

Assessing the Influence of Benign Prostatic Hyperplasia (BPH) on Erectile Dysfunction (ED) among patients in Poland

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KEY WORDS

benign prostatic hyperplasia ▶ erectile dysfunction ▶ International Index of Erectile Function 5 ▶ International Prostate Symptom Score ▶ lower urinary tract symptoms

ABSTRACT

Introduction. Erectile dysfunction (ED) and the lower urinary tract symptoms caused by benign prostatic hyperplasia (LUTS/BPH) are highly prevalent among aging men. More data are needed from studies evaluating the impact of LUTS/BPH on ED. This study aimed to assess ED in patients with LUTS/BPH independent of comorbidities.

Material and methods. During 2007 and 2008, we examined 10,932 patients aged 50 to 69 years with LUTS/BPH (IPSS = 8–19 points) using questionnaires: Sex-Score and International Index of Erectile Function 5 (IIEF-5). Patients who used alcohol and/or cigarettes and those with hypertension, diabetes, or hyperlipidemia and cholesterolemia were excluded from meta analyses, which left 4,354 patients with LUTS/BPH without any comorbidity for the analyses. The main survey instruments used were the Sex-Score and IIEF-5.

Results. Regarding sexual coexistence, 1,497 (34.4%) and 2,638 (60.6%) patients considered it very important or important respectively; however, 219 (5%) patients reported no sexual activity. After excluding sexually inactive patients, only 1,088 (25%) patients had the ability to obtain an erection during sexual activity always or nearly always. However, that erection was only strong enough to penetrate their partner almost always or most of the time in 218 (5%) and 826 (19%) patients respectively and only 610 (14%) patients were always able to maintain their erection during sexual intercourse. While only 87 (2%) patients had no difficulty maintaining their erection until the completion of intercourse, 174 (4%) and 914 (21%) patients stated that sexual intercourse gave satisfaction nearly always or most of the time respectively.

Conclusions. The impact of ED on patients with LUTS/BPH is evident across domains.

INTRODUCTION

Lower urinary tract symptoms (LUTS) are recognized as a global term that encompasses all urinary symptoms, including storage, voiding, and post-micturition. In men, LUTS are often caused by benign prostatic hyperplasia (BPH) and are often attributed to histologic BPH, which also occurs more frequently with aging, with a reported prevalence in 50% of men aged 51–60 years, increasing to up to 90% of men aged 80 years or older. Erectile dysfunction (ED) is also common in older men aged over 50 years [1]. Independent of age, LUTS/BPH and ED are strongly linked with many comorbidities such as cardiovascular disease, diabetes, dyslipidemia, and obesity. A causal link between LUTS/BPH and ED has not yet been established [2, 3]. The prevalence of LUTS/BPH is known to increase with age [4].

This study sought out to assess ED in patients with LUTS/BPH independent of comorbidities.

MATERIALS AND METHODS

Our study retrospectively analyzed the patient data collected by general practitioners in Poland. During 2007 and 2008, 10,932 patients with a urological diagnosis of LUTS/BPH and an International Prostate Symptom Score (IPSS) from 8–19 points were examined and questioned in Polish by physicians. Patients were aged from 50–69 years and nearly half of them used alcohol and cigarettes. Comorbidities included hypertension (30%), diabetes (15%), and hyperlipidemia and cholesterolemia (nearly 5%). The comorbidities were treated at the discretion of the patient's physician. Treatments most commonly consisted of watchful waiting or herbal supplements and alpha-1 blockers. ED was not treated at this time. The preliminary results have been published previously [5].

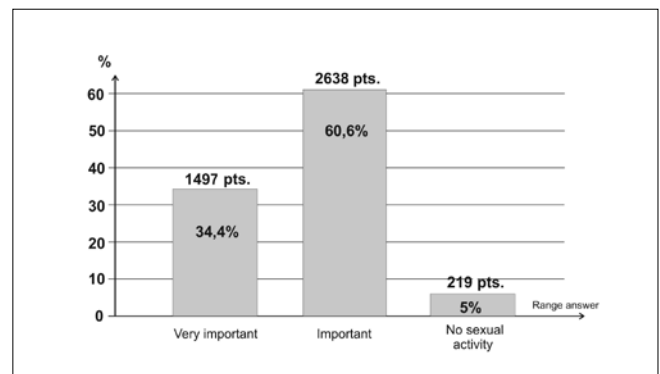


Fig. 1. Rating the importance of sexual coexistence among the examined patients with BPH.

Patients with an IPSS less than eight and greater than 19 were excluded from analyses in order to eliminate the extremes. Patients with comorbidities, as well as those who used alcohol and cigarettes, were also excluded from meta-analysis because these variables could also be factors leading to the development of ED and/or BPH. This left 4,354 patients to be included in the study. It should also be noted that these patients with LUTS/BPH were treated for less than six months and were without any chronic illness or reported ED. Outcomes were measured by assessing the results of questionnaires, the Sex-Score and International Index of Erectile Function (IIEF-5), as well as some additional inquiries regarding sexual activity and satisfaction. Sex-score assessed the ability to obtain an erection. The IIEF-5 was administered to assess the presence and severity of ED. The score is the sum of the responses to the five items so that overall score may range from 0 to 25. A score of 20 or higher indicates a normal degree of erectile function, while a score of 10 or less is indicative of moderate to severe ED. Descriptive statistics Chi-square values and Student-t tests were used ($p < 0.05$ was considered significant).

RESULTS

We analyzed the results of 4,354 (100%) patients with LUTS/BPH on the basis of Sex-Score and IIEF-5 questionnaires. We found that sexual coexistence activity was at least important to 4,135(95%) patients, while the remaining 5% admitted to no sexual activity (Fig. 1). Sexually inactivity was observed in men who were of older age – most often because their wives had chronic illnesses that prevented sexual intercourse or they themselves resigned from a sexual lifestyle. Of the 95% that considered sexual coexistence important, only 1,088 (25%) patients were able to obtain an erection during sexual activity at least nearly always (Fig. 2). We also found that only 1,044 (24%) patients had an erection that was strong enough to penetrate their partner (Fig. 3) and only 610 (14%) were able to maintain their erection during sexual intercourse at least most of the time (Fig. 4); however, only 87 (2%) patients had no difficulty maintaining their erection until the completion of intercourse (Fig. 5). Contrary to the above results, 1,088 (25%) patients achieved satisfaction from sexual intercourse at least most of the time (Fig. 6).

The final results of the IIEF-5 questionnaire revealed that a score of 21-25 points was achieved by only 174 (4%) patients (Fig. 7). The differences between the groups were found to be statistically significant ($p < 0.001-0.00001$).

We also found a full correlation between that an increase in IPSS (increased severity of BPH) was associated with more profound symptoms of ED.

DISCUSSION

The prevalence of LUTS/BPH and ED in men increases with age and both have been found to coexist in many men. This has increased the attention surrounding LUTS/BPH and ED and has urged us to delve into the relationship between them.

The Massachusetts Male Aging Study found that 52% of men aged 40-70 years had some degree of ED [6]. In Poland, 85% of similarly aged men examined for BPH also complained of ED [5]. These facts suggest that age might not be the only factor causing ED.

It was also found that age and BPH comorbidities influence the increased prevalence of men suffering from ED [7]. Even a mild increase in LUTS/BPH severity increased the incidence of ED and also strongly affected quality of life (QL) [8]. Hence, in our study we eliminated patients with BPH comorbidities and found that ED was present in 96% of patients with LUTS/BPH.

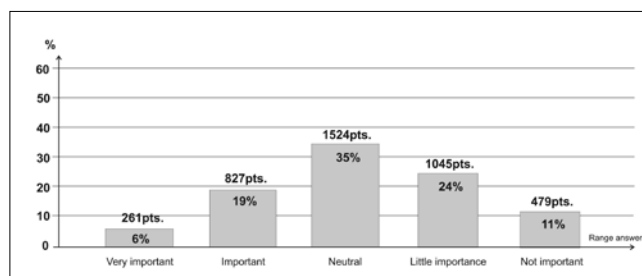


Fig. 2. Rating the importance of obtaining a full erection and ejaculation among the examined patients with BPH.

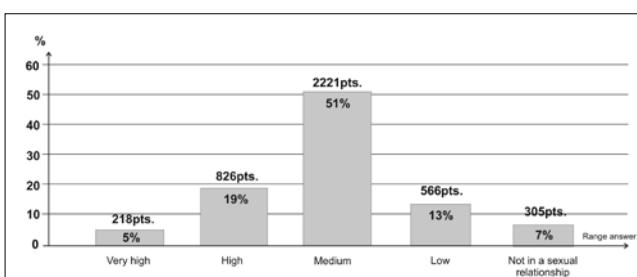


Fig. 3. Assessing the importance of obtaining a full erection and maintaining it among the examined patients with BPH.

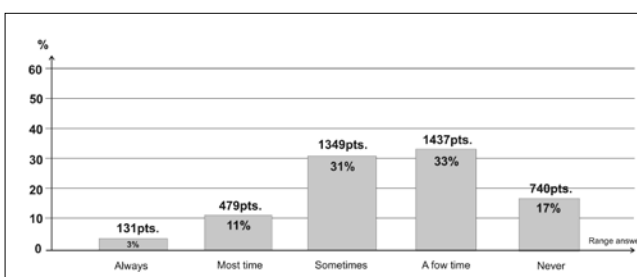


Fig. 4. Assessing the ability to maintain erection until end of sexual intercourse among the examined patients with BPH.

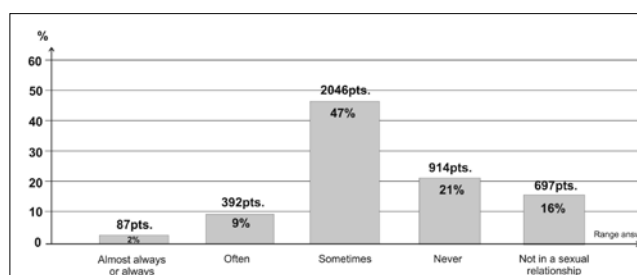


Fig. 5. Assessing achievement of satisfaction from sexual intercourse among the examined patients with BPH.

A multinational prospective study of sexual function and the comorbidities associated with LUTS/BPH found that hypertension (38%) and obesity (36%) were most commonly noted. It also found that 90% of men had moderate to severe LUTS, the severity of which increased with age, while sexual dysfunction was reported by 82% and directly correlated with the severity of LUTS. Of the 918 sexually active men in that study, only 20% had normal erectile function [9]. We found that only 4% of the 4,136 sexually active men in our study had normal erectile function. However, our study included only patients suffering from LUTS/BPH without the comorbidities that are known from many studies to affect erectile function [10].

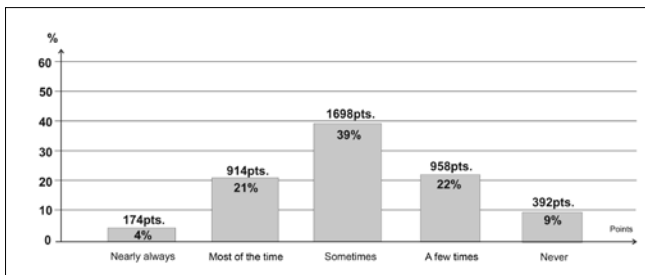


Fig. 6. Results of the Sex-Score questionnaire the examined patients with BPH.

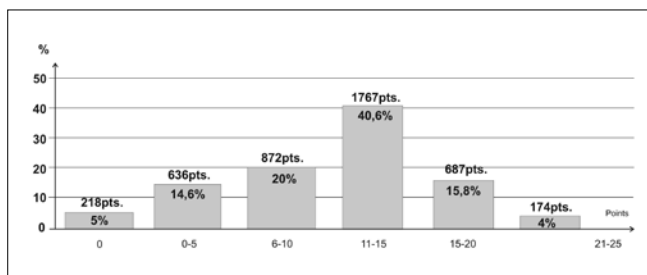


Fig. 7. Results of the IIEF-5 questionnaire among the examined patients with BPH.

Another study by Terai et al. [11] showed a significant association between LUTS/BPH and ED among Japanese men. Moreover, the Asian Survey of Aging Males (ASAM) was conducted using IPSS and IIEF-5 among others to determine the prevalence of LUTS/BPH and sexual disorders among men from five Asian countries aged 50-80 years. The results showed that sexual disorders increased with age and with increasing severity of LUTS/BPH and that sexual activity is common in Asian men, even at an advanced age. The ASAM study also confirmed the correlation between LUTS/BPH and ED [12].

In another study, Ponholzer and Madersbacher [13] stated that LUTS/BPH and ED are associated independently of age and major comorbidities.

Several supportive hypotheses regarding the association between LUTS/BPH and ED can be found in literature. For example, the autonomic hyperactivity present in hypertension has been suggested as a cause of LUTS/BPH and ED in aging men [14]. While other proposed causes of ED include decreased nitric oxide production in both the prostate and the smooth muscles of the penis, as well as the disorders of pelvic atherosclerosis and endothelial dysfunction. It was also found that the administration of sildenafil for ED improved LUTS/BPH [15] while significant improvements in erectile function were also observed after TURP [16].

Other published results determined that the quantitative growth of fibrous muscle tissue had a negative influence on the sexual activity of men suffering from BPH [17]. While subsequent studies determined a high correlation between ED and impaired micturition, especially urinary incontinence [18].

In our study, 25% of patients who suffered from LUTS/BPH stated that their sexual activity was satisfying nearly always (4%) or most of the time (21%). Similar results were published by Da Silva et al. [19].

ED has been classified as an essential dysfunctional element in the realms of sexuality and has a significant influence on QL [20]. While both LUTS/BPH and ED are known to significantly contribute to the patients overall QL.

Furthermore, it should be noted that the correlation between LUTS/BPH and ED might be partly due to cultural differences or

geographical factors among others. It has also been postulated that ethnic differences as well as a social influence among Asian men may affect a patient's likelihood to report LUTS/BPH and sexual dysfunction. The American Cohort Study found that Asian men were less likely to seek medical or surgical intervention for LUTS/BPH [21, 22].

We believe that more multinational studies of men with LUTS/BPH and without chronic illness are necessary to confirm the correlation between LUTS/BPH and ED, and that these studies should assess urinary symptoms and erectile function using IPSS and IIEF respectively.

CONCLUSION

We found that 95% of patients from the studied group suffering from only LUTS/BPH considered their sexual relations as important in their lives. We also found that from among these patients only 25% were sexually satisfied and 61% were seldom satisfied, which may indicate a strong influence of LUTS/BPH on ED.

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