

Pelvic floor muscle disorders and women's quality of life

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ABSTRACT

Purpose: To characterize the symptoms of urinary incontinence of women suffering from pelvic organ disorders (POP) and the effect of these problems on quality of life (QoL).

Materials and methods: 215 women from rural regions diagnosed with POP were examined. The research implemented the Life Satisfaction Questionnaire (LISAT-11), used to assess quality of life; the Sexual Quality of Life-Female (SQoL-F) questionnaire, which was employed to assess sexual activity; and the Gaudenz-Incontinence questionnaire, served to assess the occurrence of symptoms of urinary incontinence as well as to define the type of urinary incontinence and its degree of escalation.

Results: The average age of the participants was 54.8 years. Most of the participants had urinary incontinence (159; 73.95%). Women with POP and

symptoms of urinary incontinence achieved a lower indicator of the sexual function QoL (median - 61.00) when compared to those not suffering from urinary incontinence (median- 78.00). Differences between the groups were statistically significant ($p=0.002$). The general indicator of QoL for women with symptoms and those without symptoms of stress urinary incontinence (SUI) did not reveal any significant differences between the groups ($p=0.643$).

Conclusions: Urinary incontinence in women with disorders of pelvic floor muscle functions has an insignificant effect on general QoL, whereas it has a decidedly negative impact on sexual function QoL.

Key words: Pelvic floor disorders, quality of life, sexuality

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INTRODUCTION

The correct structure and the biochemical composition of the ligaments, the fascia, and the pelvic floor muscles determine the proper static of the pelvic organ. Even though the organs of the lower part of the pelvis, such as vagina, cervix, urinary bladder and urethra have their own layers of fascia, the anatomical relations indicate their mutual connection [1]. Pelvic organ prolapse (POP), also known as “uterine prolapse” or “genital prolapse”, stress urinary incontinence – SUI, trouble controlling the passing of intestinal gases and defecation as well as sexual dysfunctions all belong to the group called pelvic floor muscle (static) disorders (pelvic floor disorders - PFD) [2,3]. According to the scientific literature, PFD occur in about 38-75% of women; however, they cause clinical symptoms in only 10-20% of the cases [4, 5]. Among these the most often enumerated are: pulling sensation, pain in the lower abdomen, urinary incontinence, urinary urgency, polyuria, defecation disorders, and sexual dysfunctions. The dysfunction of the pelvic floor muscle static constitutes to be a problem – clinical, psychological and hygienic, which might consequently disable everyday functioning [3].

The aim of this research was to characterize the symptoms of urinary incontinence of women suffering from POP and the effect of these problems on quality of life (QoL).

MATERIALS AND METHODS

The project obtained the approval from the ethics committee of the Medical University of Lublin.

The examination of 215 women diagnosed with POP was carried out in the Gynaecology Clinic of the Medical University in Lublin between October 2013 and December 2014. The inclusion criteria was obtaining a consent to participate in the research. The exclusion criteria were based on the information concerning patient’s medical history and/or medical documentation that included:

- neurological diseases, mental disorders, congenital malformations in the urinary-reproductive system or fistulas;
- diagnosed inflammation of the urinary tract, reproductive organ.

The Gaudenz-Incontinence questionnaire, the Life Satisfaction Questionnaire (LISAT-11) questionnaire [6], and the Sexual Quality of Life-Female (SQoL-F) questionnaire constituted the research tools [7]. The Gaudenz-Incontinence questionnaire [8] served to assess the occurrence of symptoms of urinary incontinence as well as to define the type of urinary incontinence and its degree of escalation. In order to determine if the patient was suffering from SUI, she was asked about episodic

occurrences of involuntary urine leakage while coughing, laughing or sneezing. Whereas, in order to ascertain whether the patient was suffering from detrusor instability (DI) she was asked about involuntary urination preceded by a strong and/or painful urinary urgency on the bladder before reaching the toilet. The questionnaire further included questions regarding frequency of urination, pain experienced during micturition, and the possibility of stopping the stream of urine.

The LISAT-11 questionnaire was used to evaluate the QoL of women suffering from POP. It consisted of 11 questions regarding assessment of QoL in the context of the occupational and financial situation, ways of spending one’s free time, relationship with one’s friends and acquaintances, sex life, external appearance, family life, relation with one’s partner, and physical and psychological health. Research participants were meant to assess their satisfaction on a six-point scale, between “very unsatisfactory” (1 point) and “very satisfactory” (6 points). The general indicator of QoL constituted the average point count accumulated by the research participants in all of the assessed categories.

To perform a detailed analysis of sexual function QoL of women suffering from POP, the SQoL-F questionnaire was used. It consisted of 18 questions, and each of them could be answered with a single response according to the gradation: from “I totally agree” to “I totally disagree”. The indicator of sexual function QoL was presented on a scale between 0 and 100, where the greater the value the greater the satisfaction with one’s sex life.

The results derived from the research were subjected to statistical analysis. The values of the analyzed measurable parameters have been presented with the use of the average value and median, while non-measurable with the use of quantity and percentage. In order to examine the differences between the studied groups, the Mann-Whitney U test was used. The assumed level of relevance was $p < 0.05$. Database and statistical analyses were carried out using the software Statistica 9.1 (StatSoft, Poland).

RESULTS

The average age of the participants was 54.80 years, where the women between 50-59 years (84;39.06%) constituted the largest group. 67 (31.16%) were 49 years or younger, while 64 (29.78%) of the women were 60 years or older. The majority of women were married (131;60.93%). The remaining women were widows (48;22.32%), divorcees (22;10.23%) or unmarried (14;6.52%). More than half of the respondents (134;62.32%) declared having active sex lives. Most of the research participants had the symptoms of SUI (159;73.95%).

The respondents reporting the symptoms of urinary incontinence were asked a series of questions

about the character and the circumstances of urine leakage. The results pertaining to this matter are presented in Table 1.

Respondents most frequently reported a situation in which involuntary urination occurred was during “coughing, sneezing, laughing” (111; 69.81%). 46(28.94%) women felt the urge to use the

toilet every 1-2 hours, 38 (23.89%) with varied frequency, and 6(3.78%) every half an hour or more often. More than half of the examined women (91; 57.23%) reported that after having urinated, their bladder feels empty. Women’s QoL, depending on the occurrence of the symptoms of SUI, is presented in Table 2.

Table 1. The symptoms of urinary incontinence in women diagnosed with Pelvic organ prolapse (POP)

| Studied characteristics | N | % | |
|---|--|-----|-------|
| Circumstances which induce urine leakage | While coughing, sneezing, laughing | 111 | 69.81 |
| | While climbing stairs | 24 | 15.09 |
| | While leaping, jumping, exercising | 18 | 11.32 |
| | While standing | 5 | 3.15 |
| | While sitting or lying | 1 | 0.63 |
| Amount of urine leakage | Several drops | 109 | 68.55 |
| | Small portions | 41 | 25.79 |
| | Profuse wetting | 5 | 3.15 |
| | No answer | 4 | 2.51 |
| Frequency of urination during the day | Every 3-6 hours | 69 | 43.39 |
| | Every 1-2 hours | 46 | 28.94 |
| | Every half an hour or more frequently | 6 | 3.78 |
| | With varied frequency | 38 | 23.89 |
| Able to control the feeling of pressure on the bladder | Yes, able to wait | 93 | 58.49 |
| | Has to urinate within 10-15 minutes | 41 | 25.79 |
| | Needs to urinate immediately, within 1-5 minutes | 21 | 13.21 |
| | No answer | 4 | 2.51 |
| Unable to control involuntary urination under a strong urinary urgency on the bladder | Never | 86 | 54.08 |
| | Rarely | 60 | 37.74 |
| | Often | 11 | 6.92 |
| | No answer | 2 | 1.26 |
| Compulsion to urinate during the night | Never | 29 | 18.23 |
| | Once | 73 | 45.92 |
| | 2-4 times | 53 | 33.34 |
| | 5 times or more | 4 | 2.51 |
| The feeling of an empty bladder after having passed urine | Yes | 91 | 57.23 |
| | No | 17 | 10.69 |
| | Not always | 33 | 20.75 |
| | I do not know | 15 | 9.44 |
| | No answer | 3 | 1.89 |

The general indicator of QoL of women with symptoms and those without symptoms of SUI did not reveal any significant differences between the groups (p=0.643). Statistically significant differences (p=0.049) were noted only in the case

of the *Leisure, entertainment* domain. Women with SUI assessed this sphere significantly lower (average-4.09) than women without this problem (average-4.43). In the case of the other domains, the differences were not statistically significant (p>0.05).

Table 2. Feeling of satisfaction with one’s life and the occurrence of stress urinary incontinence (SUI)

| Domains | Women without symptoms of SUI | | | Women with symptoms of SUI | | | Statistical analysis | |
|---|-------------------------------|------|------|----------------------------|------|------|----------------------|---------|
| | M | Me | SD | M | Me | SD | Z | p-value |
| Satisfaction with life | 4.15 | 4.00 | 1.20 | 4.25 | 4.00 | 1.14 | -0.526 | 0.599 |
| Occupational situation | 3.82 | 4.00 | 1.15 | 3.80 | 4.00 | 1.35 | -0.137 | 0.891 |
| Financial situation | 3.74 | 4.00 | 1.07 | 3.69 | 4.00 | 1.31 | 0.069 | 0.945 |
| Leisure, entertainment | 4.43 | 5.00 | 1.19 | 4.09 | 4.00 | 1.18 | 1.969 | 0.049 |
| Relations with friends | 4.28 | 4.00 | 1.29 | 4.33 | 4.00 | 1.10 | 0.013 | 0.990 |
| Sex life | 3.88 | 4.00 | 1.47 | 3.77 | 4.00 | 1.36 | 0.593 | 0.553 |
| Appearance, image | 4.11 | 4.00 | 1.00 | 3.97 | 4.00 | 1.07 | 0.591 | 0.554 |
| Domestic life | 4.52 | 4.50 | 0.97 | 4.49 | 4.00 | 1.01 | 0.184 | 0.854 |
| Relations with partner | 4.56 | 5.00 | 1.10 | 4.46 | 5.00 | 1.24 | 0.213 | 0.831 |
| Physical health | 3.89 | 4.00 | 1.21 | 3.83 | 4.00 | 1.24 | 0.370 | 0.711 |
| Mental health | 4.19 | 4.00 | 1.43 | 4.15 | 4.00 | 1.20 | 0.612 | 0.541 |
| General indicator of quality of life LISAT-11 | 4.12 | 4.00 | 0.88 | 4.05 | 4.00 | 0.90 | 0.464 | 0.643 |

M – average value, Me – median; SD – standard deviation, Z – Mann-Whitney U test results, p-value – statistical significance

Table 3 presents the results of the research pertaining to sexual function QoL . These are responses from 134 (62.32%) of the examined women who declared to having an active sex life.

Table 3. Sexual function QoL of women suffering from POP and SUI

| Features characterizing the group | M | Me | SD | Statistical analysis | |
|-----------------------------------|-------|-------|-------|----------------------|---------|
| | | | | Z | p-value |
| POP, lack of incontinence | 77.00 | 78.0 | 23.79 | 3.102 | 0.002 |
| POP and SUI | 63.98 | 61.00 | 23.81 | | |
| Indicator overall | 67.58 | 67.00 | 24.33 | – | – |

M – average value, Me – median; SD – standard deviation, Z – Mann-Whitney U test results, p-value – statistical significance

The indicator of sexual function QoL in the group equaled 67.58 points overall (out of the possible 100), which indicates an average level. Women with POP and symptoms of SUI achieved a lower indicator (median-61.00) when compared to those not suffering from urinary incontinence (median–78.00). Differences between the groups were statistically significant (p=0.002).

DISCUSSION

The variety of clinical symptoms in women with PFD results from the fact that the internal pelvic

organs, the lower part of the urinary tract, the rectum and the pelvic floor muscles are closely connected with one another both anatomically and functionally [2,9,10]. Urinary incontinence is amongst the most common symptoms accompanying POP [3,5]. Clinical research proves that women with POP may present with a wide range of lower urinary tract symptoms: SUI, DI, frequency, and urge incontinence have been reported in 40 %, 34 %, 29 %, and 30 % of women with POP, respectively [11].

In the presented material, assessment of frequency of occurrence of functional disorders of the urinary tract, performed using the Gaudenz-Incontinence questionnaire, demonstrated a high percentage (73.95%) of women with these problems. Whereas Lowder et al. proved that in the case of patients with POP, mixed type urinary incontinence was the most common [12]. In our own research, women with urinary incontinence suffered from clinical symptoms indicating SUI, DI, or mixed type urinary incontinence. The majority (69.81%) claimed that coughing and sneezing induced urine leakage in their case. Apart from this, a significant number of patients reported other symptoms, such as: DI, the need to urinate several times during the night or the feeling of incomplete emptying of the bladder. The research of Burrows et al. also indicates the variety of symptoms associated with micturition [13].

There is an increasing number of women around the world (especially elderly women) suffering from pelvic floor muscle dysfunctions and the symptoms of urinary incontinence. In Poland, there is a shortage of epidemiological data regarding this question. Some researchers highlight the low level of reporting of symptoms of urinary incontinence by women as well as the late seeking of doctor’s advice, i.e., only when the symptoms are already highly advanced [14,15]. Women do not

always associate the first symptoms of SUI with the disease and do not report it to their doctor. This might be the reason why many patients suffering from POP do not report these problems, even before a surgical procedure, and especially in the case of first degree of SUI [15]. This is also confirmed by our own research. Sometimes the masking of the symptoms of urinary incontinence also takes place. This might be proven by the fact that the majority of continent patients had a positive Valsalva maneuver after repositioning of POP with the help of a pessary [16].

Symptoms of SUI sometimes appear after surgical correction of POP. This is because the pathogenesis of SUI in women suffering from uterine and vaginal prolapse results from both urethral sphincter failure and urethral hypermobility [2,17]. Therefore, the postulate of Sung et al. [4] to carry out urodynamic examination twice before performing the surgical procedure on women suffering from POP seems to be the right one. The aim of this examination is not only to identify hidden urinary incontinence and determine the causes for disorders of the lower part of the urinary tract, but also to evaluate bladder detrusor-sphincter activity [4, 18].

The International Continence Society (ICS) recommends including evaluation of QoL into all research regarding lower urinary tract functional disorders [17]. Some authors observed that symptoms associated with pelvic floor muscle dysfunction had a negative effect on women's lives [9,14,15]. Cetinkaya et al. researched the effect of SUI and fecal incontinence on particular domains of QoL [9]. The results revealed that SUI did not have such a significant effect on women's QoL as fecal incontinence did. However, in many domains of life it proved to be very problematic for the patients, especially with regard to assessment of one's state of health, intimate contacts, and occupational activity. It is also worth highlighting that none of the examined women claimed that the disease did not have an effect on the quality of their lives.

In the presented material, evaluation of the analyzed domains of QoL of women with SUI, when juxtaposed with those not suffering from these problems, was similar. In both groups, the highest grades were assigned with regard to domestic life, relations with one's partner/husband, and contact with one's friends and acquaintances, whereas the lowest to financial situation, occupational situation, and sex life (Table 2). Whereas research carried out in Turkey (among 1585 women suffering from SUI) showed that difficulties in sexual relations and limited sex life constituted the major inconvenience.

Female sexual dysfunction (FSD) is common in women with urogenital disorders that occur as a result of pelvic floor muscle and fascial laxity [19]. In the scientific literature, one might come across a statement that POP bears no influence

on the sexuality of women [18]. In our research, women suffering from POP evaluated the quality of their sex lives on an average level (median - 67.00). Whereas those who had additionally declared the occurrence of symptoms of incontinence assessed it even lower (median – 61.00).

Pauls et al. [20] showed that sexual inactivity was common in patients presenting for urogynecologic care. Those patients that were sexually active reported low rates of sexual activity and high rates of FSD [20]. Lew-Starowicz reports that FSD affected 6-9% of women undergoing treatment for urinary incontinence were the cause of sexual disorders in 5% of women seeking the help of a sexologist [21]. However, the research results of some authors indicate a more frequent occurrence of sexual disorders in women suffering from POP [9]. Women with prolapse or detrusor instability were more likely to cite pelvic floor symptoms as a reason for sexual inactivity than were women with other conditions. One third of patients with prolapse reported that their pelvic floor condition affected their ability to have sexual relations moderately or greatly significantly more than did other groups [18].

According to Tok et al., although POP has an effect on some aspects of sexuality, it has no effect on certain aspects of sexual function such as orgasm and sexual satisfaction [22].

Lukacz et al. proved that the sexual activity of women was not decreased by dysfunction of the pelvic floor muscles, but by age and menopausal status [23]. Similarly, Burrows et al. did not observe a statistically significant difference between the sexuality of women with POP or without POP in their study [13]. It is surprising in so far as the contractility of the particular bundles of the pelvic floor muscles during the sexual act is said to be responsible for the narrowing and extending of the vagina and the elevation of the uterus as well as to play an important role in experiencing orgasm [24]. PFD is a multi-faceted problem, because it has both anatomical and functional aspects [22]. The effect of the PFD on the sexuality of women continues to give birth to controversy and therefore requires further study.

FSD is a common, underestimated, and untreated complaint in women with PFD. Review of the medical literature and our research to identify the relation between FSD and common urogenital disorders in women order to describe appropriate treatment strategies to improve QoL and sexual function QoL [19,25,26].

Identifying sexual complaints and treating the underlying etiologies can result in significant improvement in a woman's QoL. This process requires a focused, multidisciplinary approach tailored to meet the needs of women with PFD.

CONCLUSIONS

1. The symptoms of urinary incontinence occur in the case of a significant majority of women suffering from POP.
2. Urinary incontinence in women with disorders of pelvic floor muscle functions has an insignificant influence on general QoL, whereas it has a decidedly negative impact on sexual function QoL.

Conflict of interest

The authors have no conflicts of interest to disclose.

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