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Non-Operative Treatment of Benign Prostatic Hyperplasia in Northern Benin: Indications and Results

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Abstract

Introduction: Benign prostatic hyperplasia (BPH) is the leading cause of lower urinary tract symptoms (LUTS) in elderly men. In resource-limited countries, medical management remains the cornerstone of care to reduce morbidity and delay the need for surgery. This prospectively documented study aimed to evaluate the indications, functional efficacy, and tolerability of medical treatment for BPH in sub-Saharan Africa. **Materials and Methods:** A descriptive retrospective study conducted from January 2023 to August 2025 at the CHUD Borgou-Alibori (Benin). Inclusion criteria targeted patients followed for symptomatic BPH under exclusive medical treatment. The initial and 3-month evaluations included sociodemographic parameters, the I-PSS (International Prostate Symptom Score), ultrasound prostate volume, adverse events, and the occurrence of obstructive complications. **Results:** Out of 1,489 urological consultations, 328 patients were followed for benign prostatic hyperplasia (prevalence: 22.0%), of whom 263 received exclusive medical treatment and met the study's inclusion criteria. The mean age was 64.0 ± 10.7 years. At admission, the predominant symptoms were nocturia (92.8%) and dysuria (59.7%); the mean baseline I-PSS score was 10.3 ± 4.1 (moderate symptomatology: 72.4%). A prostate volume of 30 to 80 mL was found in 67.7% of patients. Alpha-blockers were the predominant therapeutic class (78.7%). At 3 months, a reduction in the mean I-PSS score was observed (5.0 ± 4.2; paired statistical test, $p < 0.05$), associated with regression of nocturia in 93.0% of patients followed. The incidence of adverse events and complications occurring during therapeutic follow-up was 3.8% and 7.6%, respectively (mainly acute urinary retention of secondary onset, 6.8%). **Discussion:** This cohort confirms the typical clinical profile of symptomatic BPH in the Borgou-

Alibori Department in Benin, characterized by late presentation and a predominance of storage-phase disorders. The use of alpha-blockers (alfuzosin, tamsulosin) and phytotherapy was associated with a notable functional improvement, quantified by a decrease in the I-PSS score of more than 5 points, of the same order as that reported by international clinical trials; in the absence of a comparator group and randomization, this observational design does not, however, allow a direct causal link with treatment to be established. **Conclusion:** In this retrospective series, medical treatment for BPH in Northern Benin was associated with a marked symptomatic improvement and good tolerability, suggesting its value as a first-line strategy in a setting with restricted access to surgical facilities; comparative, randomized studies would be needed to confirm these results.

Keywords

Benign Prostatic Hyperplasia, I-PSS Score, Medical Treatment

1. Introduction

Lower urinary tract symptoms (LUTS) are a frequent reason for urological consultation, particularly in elderly men [1] [2]. They encompass a range of urinary manifestations that can be classified into three categories: storage-phase symptoms, voiding-phase symptoms, and post-micturition symptoms. Storage symptoms notably include urinary frequency, nocturia, urgency, and urge incontinence. Voiding symptoms are dominated by dysuria, decreased urinary stream force, and straining, while the sensation of incomplete bladder emptying is one of the main post-micturition symptoms [3].

These symptoms become more frequent with advancing age, and their prevalence increases progressively during aging. They can have a significant functional and psychological impact, particularly when persistent or moderate to severe in intensity. Nocturia, which is particularly common, can disturb sleep and lead to daytime fatigue, while other urinary symptoms can limit patients' daily, social, and professional activities. Thus, LUTS can significantly impair the quality of life and well-being of affected men [4]. This severity is assessed using the IPSS score.

Among the various etiologies of LUTS in men, benign prostatic hyperplasia (BPH) occupies a predominant place [1] [5]. It is a benign condition related to progressive hyperplasia of the stromal and epithelial components of the prostate. Its frequency increases with age, with an estimated prevalence of approximately 8% during the fourth decade, reaching nearly 50% during the fifth decade in men [6].

Beyond urinary symptoms, BPH can progress to complications such as acute urinary retention, recurrent urinary tract infections, bladder stones, hematuria, or deterioration of upper urinary tract function. It therefore represents not only a major cause of LUTS in men but also a condition capable of generating substantial

morbidity and healthcare utilization.

Management of BPH depends on the intensity of symptoms, their impact on quality of life, prostate volume, the presence of complications, and individual patient characteristics. It relies on several strategies ranging from watchful waiting and lifestyle measures, in patients with minimally bothersome symptoms, to medical treatment in symptomatic patients. Interventional and surgical treatments are indicated particularly in cases of complications, failure or inadequacy of medical treatment, or when disease severity warrants it.

Medical treatment therefore plays a central role in the management of many patients with BPH-related LUTS. The main therapeutic options include α-blockers, 5-alpha-reductase inhibitors, and their combinations, while other treatments, notably certain phytotherapies, are also used in practice. α-blockers, in particular, provide relatively rapid symptom improvement by reducing the tone of the prostatic and bladder neck smooth muscle. However, their efficacy and tolerability can vary according to patients' clinical characteristics, symptom severity, and prostate volume. The occurrence of adverse events and adherence difficulties can also limit their long-term use [5] [7].

In developing countries such as Benin, the management of BPH represents a particular public health challenge. The progressive aging of the population, sometimes limited access to specialized care, and constraints related to the availability of equipment and human resources can limit access to interventional and surgical treatments. In this context, medical treatment represents a particularly important therapeutic option for improving patients' symptoms and quality of life, while making it possible to delay or avoid, in some of them, the need for surgical intervention.

However, despite the frequent use of medical treatments in the management of BPH, several questions remain regarding their real-world efficacy in our setting, their tolerability, their use according to symptom severity and prostate volume, and their impact on symptom progression and patients' quality of life. Data available in our setting also remain limited.

Thus, evaluating the patterns of use and outcomes of medical treatment for BPH appears necessary to better assess its place in patient management in urological practice in Benin.

Research question: What is the efficacy and tolerability of medical treatment in patients with benign prostatic hyperplasia in our setting?

2. Patients and Methods

The study was conducted at the Departmental University Hospital Center of Borgou/Alibori, in the general surgery department, specifically in the urology unit. It was a descriptive retrospective study of patients followed for benign prostatic hyperplasia and placed on medical treatment from January 2023 to August 2025.

The diagnosis of benign prostatic hyperplasia was made clinically based on lower urinary tract symptoms, complications related to prostatic obstruction, and

on digital rectal examination, an enlarged prostate of elastic or firm consistency, painless, with a smooth and regular surface, without suspicious nodules, and with an absent median sulcus. On the paraclinical level, it was based on ultrasound (suprapubic) showing an increased prostate volume. Prostate cancer was ruled out based on the absence of an indurated or irregular nodule on digital rectal examination, supplemented by PSA testing when available. All patients presenting with the following were excluded from the study: BPH associated with urethral stricture, post-TURP recurrence, or bladder neck disease, as well as all medically treated patients lost to follow-up.

The variables studied were epidemiological (frequency, age, origin), diagnostic (reason for consultation, digital rectal examination findings, PSA level, serum creatinine, ultrasound results), therapeutic (medical treatment and its adverse effects), and evolutive (complications) after a 3-month period.

The EPI DATA 3.1 software was used to design the data entry form and enter the data. For data processing and statistical analysis, we used the STATA 17.0 software.

The Fisher's exact test was used to test the association between categorical variables, while comparisons of distributions between groups were performed using Student's t-test (comparison of means) or the non-parametric Wilcoxon-Mann-Whitney test for continuous parameters. In addition, the non-parametric Spearman rank correlation test was used to measure the association between two ordinal variables. Statistical significance was set at $p < 0.05$ for all analyses. Comparison of the I-PSS score between inclusion and the 3-month control, involving the same patients (paired measurements), was performed using a test for paired data (Wilcoxon test or paired Student's t-test, depending on the distribution of the differences).

Favorable approval from the ethics committee was obtained before the research protocol was carried out. We obtained authorization from the Director General of the CHUD Borgou-Alibori before starting data collection. Medical confidentiality was respected. Collected data were kept anonymous. Only those involved in the work had access to the database.

During the conduct of this study, several difficulties were encountered, which may have influenced the quality and completeness of the data collected:

- The inability to locate certain medical records in the consultation room archives.
- The presence of incomplete records containing missing or insufficiently documented information.
- The non-systematic use of the IPSS score (International Prostate Symptom Score) during consultations, thereby limiting the standardized assessment of functional symptomatology.
- Not all included patients underwent the full initial work-up.
- The relatively short follow-up duration: 3 months.
- The exact distribution of the 65 excluded patients according to each exclusion

criterion could not be reconstructed retrospectively from the available records.

- The protocol used to rule out prostate cancer (PSA threshold, use of biopsy) in non-biopsied patients could not be documented consistently in this retrospective study.

3. Results

3.1. Sociodemographic Data

During the study period, 1489 patients were seen in consultation, among whom 328 were followed for benign prostatic hyperplasia, representing a frequency of 22.02% among all urological consultations. Of these 328 patients, 263 met the inclusion criteria (exclusive medical treatment) and constituted the study population, *i.e.*, 80.2% of patients followed for BPH. The mean age of patients was 64 ± 10.65 years (range: 40 to 100 years). Patients came from the Borgou department in 172 cases (65.4%). Regarding medical history, hypertension was found in 78 patients (29.66%, n = 263), diabetes in 33 patients (12.55%, n = 263), and a family history of BPH in 27 patients (10.27%, n = 263).

3.2. Clinical Data

Clinically, the mean time to consultation was 15.71 ± 21.22 months (range: 1 to 120 months). The distribution of patients according to reason for consultation is reported in Table 1; the mean IPSS score at admission was 10.27 ± 4.12. The characteristics of the prostate on digital rectal examination are presented in Figure 1. On the paraclinical level, total PSA was below 5 ng/mL in 102 patients

Table 1. Distribution according to reason for consultation of patients followed for benign prostatic hyperplasia at CHUD B/A from January 2023 to August 2025.

Variables	Number (n = 263)	Frequency (%)
Nocturia	244	92.78
Dysuria	157	59.69
Urgency	103	39.16
Sensation of incomplete emptying	76	28.90
Urinary frequency	63	23.95
Straining to void	44	16.73
Burning micturition	40	15.21
Acute urinary retention	24	9.13
Terminal dribbling	21	7.98
Intermittent urinary stream	13	4.94
Hematuria	8	3.04
Weak urinary stream	8	3.04
Other reasons for consultation*	3	1.14

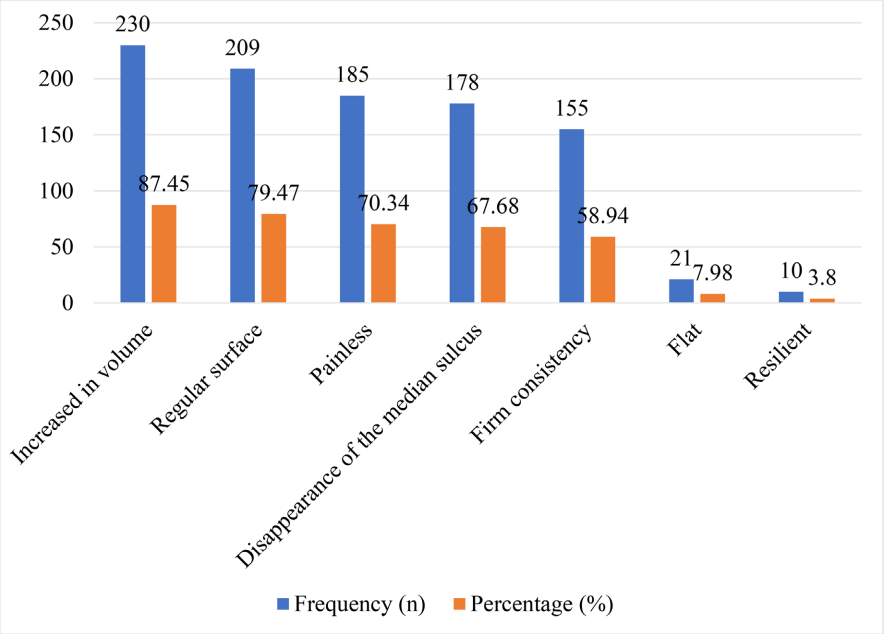

Figure 1. Characteristics of the prostate on digital rectal examination.

(62.96%) and above 5 ng/mL in 60 patients (37.04%), out of a total of 162 patients. Regarding prostate volume, it was less than or equal to 30 mL in 24 patients (12.90%), between]30 - 80] mL in 126 patients (67.74%), and greater than 80 mL in 39 patients (20.96%), out of a total of 186 patients.

3.3. Treatment and Outcomes

In terms of treatment, Table 2 and Table 3 report the medical treatment administered according to prostate volume and IPSS score at admission. Among all treated patients, 3.8% reported the occurrence of adverse effects related to drug treatment. Dizziness and decreased libido each accounted for 1.90% of cases. Regarding outcomes, among the 244 patients affected by nocturia at admission,

Table 2. Medical treatment administered according to prostate volume.

	Prostate volume	Number (N = 189)	Frequency (%)
Alpha-blocker	<30	22	11.64
	]30 - 80]	99	52.38
	>80	31	16.40
Phytotherapy	<30	2	1.06
	]30 - 80]	25	13.23
	>80	6	3.17
Alpha-blocker + phytotherapy	<30	0	0.00
	]30 - 80]	2	1.06
	>80	2	1.06

Table 3. Medical treatment administered according to IPSS score at admission.

	Score I-PSS at admission	Number (n = 254)	Frequency (%)
Alpha-blocker	Mild	45	17.72
	Moderate	147	57.87
	Severe	4	1.57
Phytotherapy	Mild	18	7.09
	Moderate	33	12.99
	Severe	0	0.00
Alpha-blocker + phytotherapy	Mild	2	0.79
	Moderate	4	1.57
	Severe	1	0.39

93% showed a decrease in the number of nighttime voids, with a mean reduction of 3.2 ± 1.75 nighttime voids (range: 1 to 10); Table 4 shows the evolution of LUTS as described by patients according to the drug used. The mean I-PSS score after 3 months of treatment was 5.04 ± 4.20 (median = 4), with values ranging from 0 to 21. Complications occurred during the three-month therapeutic follow-up in 7.6% of patients (n = 20), to be distinguished from the 24 patients who presented with acute urinary retention as the initial reason for consultation (Table 1). Among these complications that appeared during follow-up, de novo acute urinary retention was the most frequent, found in 6.8% of patients, *i.e.*, 18 cases out of 263. Other complications observed, although rarer, included chronic urinary

Table 4. Evolution of LUTS according to the drug used in medical treatment.

	Alfuzosin			Tamsulosin			Phytotherapy		
	n	Outcome	% regression	n	Outcome	% regression	n	Outcome	% regression
Nocturia	173	improved 161	93.06	23	improved 23	100	48	improved 43	89.58
Dysuria	111	improved 82	73.87	11	improved 9	81.82	19	improved 17	89.47
Urgency	66	improved 48	72.73	14	improved 9	64.29	20	improved 19	95
Sensation of incomplete emptying	60	improved 40	66.67	3	improved 2	66.67	10	improved 5	50
Urinary frequency	46	improved 29	63.04	6	improved 4	66.67	9	improved 4	44.44
Straining to void	37	improved 24	64.86	1	improved 1	100	5	improved 4	80
Acute urinary retention	21	improved 12	57.14	3	improved 3	100	0	improved 0	0
Terminal dribbling	15	improved 10	66.67	2	improved 1	50	3	improved 2	66.67
Intermittent urinary stream	11	improved 8	72.73	0	improved 0	0	1	improved 0	0

retention (0.38%, n = 1), stasis vesical lithiasis (0.38%, n = 1), bladder diverticulum (0.38%, n = 1), and inguinal hernia (0.76%, n = 2).

4. Discussion

Benign prostatic hyperplasia is the most common condition affecting elderly men in urology. In our study, 22.02% of urological consultations involved patients followed for this condition. Several studies have shown the significant place occupied by BPH-related activity in urology departments. Öztürk *et al.*, in Türkiye, in a multicenter study, reported a rate of 18.5% of patients seen in urological consultation for BPH [7]. This has also been found in most data from the sub-region, although at variable proportions of 24% and 15%, respectively, reported by Amadou *et al.* in Niger in 2021 [8] and Saliou *et al.* in 2020 in the Republic of Congo [7].

The mean age of patients in our study was 64 years. This is a condition of elderly individuals, exceptional before the age of 40. This assertion has been confirmed by most authors, such as Amadou *et al.* [8] and Saliou *et al.* [7]. However, the literature does report cases of BPH-related urinary disorders in young subjects under 50 years of age [9].

Clinically, the reason for consultation was dominated by irritative lower urinary tract symptoms, notably nocturia (92.78%) and obstructive symptoms, with dysuria (55.51%). Our results are higher than those found by Diakité [10] and Amadou *et al.* [8], who reported 27.52% and 26% for nocturia, and 56% and 31.50% for dysuria, respectively. These results highlight a particularly high frequency of nocturia in our series, notably higher than that reported by other authors. In contrast, the prevalence of dysuria observed in our study remains comparable to that reported in the literature, suggesting consistency of this symptom in the clinical presentation of benign prostatic hyperplasia.

The International Prostate Symptom Score (IPSS) is an important element in therapeutic decision-making. It is a questionnaire used to assess the impact of lower urinary tract voiding disorders in men [11]. In our study, 72.44% had a moderate score. However, according to several authors, this score ranges between 20 and 30 in BPH, reflecting severe disorders [12]-[14].

Digital rectal examination is an essential part of the clinical examination. It allows BPH to be suspected, except when it is developed predominantly in the median lobe, and allows the detection of an associated prostate cancer. The prostate characteristics on digital rectal examination found in our study are similar to those reported by Madibulaya *et al.* [15] and Saliou *et al.* [7]. The typical appearance of BPH was not found in all cases.

Additional tests are not necessary for the diagnosis and follow-up of BPH, however some may be performed depending on the clinical context [14]. PSA testing is not useful for the diagnosis of BPH [14]. However, it is useful for prostate cancer screening. In our study, PSA levels were normal in 62.3% of patients and elevated in 37.7% of patients.

Urinary tract ultrasound is an optional examination in the initial work-up and

is recommended preoperatively in BPH [14]. It allows measurement of prostate size and detection of complications. It was performed in our study in 73% of patients. Urinary tract ultrasound is part of the initial work-up in our setting. This approach is justified by the fact that our patients present late, at which point screening for complications becomes systematic.

Treatment of BPH includes several options, including watchful waiting, medication, and surgery. Watchful waiting applies to anatomical or minimally symptomatic BPH [16]. It is based on educating the patient about lifestyle and dietary rules (reducing fluid intake to 1.5 L/day, discontinuing irritant products and caffeine- or alcohol-based diuretics, treating constipation), and on regular reassessment [17] [18]. No patient in our study was managed with this approach, since our study only included patients receiving medical treatment, and therefore symptomatic patients.

In our study, 69.23% (n = 45) of patients with a mild score received alpha-blocker treatment, compared with 79.89% (n = 147) of those with a moderate score, and 80% (n = 4) of patients classified as severe. Although this trend was not statistically significant (p = 0.489), it reflects a notable clinical pattern: the more pronounced the lower urinary tract symptoms (LUTS), the more frequent the use of alpha-blockers.

The analysis of the relationship between alpha-blocker prescription and prostate volume also highlights a significant trend. Among patients with a prostate volume less than or equal to 30 milliliters, 91.66% (n = 22) received alpha-blocker treatment. This proportion remained high among patients with a prostate volume between 30 and 80 milliliters (78.57%, n = 99) and among those with a volume greater than 80 milliliters (79.48%, n = 31). The difference observed between these groups was statistically significant (p = 0.0052), suggesting that prostate size does indeed influence the therapeutic decision.

In our study, analysis of phytotherapy use according to symptom severity, as assessed by the International Prostate Symptom Score (I-PSS), revealed an interesting trend. Indeed, phytotherapy was used more frequently in patients with mild lower urinary tract symptoms (LUTS), at 27.69% (n = 18), compared with those with moderate forms, in whom it was observed in 17.93% of cases (n = 33). No patient with a severe form used this type of treatment. This distribution, although not statistically significant (Fisher's exact test = 0.164), nonetheless reveals a therapeutic tendency favoring plant-based approaches in the early or less disabling stages of benign prostatic hyperplasia (BPH).

Alfuzosin resulted in a notable improvement in urinary symptoms related to benign prostatic hyperplasia (BPH), with a mean reduction in the I-PSS score of 6.04 ± 2.93. This decrease reflects a clinical improvement in patients' quality of life, consistent with the symptomatic efficacy reported for this drug in the literature. Our results are comparable to those reported by Nordling *et al.* [19], who observed a mean I-PSS score reduction of 6.5 ± 5.2 after treatment with alfuzosin, and by Manjunatha *et al.* [20], whose study reported an even more marked im-

provement, reaching 16.93 ± 8.7. This variability between studies can be explained by several factors, notably patients' baseline characteristics (symptom severity, prostate volume, age) and follow-up duration.

Tamsulosin was associated with an improvement in lower urinary tract symptoms related to benign prostatic hyperplasia, with a mean I-PSS score reduction of 5.13 ± 3.01. This decrease reflects a clinical benefit, although slightly lower than that reported by some international studies. Indeed, Nordling *et al.* [19] observed a mean I-PSS score decrease of 6.5 ± 5.2, while Manjunatha *et al.* [20] reported a greater improvement, reaching 15.93 ± 7.75.

Phytotherapy was associated with a mean I-PSS score reduction of 5.92 ± 2.90, reflecting a clinical improvement in lower urinary tract symptoms related to benign prostatic hyperplasia (BPH). This result suggests that certain plant-based preparations may have a beneficial effect on the functional symptomatology of BPH, in particular in mild to moderate forms. Our observations appear slightly higher than those reported in the literature. Indeed, Latil *et al.* [21] observed a mean I-PSS score decrease of 4.4 points, while Debruyne *et al.* [22] reported an improvement of 4.3 points after phytotherapeutic treatment. This difference could be attributed to several factors: the nature of the plant extracts used, their dosage, the duration of treatment, but also the baseline characteristics of the patients included in the different studies.

5. Conclusion

Benign prostatic hyperplasia is a common condition in our daily practice. It affects patients over 50 years of age. It is a benign condition whose symptom severity is assessed using the I-PSS score. Nocturia and dysuria, are the most frequently encountered lower urinary tract disorders. Digital rectal examination is an essential part of the physical examination for establishing the diagnosis. Alpha-blocker-based medical treatment, indicated for mild to moderate symptoms, was associated in our series with symptom regression and improved quality of life for patients; these results, obtained in the context of a retrospective study without a comparator group, will need to be confirmed by prospective comparative studies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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