ORIGINAL ARTICLE

Frequency of sexual dysfunction after transurethral resection of prostate for benign prostatic hyperplasia

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ABSTRACT

Background and Objective: Benign prostatic hyperplasia (BPH) is the commonest disorder involving the male reproductive tract. Surgical biopsy is the key to diagnosis in correlation with serum hormone levels. This study was designed to determine the frequency of sexual dysfunction (SD) after transurethral resection of the prostate (TURP) in male patients presenting with BPH.

Methods: This descriptive study was conducted at the Institute of Kidney Diseases, Peshawar. A total of 82 male patients of 40 to 60 years of age with BPH having lower urinary tract symptoms (LUTSs) were included. Detailed history, examination, and investigations like full blood count, coagulation profile, and ultrasound with pre and post-void residual urine were performed on every patient. Pre-operative erectile function was assessed by using the international index of erectile function (IIEF-5). All patients underwent TURP using monopolar diathermy and were managed according to the standard protocol till discharge from the hospital. Post TURP erectile function was assessed after six months using the same IIEF-5. Any increase or decrease in the score was noted and analyzed using statistical tests of association.

Results: The mean age of the patients was 50.71 ± 5.72 years. The mean duration of LUTS was 5.26 ± 1.77 months. The mean preoperative IIEF-5 score was 22.41 ± 2.30 while the mean postoperative IIEF-5 score was 22.41 ± 3.68. The frequency of sexual (erectile) dysfunction (ED) in our study was 9.8%. Among these, 4.9% of patients had mild ED while 2.4% each of patients presented with moderate and severe ED.

Conclusion: The frequency of SD after TURP for BPH is higher in patients of younger age in our population.

Keywords: Sexual dysfunction, benign prostate hyperplasia, lower urinary tract symptoms, transurethral resection of prostate.

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Introduction

Clinically, benign prostatic hyperplasia (BPH) with lower urinary tract symptoms (LUTS) in elderly men is one of the most common diseases.[1] With the proliferation of epithelial and smooth muscle cells within the transitional zone of the prostate, urinary flow resistance through the prostatic urethra increases, leading to irritative (nocturia, urgency, and frequency) and obstructive (straining, sense of incomplete bladder emptying, weak stream) symptoms. The treatment for LUTS secondary to BPH includes watchful waiting, medical therapies, and surgical treatment. In males with moderate to severe symptoms, however, medical or surgical management is often recommended as this reduces the risk for disease progression as well as improves the individual's quality of life (QOL).[2]

The surgical approach remains one of the most effective treatment options for BPH with severe and complicated conditions or LUTS refractory to medical therapy. Despite the fact that the transurethral resection of the prostate (TURP) has been regarded as the gold standard surgical option for LUTS due to BPH, the high rate of intraoperative or postoperative complications associated with TURP motivated investigators to search for modifications or alternative procedures.[3]

One of the late and common complications of TURP is male sexual dysfunction (SD) [retrograde ejaculation (RE), dry ejaculate, decreased ejaculation, premature ejaculation, and erectile dysfunction (ED)]. More extensive resection of the prostate can cause a higher incidence of SD in those who have normal sexual function before. RE is attributed to

bladder neck incompetency after TURP and lower volume of seminal vesicles.[4]

The reported rate of sexual in particular ED after TURP in elderly males is from 5% to 29% in different studies.[5,6]

The present study will report the frequency of ED after TURP in the local population of Khyber Pakhtunkhwa province of Pakistan.

Methods

This descriptive study was conducted in the Institute of Kidney Disease, Peshawar, from March 21, 2022 to September 21, 2023 on 82 male patients of 40 to 60 years of age presenting with BPH having LUTS. Detailed history, examination, and investigations such as a full blood count, coagulation profile, ultrasound kidney, urinary bladder, and prostate with pre and post-void residual urine were performed on every patient. Pre-operative erectile function was assessed by using the international index of erectile function (IIEF-5) which is the sum of the ordinal responses to the five items. It was interpreted as: a score of 22-25 = No ED, a score of 17-21 = Mild ED, a score of 12-16 = Mild to moderate ED, a score of 8-11 = Moderate ED, a score of 5-7 = Severe ED .[7] All patients underwent TURP using mono-polar diathermy and were managed according to standard protocol till his discharge from the hospital. Post-TURP erectile function was assessed after 6 months using the same IIEF-5. Any increase or decrease in the score was noted. All the data such as name, age, duration of BPH, pre and post-operative IIEF-5 score, and degree of ED (mild, moderate, and severe) were recorded.

Statistical analysis

The data were analyzed using the Statistical Package for Social Sciences version 25.0 (IBM, 2017). Descriptive statistics were used to summarize the data, including the means, standard deviations, and frequencies. Chi square test was used to find the association between categorical variables taking the *p*-value of <0.05 as statistically significant. Association between Post TURP ED with age, severity of LUTS, and body mass index (BMI) of patients is statistically analyzed taking the *p*-value of <0.05 as significant.

Results

The mean age of the patients was 50.71 ± 5.72 years. The mean duration of LUTS was 5.26 ± 1.77 months. The mean preoperative IIEF-5 score was 22.41 ± 2.30. The mean postoperative IIEF-5 score was 22.41 ± 3.68 (Table 1).

Regarding the age distribution, there were 45 (54.9%) patients in the age group of 40 to 50 years and 37 (45.1%) patients in the age group of 51 to 60 years.

The frequency of sexual ED in our study was 8 (9.8%)with 4 (4.9%) patients showing mild ED, and 2 (2.4%) patients each with moderate and severe ED.

Stratification of ED with age is shown in Table 2 where most of the participants with ED were less than 50 years of age.

Distribution of ED with LUTS and BMI is shown in Tables 3 and 4 which depict that more ED was observed in patients with prolonged duration of LUTS and higher BMI levels.

Discussion

BPH is a highly prevalent disease in men over 50 years of age and its incidence increases with age. Prevalence of BPH is estimated as 50% in men in their 50s, and reaches 80% for men over 80 years.[1] Patients with BPH often present with varying severity of LUTS, although these can occur in the absence of BPH and vice versa.[2,4] The primary aim of therapy of BPH is to reduce LUTS, which ultimately improves QOL. Despite the advancements in pharmacological treatment of BPH during the last decades, surgery currently remains a fundamental option in the management of these patients.[8]

Table 1. *Clinical characteristics of n = 82 patients.*

Variables	Mean	Std. Deviation
Age (Year)	50.71	5.72
Duration of LUTS (Months)	5.26	1.776
Preoperative IIEF-5 Score	22.41	2.309
Postoperative IIEF-5 Score	22.41	3.682
BMI (kg/m^2)	26.08	3.12

Table 2. *Stratification of ED with age (Chi-square test).*

		Age distribution		Total	*p* value
		40-50 years	51-60 years		
ED	Yes	5	3	8	0.64
		62.5%	37.5%	100.0%	
	No	40	34	74	
		54.1%	45.9%	100.0%	
Total		45	37	82	
		54.9%	45.1%	100.0%	

Table 3. *Stratification of ED with duration of LUTS (Chi-square test).*

		Duration of LUTS		Total	*p* value
		2-5 months	> 5 months		
ED	Yes	3	5	8	0.33
		37.5%	62.5%	100.0%	
	No	41	33	74	
		55.4%	44.6%	100.0%	
Total		44	38	82	
		53.7%	46.3%	100.0%	

Table 4. *Stratification of ED with BMI (Chi- square test).*

		BMI distribution			Total	*p* value
		21-24.9 kg/m²	25-29.9 kg/m²	> 29.9 kg/m²		
Sexual ED	Yes	3	4	1	8	0.93
		37.5%	50.0%	12.5%	100.0%	
	No	31	32	11	74	
		41.9%	43.2%	14.9%	100.0%	
Total		34	36	12	82	
		41.5%	43.9%	14.6%	100.0%	

Surgical treatment of BPH is indicated in patients who are refractory or intolerant to medical therapy and in patients with complications resulting from the disease. It is widely accepted that surgical procedures for BPH may determine ED. Numerous sexual side effects, including erectile ejaculatory and orgasmic dysfunctions, were reported with the majority of surgical treatments for BPH. Nevertheless, some studies showed no change or even a possible improvement in the sexual function of patients with BPH undergoing surgical therapy.[8,9]

Injury of the internal urinary sphincter resulting in ejaculatory dysfunction represents the most commonly reported side effect of many treatments for BPH. In the normal genitourinary tract, the involuntary smooth muscle of the internal urethral sphincter plays a critical role in maintaining ante grade ejaculatory function. Disruption of this mechanism is the predominant factor underlying BPH surgery-related RE. Psychological repercussions of RE can affect sexual satisfaction and contribute to ED.[10,11]

The frequency of sexual ED in our study was 9.8%, this rate is significantly lower as compared to the reported rate of 19% by Muntener et al.[12] . Yousuf et al.[13] reported an ED rate of 45% in the initial days post TURP, which is significantly higher. These significant differences in results may be due to patient's demographics and the small sample size in our study.

In our study, 4.9% of patients experienced mild ED while 2.4% each experienced moderate and severe ED. These results are consistent with most of the previous studies. Mishra et al.[14] reported that the severity of LUTS is directly proportional to Post TURP ED which is contrary to our results. This contradiction may be due to follow up protocols.

LUTS and ED are both highly prevalent and frequently co-associated in the same aging male group. In recent years, investigators have hypothesized a common pathophysiology to explain this correlation regardless of shared risk factors, although a specific causal relationship has not yet been defined. It is essential to emphasize that since ED often pre-exist BPH surgery, patients should be adequately evaluated prior to surgical procedure to avoid mistakenly considering them as postoperative complications.[12,13]

Male sexual function is a complex interplay of psychological, neurogenic, vascular, and hormonal factors. Although it consists of different domains (sexual desire, erectile function, orgasmic function, ejaculatory function, sexual satisfaction), in most cases only erectile and ejaculatory functions are evaluated, being ED and RE being the most frequently reported sex-related complications.[14] The use of non-validated and arbitrary tools is extremely common for the assessment of sexual outcomes. The IIEF and its abbreviated forms (IIEF-5, IIEF-EF) are the most widely used validated questionnaires for the evaluation of erectile function, while Male Sexual Health Questionnaire (MSHQ) and its short form (MSHQ-EjD-SF) are the most commonly used tools for the assessment of ejaculatory function.[7] Orgasmic function, sexual satisfaction, and sexual desire are very rarely investigated and the use of validated instruments to measure these outcomes is unusual. Finally, most of the studies on BPH surgery including the assessment of sexual outcomes are case series with no control group, this methodological issue limits the strength of the resulting evidence.[15,16]

Limitations of the study

Limitations of the study are a relatively small sample size which reduces the generalizability of our results, single-center experience which again introduces institutional biases. We recommend that future research should aim for a large sample size with multicenter involvement for more generalizable results.

Conclusion

The frequency of ED after TURP for BPH is seen more frequently in younger age groups in our population. Preoperative sexual function must be assessed for better comparison with post-operative erectile function.

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Transplant Peshawar, Pakistan, who actively participated in the execution of this research project.

List of Abbreviations

BPH	Benign prostatic hyperplasia
ED	Erectile dysfunction
IIEF	International index of erectile function
LUTS	Lower urinary tract symptoms
TURP	Transurethral resection of prostate

Conflict of interest

None to declare.

Grant support and financial disclosure

None to disclose.

Ethics approval

Ethics approval was granted by the office of chairman of research and ethics committee, Institute of Kidney Diseases, Peshawar, ref # 321, dated 08/02/2022.

Authors' contributions

IU: Main concept and design of the study, acquisition and analysis of data, drafting of manuscript, critical intellectual input.

MA, SU, SAS, MSK: Drafting of manuscript and data analysis and acquisition, critical scientific and technical input

ALL AUTHORS: Approval and responsibility for the final version of the manuscript to be published.

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