CrossMark

ANDROLOGY/SEXUAL MEDICINE
ORIGINAL ARTICLE

The assessment of sexual dysfunction in Egyptian women with lower urinary tract symptoms

Gamal El Atrash, Mohamed H. Ali, Hassan A. Abdelwahab *,
Lobna A. Abdelreheem, Mostafa Shamaa

Urology Department, Faculty of Medicine, Suez Canal University, Egypt

Abstract *Introduction:* Female sexual dysfunction (FSD) has been reported in 46% of women with lower urinary tract symptoms (LUTS). FSD is a common health problem that remains under-investigated, especially in Eastern communities, where discussion of the issue is considered a taboo. In this study we determined the prevalence of various subtypes of FSD in relation to LUTS in women in Ismailia, Egypt.

Patients and methods: This was a case-control study to assess FSD in women with LUTS in comparison to normal women. In all, 101 women patients attending the Urology clinic at our institution were divided into two groups, a study group of 52 with LUTS and a control group of 49 with no LUTS. Validated Arabic versions of the FSD index and the Bristol questionnaire were used to assess the participants, and the data analysed statistically.

Results: FSD was diagnosed in 75 of the 101 patients (74%); 87 (86%) reported hypoactive sexual desire, 61 (60%) reported sexual arousal disorder, 56 (55%) had lubrication disorders, 65 (64%) complained of orgasmic deficiency, 36 (36%) had satisfaction disorder, and 59 (58%) had sexual pain disorder (e.g., dyspareunia or

* Corresponding author. Address: Faculty of Medicine, Suez Canal University, Ismailia, Egypt.
E-mail address: hass75@gmail.com (H.A. Abdelwahab).

non-coital genital pain). Arousal, satisfaction, orgasmic and lubrication disorders were more common in the women with LUTS. There was no statistically significant difference in desire disorders between the groups.

Conclusions: FSD and its subtypes are more prevalent in women with LUTS in this sample of Egyptian women.

© 2014 Production and hosting by Elsevier B.V. on behalf of Arab Association of Urology.

Introduction

Female sexual dysfunction (FSD) is characterised by disturbances in sexual desire and psycho-physiological changes associated with the sexual response cycle [1]. It is divided into four categories of disorder, i.e., sexual desire, sexual arousal, orgasmic and sexual pain [2].

FSD is a common health problem and its prevalence is estimated as 25–76% in the USA, despite remaining under-investigated, especially in Eastern communities, where discussing this issue is considered a taboo [3].

FSD is age-related, progressive and extremely common, affecting 30–50% of women worldwide [4,5]. In Egypt, a study conducted in Lower Egypt reported a prevalence of FSD of 46% [6].

FSD was reported in 46% of women with LUTS [7] and 47% of women who had stress urinary incontinence reported low sexual desire. It was reported that 60% of women with sexual arousal disorders and 61% of those with sexual pain disorders also complained of recurrent bacterial cystitis, and 46% of those complaining of orgasmic phase difficulties also reported troublesome urge incontinence [8].

Women with pelvic floor disorders were significantly associated with sexual complaints of low libido (18.1%), vaginal dryness (23.1%) and dyspareunia (34.1%). The prevalence of anorgasmia did not differ between women with and without pelvic floor disorders [9].

Despite this association, little is known about the prevalence of FSD in various subsets of patients presenting with LUTS [3]. Thus the aim of this study was to determine the prevalence of various subtypes of FSD in relation to LUTS in a sample of Egyptian women.

Patients and methods

This was a case-control study aimed to assess FSD in patients with LUTS in comparison to normal women with no LUTS, and was conducted at the Urology Department, Suez Canal University Hospital, Ismailia, Egypt. The study participants were women attending the Urology clinic between May 2012 and October 2012, and normal volunteer women who accompanied their relatives to the clinic. Those included were females in a stable marital relationship, aged 18 years, and with or without LUTS. Those excluded were lactating, with known significant cardiovascular, renal, hepatic or respiratory diseases, or a physical disability that might compromise sexual activity, those who had undergone major pelvic surgery (e.g., hysterectomy, cystectomy), and those already diagnosed with any psychiatric or mental illness.

All patients were evaluated by a clinical assessment, a personal history (that included the duration of marriage, number of children, mode of delivery, the use of contraception, lactation status, menstrual regularity, husband's age and presence of erectile dysfunction, and husband's travel habits). LUTS was assessed using the Bristol questionnaire, and FSD was assessed using the validated Arabic version of the FSD index, that assesses desire, orgasm, lubrication and dyspareunia. The women also had a general, abdominal and pelvic examination.

Clinical investigations included urine analysis and culture, serum creatinine levels, liver function tests, with urodynamic studies (filling cystometry and uroflowmetry), in indicated cases, that included patients presenting with mixed urinary incontinence, and/or the presence of obstructive urinary symptoms.

After selection, the study included 101 patients who were divided into two groups, a control group of 49 women who had no LUTS, and a group of 52 women with LUTS.

Accordingly the following equation was used to calculate the minimum sample size:

$$N = (Z\alpha/2 + ZB)2 \times (P1q1 + P2q2)/(P1 - P2)$$

where N is the sample size, Z is the critical value that determines the area under which 90% of population lies on the normal distribution curve (= 1.96), Zb = 0.84, P1 is the prevalence in the study group (46% [3]) and P2 is the prevalence in the control group (35% [8]).

$$N = (1.96 + 0.84)(0.46 \times 0.54 + 0.35 \times 0.65)/(0.46 - 0.36)2$$

to give 50 participants per group.

Data were collected using the above questionnaires, completed at the urology clinic by the investigators, and variables analysed using the chi-squared test, with statistical significance indicated at $P < 0.05$ for all comparisons. Descriptive results are presented as the proportions.

The protocol was approved by the Ethics Medical Committee of the University, and all patients had the right to be involved or withdraw their answers, without

affecting their right to receive the required medical care. An informed, written, signed consent was obtained from the study subjects. There was an ensured confidentiality of the collected data, and it was not used for any other purpose. There was no coercion to participate in the study.

Results

The mean (SD) age of the women in group 1 (control) was 33.3 (7.8) years and in group 2 was 29.1 (8.1) years, with no statistically significant differences in age, educational level, marriage duration, menstrual regularity, the presence of current pregnancy and female circumcision (Table 1).

From the Bristol questionnaire, 36% of the study group had minimal to moderate LUTS, with severe LUTS in 64%. For the different types of incontinence, most women (42%) had mixed stress and urge urinary incontinence, whilst 14% had no incontinence, with coital incontinence in 37% (19) of group 2.

An overactive detrusor was the most frequent urodynamic finding, in 27 of the 44 patients (61%) in group 2 who had undergone urodynamic studies, omitting those patients who had a UTI.

FSD was diagnosed in 75 of the 101 women (74%) (Table 1); 87 (86%) reported hypoactive sexual desire, 61 (60%) reported sexual arousal disorder, 56 (55%) had a lubrication disorder, 65 (64%) complained of orgasmic deficiency, 36 (36%) had satisfaction disorder, and 59 (58%) had sexual pain disorder (e.g. dyspareunia or non-coital genital pain).

The prevalence of different types of the FSD in the two groups is also shown in Table 1. The prevalence of FSD was 61% (30/49) in the control group with no LUTS. Disorders of arousal, orgasm, lubrication, satisfaction and sexual pain were more common in those with LUTS than in the control group, with significant statistical differences between the groups (Table 1).

The relative risk of FSD and LUTS was estimated as 1.4, so women with LUTS have a 1.4 times greater risk of developing FSD than those with no LUTS. The attributable risk was estimated to be 41%, so that among patients diagnosed with FSD and LUTS, 41% of FSD was attributed to LUTS (Table 1).

From a regression analysis of possible risk factors for FSD in both groups, there was no prognostic value among these factors and FSD as a whole, so that none of those factors was considered as an independent risk for the development of FSD in the women in this sample (Table 2).

Discussion

This was a descriptive case-control comparative study, with both groups homogenous for age, education,

Table 1 The demographic data of both groups, and the prevalence of FSD by domain.

Variable, n (%)	Group 1 (49)	Group 2 (52)	P^a
Demographic factor			
Level of education			0.345
Illiterate	16 (33)	13 (25)	
Moderate	26 (53)	18 (54)	
Higher	7 (14)	11 (21)	
Marriage duration (years)			0.961
< 5	12 (25)	9 (17)	
5–10	11 (22)	11 (21)	
> 10	26 (53)	32 (62)	
Current pregnancy			0.940
Pregnant	3 (6)	3 (6)	
Not pregnant	46 (94)	49 (94)	
Menstrual regularity			0.109
Regular	31 (63)	32 (62)	
Irregular	8 (16)	8 (15)	
Postmenopausal	10 (20)	12 (23)	
Circumcision			0.337
Circumcised	48 (98)	49 (94)	
Uncircumcised	1 (2)	3 (6)	
Age (years)			0.965
18–20	2 (4)	3 (6)	
21–30	14 (29)	14 (27)	
31–40	15 (31)	14 (27)	
41–50	11 (22)	11 (21)	
51–60	3 (6)	3 (6)	
61–70	4 (8)	7 (14)	
FSD			
Yes	30 (61)	45 (87)	0.004
No	19 (39)	7 (14)	
Desire disorder			0.203
Yes	40 (82)	47 (90)	
No	9 (18)	5 (10)	
Arousal disorder			0.003
Yes	28 (57)	35 (67)	
No	21 (43)	10 (19)	
No intercourse	0	7 (14)	
Lubrication disorder			0.006
Yes	25 (51)	31 (60)	
No	24 (49)	14 (27)	
No intercourse	0	7 (14)	
Orgasm disorder			0.001
Yes	30 (61)	35 (67)	
No	19 (39)	10 (19)	
No intercourse	0	7 (14)	
Satisfaction disorder			0.001
Yes	5 (10)	31 (60)	
No	44 (90)	21 (40)	
Pain disorder			0.014
Yes	28 (57)	31 (60)	
No	21 (43)	14 (27)	
No intercourse	0	7 (14)	

[a] chi-squared test.

parity, marriage duration, presence of chronic illness, regular menstruation, and circumcision. Most of the women were aged 21–50 years, i.e., 40 (82%) in the control group and 39 (75%) in group 2, as this age group has a higher sexual activity. Salonia et al. [8] reported

Table 2 The regression analysis of possible risk factors for FSD in both groups.

Prognostic factor	P	Odds ratio
Age	0.425	1.388
Job	0.185	1.620
Marriage duration	0.140	2.179
Parity	0.566	1.174
Delivery mode	0.488	0.798
Pregnancy	0.231	4.433
Menstrual regularity	0.497	0.688
Contraception	0.729	1.121
Vaginal infection	0.554	0.709
Circumcision	0.249	4.353

a mean age of women in their study of 54 years (range 19–63), but in the study by Elnashar et al. [6] most of the women (79.8%) were aged 20–39 years. This difference could be a result of the cultural differences between Western and Eastern culture in sexual activity, as it tends to be linked to marriage in Eastern countries.

In the present study, patients with LUTS were classified using the Bristol questionnaire into three groups, with three patients (6%) having mild LUTS, 16 (31%) moderate LUTS and 33 (63%) severe LUTS. In group 2, the most common urodynamic diagnosis was an overactive detrusor (52%), whilst 23% had normal urodynamic studies, 15% were diagnosed with UTI and had no urodynamic assessment, and 10% had detrusor under-activity. In comparison, Salonia et al. [8] divided their study participants into two groups based on the presence or absence of recurrent cystitis. In the group of 26 with recurrent bacterial cystitis, the most common urological diagnosis was voiding dysfunction (46%), followed by meatal stenosis (23%), obstructive cystocele (19%), atrophic urethritis (8%), and bladder-neck fibrosis (4%). In the other group without recurrent bacterial cystitis the most common urological diagnosis was dysfunctional voiding (27/65, 41%). The AUA Symptom Score was used to evaluate LUTS in that study. Our study supports the finding that dysfunctional voiding is the most common urological presentation of women seeking medical advice, apart from having a lower UTI.

Most of the women in group 2 (42%) had mixed urinary incontinence, whilst 14% had no incontinence. There was coital incontinence in 37% of group 2, compared to none in the control group, which was a statistically significant difference. Hilton [10] reported that 25% of women assessed at a urogynaecology clinic have a sexual dysfunction caused by urinary incontinence. Barber et al. [11] reported that there was a greater incidence of sexual dysfunction in women who were incontinent or had LUTS than in the general population.

In the present study FSD was reported by 74% of the 101 women. The overall prevalence of FSD in the control group was 61% and was 87% in group 2 ($P = 0.004$). These findings are similar to those reported by Hassanin et al. [12] in a sample from Upper Egypt, as FSD was identified in 76.9% (462/648) of their study population. In Lower Egypt, the prevalence of FSD was estimated as 68.9% (689/1000) [6]. In Italy, Salonia et al. [8] studied 216 women for FSD, with a reported prevalence of 46%. We found that 41% of FSD could be attributed to LUTS. The difference between Western and Eastern women in their cultural and psychosocial perception of sexual life could explain the difference between the overall prevalence of FSD in our study and that by Salonia et al. We could not assess the effect of female circumcision in the present study, because almost all the women in both groups were circumcised.

The positive relation between FSD and LUTS shown in the present study might be a result of the effect of LUTS on the quality of life of affected women, especially with many having coital incontinence, which might be a barrier to a satisfactory sexual life.

The relationship between FSD and LUTS was suggested to be a consequence mainly of an overactive bladder, urinary incontinence and pelvic prolapse, apart from the hormonal deficiencies that affect the pelvic organs [13].

There is still controversy about the role of the overactive bladder. Salonia et al. [8] found that the diagnosis of an overactive bladder negatively affected the quality of life and sexual function of women. Patel et al. [14] did not verify this association in their study. Nickel et al. [15] stated that patients with chronic pelvic pain had a significantly compromised quality of life and sexual function.

For different subtypes of FSD, there was hypoactive desire disorder (HDD) in 87 of the 101 women (86%), and it was also estimated at 66.4% in the study conducted in Upper Egypt [6]. By contrast, there was a lower incidence of HDD (49.6%) in another study in Lower Egypt [12], similar to the proportion reported by Salonia et al. [8] in their study in Italy, where HDD was estimated as 49.6%.

In the present study, 47 of the 52 patients (90%) with LUTS and 40 of the 49 (82%) control subjects had HDD ($P = 0.203$; not significant). Salonia et al. [8] found that desire disorders were more prevalent in those with LUTS ($P < 0.01$). This difference might be a result of the high incidence of HDD in the present sample (control or study group) as the presence or absence of LUTS would not affect the already high incidence.

In the present study, 62% of the 101 women had arousal disorders. This was estimated at 56.7% in the study in Upper Egypt [6], compared with 23% in the study by Salonia et al. [8], and 36% in the study in Lower Egypt [12]. Arousal disorders were more prevalent in those diagnosed with LUTS in the present study, with a significant statistical difference ($P = 0.001$),

compared with no association between the groups ($P = 0.18$) reported by Salonia et al. [8].

Lubrication disorder was present in 55% of the 101 women in the present study, with a significant difference between the groups in this disorder (60% in those with LUTS and 51% in the controls, $P = 0.006$). Hassanin et al. [12] found a similar percentage in their study (52.8%). This association was also found by Salonia et al. ($P = 0.01$) [8], in contrast to Tomoko et al. [16], who found no association between LUTS and lubrication disorder ($P = 0.2$).

Orgasmic phase disorders were reported by 64% of the 101 women in our study, a similar percentage (60.7%) to that in Upper Egypt [6]. By contrast, orgasmic phase disorders were estimated as 43% in the study in Lower Egypt [12], with a lower percentage (11%) reported by Salonia et al. [8] in Italy. In the present study there was an association between LUTS and orgasmic phase disorders ($P = 0.006$), but Salonia et al. [8] reported no association ($P = 0.24$).

Disorders of sexual satisfaction were reported by 36% of the present 101 participants, compared to 53.6% reported by Hassanin et al. [12]. The disorder was reported by 60% in group 2, but in only 10% in group 1. There was an association between LUTS and satisfaction disorder ($P = 0.001$), which was also found by Salonia et al. [8] ($P < 0.01$), whilst Tomoko et al. [16] found no association between them ($P = 0.2$).

Sexual pain disorders were reported by 58% of the 101 women (e.g., dyspareunia or non-coital genital pain); they were reported by 60% of those with LUTS and 57% of the controls. Tokomo et al. [16] also found no association between these factors. Seven patients (14%) in group 2 reported stoppage of sexual activity because of LUTS; this could affect the P value for arousal, lubrication, orgasmic and pain disorders. If these seven patients were omitted the statistically significant difference between the groups would be in 'arousal disorders' only.

From the present study, it seems that the impact of LUTS on FSD is related to its effect on the quality of life or the psychological perception of the patients, rather than causing local physical pain.

We used binary logistic regression to identify the risk factors for the presence of FSD, i.e., age, duration of marriage, parity, contraception, job, pregnancy, delivery mode, vaginal infection, menstrual regularity, and circumcision, but there was no prognostic role for any. Only age maintained a statistically significant positive relationship with FSD in the regression model in the study by Hassanin et al. [12]. Other factors were associated with the risk of developing FSD, but they were not statistically significant.

In conclusion, FSD and its subtypes are more prevalent in women with LUTS in this population sample from Egypt.

References

[1] Mazouni C, Karsenty G, Bretelle F, Bladou F, Gamerre M, Serment G. Urinary complications and sexual function after the tension-free vaginal tape procedure. *Acta Obstet. Gynecol. Scand.* 2004;**83**:955–61.

[2] Meschia M, Bertozzi R, Pifarotti P, Baccichet R, Bernasconi F, Guercio E, et al. Peri-operative morbidity and early results of a randomized trial comparing TVT and TVT. *Int. Urogynecol. J. Pelvic Floor Dysfunc.* 2007;**18**:1257–61.

[3] Moore CK. Female sexual function and dysfunction*Scott.* Tenth Edition. In: McDougal W, Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA, et al., editors. *Campbell-walsh urology*, 6. Philadelphia: Elsevier: Saunders; 2010. p. 823–33.

[4] Delorme E, Droupy S, De Tayrac R, Delmas V. Transobturator tape (Uratape): a new minimally-invasive procedure to treat female urinary incontinence. *Eur. Urol.* 2004;**45**:203–7.

[5] Aungst MJ, Mamienski TD, Albright TS, Zahn CM, Fischer JR. Prophylactic Burch colposuspension at the time of abdominal sacrocolpopexy a survey of current practice patterns. *Int. Urogynecol. J. Pelvic Floor Dysfunct.* 2009;**20**:897–904.

[6] Elnashar AM, El-Dien Ibrahim M, El-Desoky MM, Ali OM, El-Sayd Mohamed Hassan M. Female sexual dysfunction in Lower Egypt. *BJOG* 2007;**114**:201–6.

[7] Sentilhes L, Berthier A, Sergent F, Verspyck E, Descamps P, Marpeau L. Sexual function in women before and after transvaginal mesh repair for pelvic organ prolapse. *Int. Urogynecol. J. Pelvic Floor Dysfunct.* 2008;**15**:765–70.

[8] Salonia AI, Zanni G, Nappi RE, Briganti A, Dehò F, Fabbri F, et al. Sexual dysfunction is common in women with lower urinary tract symptoms and urinary incontinence Results of a cross-sectional study. *Eur. Urol.* 2004;**45**:642–8.

[9] Handa VL, Harvey L, Cundiff GW, Siddique SA, Kjerulff KH. Sexual function among women with urinary incontinence and pelvic organ prolapse. *Am. J. Obstet. Gynecol.* 2004;**161**:751–65.

[10] Hilton P. Urinary incontinence during sexual intercourse: a common, but rarely volunteered, symptom. *Br. J. Obstet. Gynaecol.* 1988;**95**:377–81.

[11] Barber MD, Dowsett SA, Mullen KJ, Viktrup L. The impact of stress urinary incontinence on sexual activity in women. *Cleve. Clin. J. Med.* 2005;**72**:225–32.

[12] Hassanin IM, Helmy YA, Fathalla MM, Shahin AY. Prevalence and characteristics of female sexual dysfunction in a sample of women from Upper Egypt. *Int. J. Gynecol. Obstet.* 2010;**108**: 219–23.

[13] Möller LA, Lose G. Sexual activity and lower urinary tract symptoms. *Int. Urogynecol. J. Pelvic Floor Dysfunct.* 2006;**17**:18–21.

[14] Patel AS, O'Leary ML, Stein RJ, Leng WW, Chancellor MB, Patel SG, et al. The relationship between overactive bladder and sexual activity in women. *Int. Braz. J. Urol.* 2006;**32**:77–87.

[15] Nickel JC, Tripp D, Teal V, Propert KJ, Burks D, Foster HE, et al. Interstitial Cystitis Collaborative Trials Group. Sexual function is a determinant of poor quality of life for women with treatment refractory interstitial cystitis. *J. Urol.* 2007;**177**:1832–6.

[16] Sako T, Inoue M, Watanabe T, Ishii A, Yokoyama T, Kumon H. Impact of overactive bladder and lower urinary tract symptoms on sexual health in Japanese women. *Int. Urogynecol. J.* 2010;**22**: 165–9.