

# Impact of Medical Treatment of Lower Urinary Tract Symptoms Related to Benign Prostatic Hyperplasia on Male Sexuality

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## Abstract

**Introduction:** Benign prostatic hyperplasia (BPH) is a benign neoplasm that develops from the constituent elements of the prostate. It is a common age-related condition, with more than 50% of men over 50 years old exhibiting symptoms indicative of BPH. It is the main cause of lower urinary tract symptoms (LUTS). **Materials and Methods:** This was a prospective, descriptive and longitudinal study over a six-month period from December 15, 2023, to May 15, 2024. All patients admitted for BPH and who received medication treatment during this period were included in the study. **Results:** The average age of patients was 65.4 years, with the 60 to 69-year age group being the most represented (37.18%). There was no statistical link between the level of education and the occurrence of erection dysfunction ED. 66.67% of patients suffered from ED before treatment. Age was a major risk factor. 94.87% of patients were treated with Alpha-blockers due to their tolerance and effectiveness. 14.10% of patients had a history of inguinal herniorrhaphy, often due to the strain of urination and physical labor. 46.16% of patients had hypertension. No significant link was found between comorbidities and ED. 38.45% of patients consumed tobacco or alcohol. Tobacco was a significant risk factor for ED. 57.67% of patients suffered from ED after treatment, indicating an improvement compared to 66.67% before treatment. However, 24.36% did not ejaculate during sexual intercourse. **Conclusion:** Medication treatment is the first-line treatment for BPH. However, it can lead to retrograde ejaculation, negatively impacting ejaculatory function. The results showed that the treatment improves patients' sexuality (IIEF-5 score), but age and tobacco consumption increase the risk of sexual dysfunction.

## Keywords

BPH, IIEF-5 Score, Medication Treatment, Sexual Dysfunction, Ejaculation, Sexuality

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## 1. Introduction

Benign prostatic hyperplasia (BPH) is the most common benign tumor in aging men. In fact, more than 50% of men over the age of 50 have symptoms related to BPH. It is the most common etiology of lower urinary tract symptoms (LUTS) [1] [2]. LUTS can be separated into storage symptoms (urgency, frequency, nocturia and urge urinary incontinence), voiding symptoms (reduced flow and feeling of incomplete emptying) and post-void dribbling [3] [4]. The association of LUTS with sexual dysfunction is common. The prevalence of coexisting LUTS and ED increases with age; the severity of one disease often correlates with the other [5]. These can be libido disorders, erectile or ejaculatory dysfunction (pain, decreased semen volume). Various epidemiological studies have shown the coexistence of LUTS-BPH and sexual dysfunction erectile in aging men [2] [6]. The severity of LUTS in BPH is correlated with the perception of degraded sexuality. The latter is now taken into consideration in quality of life studies on BPH [7].

Both pharmacological and surgical treatments of BPH-related LUTS may have significant sexual side effects, particularly ejaculatory dysfunction [8] [9]. A recent study of Alfuzosin at a dose of 10 mg per day improved all urodynamic parameters and quality of life. In addition, positive changes in sexual function were also noted. Thus, the average total IIEF score increased significantly from 45.35 to 53.18 points [10]. BPH is a common condition in Guinea and alpha blocker is the main therapeutic class used in the treatment of BPH. The objective of this work was to evaluate the impact of drug treatment on the sexuality of men followed for BPH at the urology andrology department of the Ignace Deen Hospital, Conakry.

## 2. Materials and Method

This was a prospective, descriptive and longitudinal study lasting six months from December 15, 2023 to May 14, 2024. We included in this study patients admitted for symptomatic, uncomplicated BPH during the study period who received medical therapy for LUTS related for BPH. In this study, medical treatment involved either an alpha blocker or a treatment with plant extracts (phytotherapy). Patients who treated with Alpha blockers received Alfuzosin at a dosage of 10 mg per day in the evening; and those treated with plant extract (Phytotherapy) received 2 capsules of Permixon 160 mg. Herbal therapy consisted of the administration of Permixon 160 mg in men with lower urinary tract symptoms in the filling phase related to BPH Patients were reviewed at 3 months and 6 months after the start of medical treatment for a clinical evaluation. This evaluation focused on urination disorders, sexual disorders, improvement in the patient's quality of life.

We excluded from the study patients who had an initial urinary and sexual assessment and who are subsequently lost to follow-up after taking the medical treatment. We conducted an exhaustive recruitment of patients who met our screening criteria and who had agreed to participate in the study. Data collection. The parameters studied were age, conditions predisposing to sexual disorders including diabetes and high blood pressure.

Sexual dysfunction was assessed by the International Index of Erectile Function IIEF-5. It was an administered questionnaire with five questions, the patient gave a single answer per question rated from 1 (almost never) to 5 (always or almost never). Patients were classified into 4 groups based on their score: Non-interpret-able score: for a score between 1 and 4; Severe erectile dysfunction: for a score between 5 and 10; Moderate erectile dysfunction: for a score between 11 and 15; Mild erectile dysfunction: for a score between 16 and 20. Patients were evaluated after treatment with medicinal treatment.

Assessment of sexual disorders marital status, sexual history, whether medication may be taking sexual dysfunction' type of medical treatment, IIEF5 score and ejaculation.

Data analysis our results were analyzed using the Epi info software 7.2.2.5. They were presented in the form of tables and figures using the Word and Excel software of the Microsoft Office 2019 Pack.

Ethical consideration before undertaking the data collection, the research protocol was submitted to the Chair of Urology-Andrology of the Faculty of the Medicine for approval.

### 3. Results

The mean age of patients was  $65.4 \pm 7.9$  years with extremes of 50 and 79 years. The most represented age group of patients was 60 to 69 years old. The majority of patients were farmers (43.6%), followed by retired civil servants (25.6%) and shopkeepers (19.2%). and the patients were mostly polygamous ( $n = 65$ ) 78.2%. Tobacco intoxication and regular alcohol intake (impossibility of quantification) alcohol were a lifestyle habit in some of the patients. Thus, 28 (35.9%) patients smoked daily and 10 (12.8%) of the other patients consumed alcohol regularly. Regarding the ejaculatory function of the patients before taking the medical treatment, none of our patients had an ejaculation disorder. In **Table 1**, the of the patients by age and IIEF-5 score prior to medical treatment of BPH. In this table we note that 6.4% of patients had severe erectile dysfunction versus mild erectile dysfunction in nearly 27% of patients. Patients were assessed before drug treatment for LUTS.

After an average duration of 3 months under symptomatic treatment of symptoms of the lower urinary tract mainly by alpha-blockers (Alfuzosin), we have an overall improvement in overall quality of life, urinary symptomatology, but also quality of sexual life, as shown in **Table 2**. We noted in **Table 2** that patients with severe dysfunction decreased. There was a decrease in patients with severe erectile

dysfunction from 6.4% before medical treatment to 3.8%. In addition, we noticed an increase in the number of patients without erectile dysfunction after improvement of lower urinary tract symptoms under drug treatment.

**Table 1.** Distribution of patients by IIEF-5 score before medical treatment.

IIEF-5 Score	Frequency	Percentage
Mild erectile dysfunction	21	26.9
Severe erectile dysfunction	05	06.4
Moderate erectile dysfunction	17	21.8
Uninterpretable score	09	11.6
Absence of erectile dysfunction	26	33.3
Total	78	100

**Table 2.** Distribution of patients according to IIEF-5 score after medical treatment.

IIEF-5 Score	Frequency	Percentage
Mild erectile dysfunction	26	33.33
Severe erectile dysfunction	03	03.84
Moderate erectile dysfunction	09	11.53
Uninterpretable score	07	08.97
Absence of erectile dysfunction	33	42.33
Total	78	100

Some patients reported retrograde ejaculation after the start of medical treatment. Regarding to the ejaculatory function of patients before taking the medical treatment, none of our patients had retrograde ejaculation. **Table 3** shows the distribution of patients according to ejaculatory function.

**Table 3.** Distribution of patients according to ejaculatory function after medical treatment.

Ejaculatory function	Effective	%
Retrograde ejaculation	19	24.36
Normal ejaculation	59	75.64
TOTAL	78	100

In **Table 4**, there is an independent link between the age of patients and the severity of sexual functions. Indeed, the older the age, the greater the risk of developing severe dysfunction. Thus, the absence of erectile dysfunction is noted in younger subjects with lower urinary tract symptoms related to BPH. After improvement of lower urinary tract symptoms following medical treatment, there was a notable improvement in sexual function. This improvement is reflected by a decrease in the proportion of elderly men with severe ED.

**Table 4.** Distribution of patients by age and IIEF-5 score after medical treatment of BPH.

Age	IIEF-5					Total
	1 - 4	5 - 10	11 - 15	16 - 20	21 - 25	
50 - 59	00	00	00	08	10	18
60 - 69	03	00	03	13	17	36
70 - 79	04	03	06	05	06	24
Total	07	03	09	26	33	78

**Table 4** described the distribution of patients by age and IIEF-5 score before and after drug treatment of BPH.

A severe form of ED was observed in smoking patients, compared to non-smoking subjects. Indeed, tobacco is an independent risk factor for erectile dysfunction through its effect on the vascular endothelium. Smoking is a risk factor for ED as shown in **Table 5**.

**Table 5.** Distribution of patients by tobacco use and IIEF-5 score before medical treatment for BPH.

TABAC	IIEF-5					Total
	1 - 4	5 - 10	11 - 15	16 - 20	21 - 25	
Yes	06	04	15	02	01	28
NON	03	01	02	19	25	50
Total	09	05	17	21	26	78

#### 4. Discussion

This study was conducted with the aim of contributing to the improvement of knowledge on the impact of medical treatment of Benign Prostatic Hyperplasia on the sexuality of men with urinary disorders related to BPH, in the urology department of the Ignace Deen National Hospital. The relationship between BPH symptoms and erectile dysfunction ED is frequently reported in the literature. These disorders also affect the couple's life [11] [12]. More and more studies had shown that the prevalence of ED was greater in BPH patients with urinary disorders than in asymptomatic men, regardless of age and other comorbidities. The average age of our patients was 65.4 years. Patients in the 60 to 69 age group were the most affected in our study with a frequency of 37.2%. Khallouk *et al.* [13]. had found that the average age of their patient was 64.3 years. A strong statistical link was found between age and the occurrence of ED before taking medical treatment, with a high prevalence of ED in the 60 - 69 age group. 50% compared to patients aged 50 - 59 years. For example, Johannes C *et al.* in the United States in 2000 deduced that the risk of having ED was 4 times higher in men aged 60 to 69 than for men aged 40 to 49 [14].

There is a significant correlation between the severity of lower urinary symptoms and sexual dysfunction [15]. BPH is an independent risk factor for ED. Our

study shows that age, regardless of BPH, is a major risk factor for ED. It is now accepted that LUTS are a risk factor for sexual dysfunction, independent of other morbidity factors (diabetes, hyperlipidemia, smoking, hypertension, etc.) and age. The prevalence and severity of erectile dysfunction are also correlated with the severity of micturition disorders: the more severe the micturition disorders, the more severe the erectile dysfunction. There is also a correlation between the severity of micturition disorders and the degree of sexual satisfaction: the rate of sexual dissatisfaction increases twofold in cases of moderate LUTS and fourfold in cases of severe LUTS [16].

We did not assess the statistical association between the severity of lower urinary tract symptoms and the degree of sexual dysfunction. However, there is a pathophysiological link between erectile dysfunction (ED) and LUTS. This comorbid relationship is the subject of several pathophysiological hypotheses. Responsibility for the reduction of Nitric Oxide Synthase (NOS) and the production of NO in ED is established. The same phenomenon will increase the tonus of the smooth muscle cells of the bladder neck, and urethra and potentially stimulate the proliferation of prostatic smooth muscle cells resulting in an increase in obstruction [17] [18].

More than half of the patients in our series, 66.7% suffered from ED before taking the medical treatment, our results were similar to those found by Khallouk *et al* in Morocco in 2012 who had reported that erectile function was strongly impaired in 75% of their patients [13]. One study shows a link between the severity of lower urinary tract symptoms and ED [19]. In one study, which evaluated the timeline of symptom onset, most men who had LUTS and erectile dysfunction had first been diagnosed with LUTS before erectile dysfunction was diagnosed [20].

Alpha-blockers can be divided into selective and non-selective alpha-blockers. The sexual effects of non-selective alpha-blockers appear to be minor. However, in some studies, alpha blocker therapy appears to be improved in patients with BPH with LUTS. In an uncontrolled study with Alfuzosin 10 mg once daily for 1 year, is effective in improving LUTS and quality of life, and is well tolerated. It may even improve sexual function in men with concomitant erectile and/or ejaculatory dysfunction [21]. Our results show a significant improvement in erectile function after alpha blocker treatments in patients with BPH-related lower urinary tract symptoms. It should be noted that our patients were treated mainly with alpha blockers and a small proportion with plant extracts. It is established that herbal extracts have no effect on sexual function in men treated for UAOS in connection with BPH [22].

The mechanism of action of the Alpha 1-adrenoceptors (alpha1-ARs) is based on the consecutive relaxation of smooth. The Alpha 1-adrenoceptors (alpha1-ARs) play a role on the activation of the nitrinergic system. An improvement in health-related quality of life, and here especially the sexual aspect, has, however, only been shown in one study. Interestingly, men with severe nocturia before

treatment also noted benefits in sexual functioning. Therefore, it is not clear if this improvement is caused by a direct effect of the medication or if a better night's sleep [23].

Currently, the standard treatment for BPH, which has a volume greater than 40 g, combines 5-alpha reductase inhibitors (5ARI) and alpha blockers (ABs). This combination is more effective than each of the therapeutic classes in monotherapy. However, the adverse effects of these two classes are cumulative [22] [24]. AUA practice guidelines committee in 2003 states that some alpha-blockers could cause retrograde ejaculation in some patients [25]. This could be explained by the negative impact of certain alpha-blockers on ejaculatory function by action on the smooth sphincter. The open bite of the smooth sphincter closing the bladder neck during ejaculation would promote the passage of semen into the bladder called retrograde ejaculation.

### Limitations and Difficulties

The modesty of some patients when it came to talking about their sexuality. The complexity of the IIEF5 questionnaire in French, which posed problems of comprehension for some patients. The language barrier in dialogue with certain patients.

## 5. Conclusion

Medical therapy in the management of BPH is the first-line treatment for the disease. At the same time, 'the importance of preserving ejaculations is an increasingly strong demand' to which urologists must provide answers. For many years, urologists have been trying to better understand the physiological mechanism of ejaculation in order to better preserve it. Indeed' we have shown that drug treatment of BPH has a negative impact on ejaculatory function due to retrograde ejaculations after drug treatment. Before treatment, our patients did not have any ejaculation disorders.

We also demonstrated that 'LUTS-BPH is associated with high rates of sexual dysfunction (assessed by the IIEF5 score)' medical treatment improved patients' sexuality (IIEF5 score). Finally, we found that age and tobacco consumption would promote the occurrence of sexual dysfunction.

### Conflict of Interest Statement

The authors declare that there is no conflict of interest with any financial organization or corporation or individual that can inappropriately influence this work.

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### I. General Information

-Age: ..... years

-Instruction Levels:

Not in School  Pre-University

University  Koranic School

Occupation:

Farmer  Trader  Breeder

Civil Servant  Marabout  Driver

Lifestyle:

Tobacco  Alcohol

### II. Clinical Information

Surgical history .....

Medical History.....

Other medical conditions:

Diabetes mellitus  HTA

### Medical Treatments

Treatment.....

Alpha-blockers  5-alpha-reductase inhibitors (5ARs)

Phytotherapy  Anticholinergics

Phosphodiesterase type 5 inhibitors (PDI5)  Anticholinergics

### III. Evaluation of Sexuality before Medical Treatment

International Index of Erectile Function (IIEF5)

**1. In the past 6 months, when sexual stimulation has caused erections, how often has your penis been rigid (hard) enough to allow penetration by your partner?**

[0] I didn't have sexual stimulation

[1] almost never or never

[2] rarely (much less than half the time)

[3] a few times (about half the time)

[4] most of the time (much more than half the time)

[5] almost all the time or all of the time

**2. In the past 6 months, how often have you been able to get an erection during your sexual activities?**

[0] I have not tried to have sex

[1] almost never or never

[2] Rarely (much less than half the time)

[3] Sometimes (about half the time)

[4] most of the time (much more than half the time)

[5] almost all the time or all the time

**3. In the last 6 months, during your sexual intercourse, how difficult has it been to stay erect until orgasm.**

[0] I haven't tried to have sex

[1] Extremely difficult

[2] Very difficult

[3] Difficult

[4] A little difficult

[5] Not difficult

**4. In the past 6 months, when you have tried to have sex, how many times has it been satisfying for you?**

[0] I have not tried to have sex

[1] almost never or never

[2] Rarely (much less than half the time)

[3] Sometimes (about half the time)

[4] most of the time (much more than half the time)

[5] almost all the time or all the time

**5. In the last 6 months, how confident were you that you could get an erection and maintain it**

[1] not sure at all

[2] Not very about

[3] Medium about

[4] about

[5] very about

**6. Interpretation of the IIEF-5 Score: Score = total of responses to the 5 questions**

21 - 25: absence of ED

16 - 20: mild erectile dysfunction

11 - 15: moderate erectile dysfunction

5 -10: severe erectile dysfunction

1 - 4: not interpretable

#### **IV. Evaluation of Sexuality after Drug Treatment: Indice International de la Fonction érectile (IIEF5)**

**1. In the past 6 months, when sexual stimulation has caused erections, how often has your penis been rigid (hard) enough to allow penetration by your partner?**

[0] I didn't have sexual stimulation

[1] almost never or never

[2] rarely (much less than half the time)

[3] a few times (about half the time)

[4] most of the time (much more than half the time)

[5] almost all the time or all of the time

**2. In the past 6 months, how often have you been able to get an erection during your sexual activities?**

[0] I have not tried to have sex

[1] almost never or never

[2] Rarely (much less than half the time)

[3] Sometimes (about half the time)

[4] most of the time (much more than half the time)

[5] almost all the time or all the time

**3. In the last 6 months, during your sexual intercourse, how difficult has it been to stay erect until orgasm.**

[0] I haven't tried to have sex

[1] Extremely difficult

[2] Very difficult

[3] Difficult

[4] A little difficult

[5] Not difficult

**4. In the past 6 months, when you have tried to have sex, how many times has it been satisfying for you?**

[0] I have not tried to have sex

[1] almost never or never

[2] Rarely (much less than half the time)

[3] Sometimes (about half the time)

[4] most of the time (much more than half the time)

[5] almost all the time or all the time

**5. In the last 6 months, how confident were you that you could get an erection and maintain it.**

[1] not sure at all

[2] Not very about

[3] Medium about

[4] about

[5] very about

## **V. Evaluation of Ejaculatory Function after: Medical Treatment**

Interpretation of the IIEF-5 score: Score = total responses to the 5 questions.

21 - 25: Absence of erectile dysfunction.

16 - 20: Mild erectile dysfunction.

11 - 15: Mild to moderate erectile dysfunction.

05 - 10: Severe erectile dysfunction.

01 - 04: not interpretable.