impact on the woman's psychological status and everyday life (defined as sexual distress) in order to be characterized as FSD [14,15]. A high prevalence of sexual disorders has been previously reported in women with type 1 diabetes, but there is no agreement on the sexual domains affected and the possible risk factors implicated [4,8,12,16,17]. The inclusion of the "sexual distress" criterion in few studies has shown a significant decrease in the prevalence of FSD in both diabetic and non-diabetic women [2,18–22]. Type 1 diabetes typically affects young women, who are more likely to be free of age-related co-morbidities that may contribute to FSD and thus, the role of diabetes as a risk factor per se becomes more prominent. However, none of the contacted studies regarding FSD on type 1 diabetics takes into account, to our knowledge, the distress criterion.

The aim of this study was to evaluate the frequency and correlates of FSD when the criterion of sexual distress was met, according to the current definitions. In an attempt to exclude possible FSD determinants related with diabetic co-morbidities, the present study was conducted in a highly selected group of premenopausal, Caucasian, type 1 diabetic women, free of any diabetic complications.

Materials and Methods

The study was conducted from January 2009 to October 2010 and was approved by the ethical committee of the University Hospital of Larissa, Greece.

Sample Size Analysis

G*Power 3 was used for calculating the power of the study [23]. An a priori power analysis for a non-parametric test such as the Mann–Whitney test we used can be performed by first performing an a priori power analysis for the Student's *t*-test. Therefore, for detecting an effect size of 0.65 in a two-tailed *t*-test with a power of 80%, each group had to be composed of 39 women (alpha level 0.05). The final number of sample size was given by dividing the sample size found for the parametric test with asymptotic relative efficiency (ARE). The minimum ARE of Mann–Whitney test relative to the *t*-test is 0.864. Thus, the final number of women required in each group was approximately 45 women.

Participants

Women with type 1 diabetes attending the outpatient clinic of the Department of Endocrinology and Metabolic Disorders of the University Hospital of Larissa, Greece were asked to participate in the study. Female relatives and friends of patients other than those enrolled in the diabetic group of our study were randomly selected to participate in the study. A written consent form was obtained from all women.

Forty-four Caucasian women with type 1 diabetes of more than one year duration and 47 healthy controls were included in the study. There was no significant difference between the two groups with regard to age. Inclusion criteria comprise: age $\geq$ 18 years, premenopausal status, permanent heterosexual relationship for at least 6 months, sexual activity at the time of the study, absence of any chronic diabetic complications, absence of psychiatric or somatic conditions affecting sexual function, and no use of medication with recognized adverse effects on the female sexual function.

All women took part in a semi-structured interview that included general demographic data, medical history, and information about the woman's sexual beliefs, practices, and possible unwanted experiences in the past.

Assessment of Sexual Function and General Health

The Female Sexual Function Index (FSFI) was used to assess the sexual function; a total FSFI score less than 26.55 indicates the presence of sexual disorder [24]. The Female Sexual Distress Scale (FSDS) was used to estimate the possible induced impact of sexual problems on the woman's psychological status and everyday life [25]. An FSDS value of 15 or higher indicates sexual distress. A series of two-level variables were created to ease cross-tabulation analyses. The FSFI and FSDS results were categorized between positive and negative according to their score. FSD was a two-level variable (yes/no) set to describe the concurrent presence of sexual disorder and sexual distress according to the positive results of FSFI and FSDS. The general health status was assessed with the use of the General Health Questionnaire–28 (GHQ–28) [26]. GHQ–28 measures four distinct aspects of general health: Physical Symptoms, Anxiety, Social Dysfunction, and Depression.