



Temporary pharmacologically induced ejaculatory dysfunction influences surgical decision-making in sexually active men with benign prostatic hyperplasia: a prospective interventional study

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Abstract

Purpose The aim of this study was to evaluate whether temporary pharmacologically induced ejaculatory dysfunction influences treatment preference among sexually active men undergoing preoperative counseling for surgical management of benign prostatic hyperplasia (BPH).

Methods A prospective, single-center, exploratory interventional study was conducted including 71 sexually active men with moderate-to-severe lower urinary tract symptoms secondary to BPH who were eligible for both transurethral resection of the prostate (TURP) and water vapor thermal therapy (Rezūm). Following standardized counseling, the patients recorded their preferred treatment before and after a 4-week course of tamsulosin 0.4 mg daily. The primary analysis included patients who developed clinically relevant tamsulosin-induced ejaculatory dysfunction. Urinary symptoms, erectile function, ejaculatory function, ejaculatory bother, and the perceived importance of ejaculation were assessed using validated questionnaires.

Results Clinically relevant tamsulosin-induced ejaculatory dysfunction occurred in 35 of 71 patients (49.3%), who constituted the prespecified evaluable cohort. Among these patients, 12 (34.3%) changed their initial treatment preference following tamsulosin exposure. Nine patients switched from TURP to Rezūm, while three patients initially choosing TURP opted for conservative management. No patient changed preference from Rezūm to TURP. Overall, a significant shift away from TURP was observed after experiencing ejaculatory dysfunction ($P < 0.001$). Urinary symptoms and erectile function remained unchanged, whereas ejaculatory function significantly worsened, ejaculatory bother increased, and patients attributed greater importance to preserving ejaculation ($P < 0.001$ for all).

Conclusions Temporary pharmacologically induced ejaculatory dysfunction was associated with a significant change in treatment preference in a substantial proportion of sexually active men undergoing counseling for BPH surgery. These findings suggest that experiential exposure to reversible ejaculatory dysfunction may represent a novel, hypothesis-generating decision-support strategy, complementing conventional counseling. Further studies are needed to validate this approach and to assess its impact on actual treatment selection and long-term satisfaction.

Keywords Benign prostatic hyperplasia · Lower urinary tract symptoms · Tamsulosin · Ejaculatory dysfunction · Shared decision-making · Rezūm · Transurethral resection of the prostate

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Introduction

Benign prostatic hyperplasia (BPH) is one of the most prevalent age-related conditions in men and represents the leading cause of lower urinary tract symptoms (LUTS) in the aging male population [1–3]. Epidemiological studies estimate that histological evidence of BPH is present in nearly 50% of men in their sixth decade of life and exceeds 80% after the age of 80 years [2]. Progressive enlargement of the transition zone may lead to bladder outlet obstruction, resulting in storage and voiding symptoms that impair quality of life, sleep quality, work productivity, emotional well-being, and sexual health [4]. Pharmacological therapy is the first-line treatment for most patients; however, surgery is recommended when symptoms become refractory to medical therapy or when BPH-related complications occur, such as recurrent urinary retention, recurrent urinary tract infections, bladder stones, recurrent gross hematuria, or deterioration of renal function [5–9].

For more than four decades, transurethral resection of the prostate (TURP) has been considered the reference surgical treatment for prostates of approximately 30–80 mL, owing to its durable improvement in urinary flow rate, symptom scores, and quality of life [10, 11]. Despite these excellent functional outcomes, TURP is associated with sexual adverse events, the most frequent being loss of antegrade ejaculation, reported in approximately 65–90% of patients [12, 13]. Although erectile function is generally preserved, postoperative retrograde or absent ejaculation remains a major source of dissatisfaction, particularly among younger and sexually active men.

Over the last decade, interest has grown in minimally invasive surgical therapies that provide symptom relief while preserving sexual function. Among these, water vapor thermal therapy (Rezūm System) has shown durable improvements in LUTS with a low incidence of postoperative ejaculatory dysfunction [14–16]. Prospective studies and long-term follow-up analyses have consistently demonstrated preservation of antegrade ejaculation in the majority of treated patients, making Rezūm an attractive option for sexually active men who prioritize maintenance of ejaculatory function [14, 15, 17]. Accordingly, current international guidelines acknowledge Rezūm as a valid minimally invasive alternative for appropriately selected patients with prostate volumes generally between 30 and 80 mL who wish to preserve sexual function [18, 19].

In parallel with the evolution of surgical techniques, patient priorities have changed. Contemporary BPH management has shifted from a disease-centered to a patient-centered model, in which treatment selection takes into account not only objective improvements in urinary symptoms but also patient preferences, quality of life, and

preservation of sexual function [20, 21]. Several studies have shown that ejaculation is perceived by many men as a key component of sexual satisfaction and masculine identity, often independently of erectile function or fertility [22–24]. Consequently, preservation of ejaculation has become one of the main determinants influencing treatment preferences among sexually active patients.

Despite the increasing importance of ejaculatory preservation, preoperative counseling still relies almost entirely on verbal description of potential sexual outcomes. Patients are informed that TURP is highly effective but frequently results in permanent loss of antegrade ejaculation, whereas ejaculation-preserving procedures such as Rezūm are associated with a substantially lower risk of this complication. However, the patients who have never experienced ejaculatory dysfunction may struggle to translate this information into its concrete impact on their sexual life and psychological well-being. Consequently, therapeutic decisions are often based on an abstract understanding of potential adverse events rather than on direct personal experience of what ejaculatory loss actually entails.

Additional support for this concept comes from pharmacological management of LUTS. Among available α 1-adrenoceptor antagonists, alfuzosin is associated with one of the lowest incidences of ejaculatory dysfunction and generally preserves antegrade ejaculation in sexually active patients [25, 26]. In contrast, tamsulosin, due to its higher α 1A-selectivity, is linked to significantly higher rates of abnormal ejaculation, including markedly reduced seminal emission or anejaculation [25, 27–31]. Although the mechanisms underlying pharmacologically induced ejaculatory dysfunction differ from those responsible for postoperative retrograde ejaculation after TURP, both conditions ultimately result in a temporary or permanent loss of the patient's usual ejaculatory experience [11–13]. In this context, tamsulosin may offer a unique opportunity to expose patients to a reversible alteration of ejaculatory function before surgery.

Rather than serving as a direct simulation of postoperative retrograde ejaculation, temporary tamsulosin-induced ejaculatory dysfunction may be considered an experiential model of ejaculatory loss, allowing patients to personally experience changes in sexual function before making an irreversible therapeutic decision. This approach is consistent with modern principles of shared decision-making, which emphasize active patient participation in treatment selection based on a realistic understanding of both benefits and the real-life implications of potential adverse outcomes [20, 21].

To date, no prospective study has evaluated whether experiencing temporary, pharmacologically induced ejaculatory dysfunction influences patients' preferences regarding surgical treatment for BPH. We therefore designed a prospective, single-center, exploratory interventional study

to investigate whether a 4-week course of tamsulosin affects treatment choice among sexually active men eligible for both TURP and Rezūm. We hypothesized that direct experience of ejaculatory dysfunction would significantly modify therapeutic preferences and help identify those patients most likely to benefit from ejaculation-preserving surgical strategies. Given the pilot nature of the study, our findings should be regarded as hypothesis-generating.

Materials and methods

Study design

This was a prospective, single-center, exploratory interventional study conducted at the Department of Urology, Azienda Ospedaliera “San Giuseppe Moscati”, Avellino, Italy, over a 24-month period. The study was conducted in accordance with the principles of the Declaration of Helsinki and was approved by the local Institutional Ethics Committee. Written informed consent was obtained from all participants prior to inclusion. The primary objective was to assess whether a temporary, pharmacologically induced alteration of ejaculatory function influenced treatment preference in men eligible for both conventional transurethral resection of the prostate (TURP) and convective water vapor thermal therapy (Rezūm). The study was not registered in a public clinical-trial registry.

Patient population

Between May 2024 and May 2026, 71 consecutive men presenting with moderate-to-severe LUTS secondary to benign prostatic hyperplasia were screened for eligibility. Only patients considered suitable candidates for both TURP and Rezūm, according to the contemporary European Association of Urology (EAU) Guidelines on the Management of Non-neurogenic Male LUTS, were included. All patients underwent a standard preoperative assessment comprising physical examination, digital rectal examination, serum PSA measurement, urinalysis, and transrectal ultrasound for prostate volume assessment.

Inclusion criteria

Patients were eligible if they met all of the following criteria:

- age between 40 and 70 years;
- moderate-to-severe LUTS secondary to BPH (IPSS ≥ 12);
- prostate volume between 30 and 80 mL;
- failure, intolerance, or unwillingness to continue long-term medical therapy;
- sexually active during the previous 6 months;

- preserved antegrade ejaculation at baseline;
- ability to complete self-administered questionnaires;
- eligibility for both TURP and Rezūm according to contemporary EAU recommendations.

Exclusion criteria

Patients were excluded if they met one or more of the following criteria:

- baseline anejaculation or severe ejaculatory dysfunction;
- severe erectile dysfunction (IIEF-5 score < 8);
- previous prostate or bladder neck surgery;
- previous pelvic radiotherapy;
- neurological diseases affecting lower urinary tract or sexual function;
- prominent obstructive median lobe unsuitable for Rezūm;
- chronic urinary retention requiring indwelling catheterization;
- recurrent gross hematuria;
- bladder stones;
- recurrent urinary tract infections;
- suspected or histologically confirmed prostate cancer;
- inability to provide informed consent.

Study protocol

At the baseline visit, all eligible patients received standardized face-to-face counseling by an experienced urologist, who provided a balanced description of TURP and Rezūm, including expected symptomatic improvement, perioperative risks, postoperative recovery, catheterization time, retreatment rates, and potential effects on ejaculation and erectile function. Immediately after counseling, each patient indicated a preferred treatment option (TURP, Rezūm, or no surgery), which was recorded as the baseline therapeutic preference. Following completion of the baseline assessment and questionnaires, all patients—irrespective of previous α -blocker therapy, including alfuzosin—were switched to tamsulosin 0.4 mg once daily for 4 weeks. No other modifications to medical therapy for LUTS or sexual function were permitted during this period. At the end of treatment, patients attended a follow-up visit, completed the same set of questionnaires, and were again asked to indicate their preferred management (TURP, Rezūm, or no surgery). Any change from the initial treatment preference was recorded together with the patient's main reason for the decision. Clinically relevant tamsulosin-induced ejaculatory dysfunction was predefined as new-onset markedly reduced seminal emission or anejaculation associated with patient-reported bother on the MSHQ-EjD bother domain. The MSHQ-EjD Short Form includes five domains assessing ejaculatory frequency, force, semen volume, satisfaction, and bother. In

this study, “clinically relevant” ejaculatory dysfunction was defined as new-onset markedly reduced seminal emission or anejaculation accompanied by an increase in the bother domain score, reflecting patient-perceived distress. This definition was prespecified in the study protocol before data collection.

The primary analysis was prespecified in patients who developed clinically relevant ejaculatory dysfunction. Patients who did not develop ejaculatory dysfunction remained part of the study cohort and were included in the descriptive analyses only, as they had not effectively experienced the “experiential” condition under investigation.

Patient-reported outcome measures

Patient-reported outcome measures were collected at baseline and after 4 weeks of tamsulosin therapy using validated questionnaires.

Lower urinary tract symptoms were assessed using the International Prostate Symptom Score (IPSS). Erectile function was evaluated using the International Index of Erectile Function-5 (IIEF-5), with higher scores indicating better erectile function. Ejaculatory function was assessed using the Male Sexual Health Questionnaire–Ejaculatory Dysfunction Short Form (MSHQ-EjD SF), which evaluates ejaculatory frequency, force, semen volume, satisfaction, and the associated level of bother. Given the study hypothesis, particular emphasis was placed on the bother domain, as the subjective distress associated with ejaculatory dysfunction was considered more relevant to treatment decision-making than the objective reduction in ejaculatory function itself. To evaluate the importance attributed to ejaculation during treatment selection, the patients also completed a 10-point visual analog scale (VAS) by answering the following question: “*How important is preserving normal ejaculation in your future treatment?*” Scores ranged from 0 (“not important at all”) to 10 (“extremely important”).

Outcomes

The primary outcome was the proportion of patients within the evaluable cohort who changed their preferred treatment after 4 weeks of tamsulosin therapy. Treatment change was defined as any modification of the initial therapeutic preference (TURP, Rezūm, or no surgery). Particular attention was paid to patients who changed their preference from TURP to Rezūm, as this transition most directly reflected the influence of experiencing ejaculatory dysfunction on treatment decision-making.

Secondary outcomes included changes in urinary symptoms (IPSS), erectile function (IIEF-5), ejaculatory function (MSHQ-EjD function score), ejaculatory bother

(MSHQ-EjD bother domain), and the VAS score assessing the importance attributed to ejaculation.

Statistical analysis

Continuous variables were expressed as mean $\pm$ standard deviation (SD) or median with interquartile range (IQR), according to data distribution, whereas categorical variables were reported as frequencies and percentages. Data distribution was assessed using the Shapiro–Wilk test. Changes in patient-reported outcomes between baseline and follow-up were analyzed using the paired Student’s t-test for normally distributed variables or the Wilcoxon signed-rank test for non-normally distributed variables.

The change in treatment preference after tamsulosin exposure was evaluated using McNemar’s test (two-sided, exact binomial method) after dichotomizing treatment preference as TURP versus non-TURP options. Exact 95% confidence intervals for the proportion of patients changing preference were calculated using the Clopper–Pearson method. As an exploratory analysis, we examined the association between preference change and potential explanatory factors (age, baseline treatment preference, baseline IPSS, IIEF-5, MSHQ-EjD function and bother scores, and VAS importance of ejaculation) using univariable logistic regression. Given the limited sample size and the exploratory nature of the study, no multivariable modeling or adjustment for multiple comparisons was performed. All statistical tests were two-sided, and a p value <0.05 was considered statistically significant.

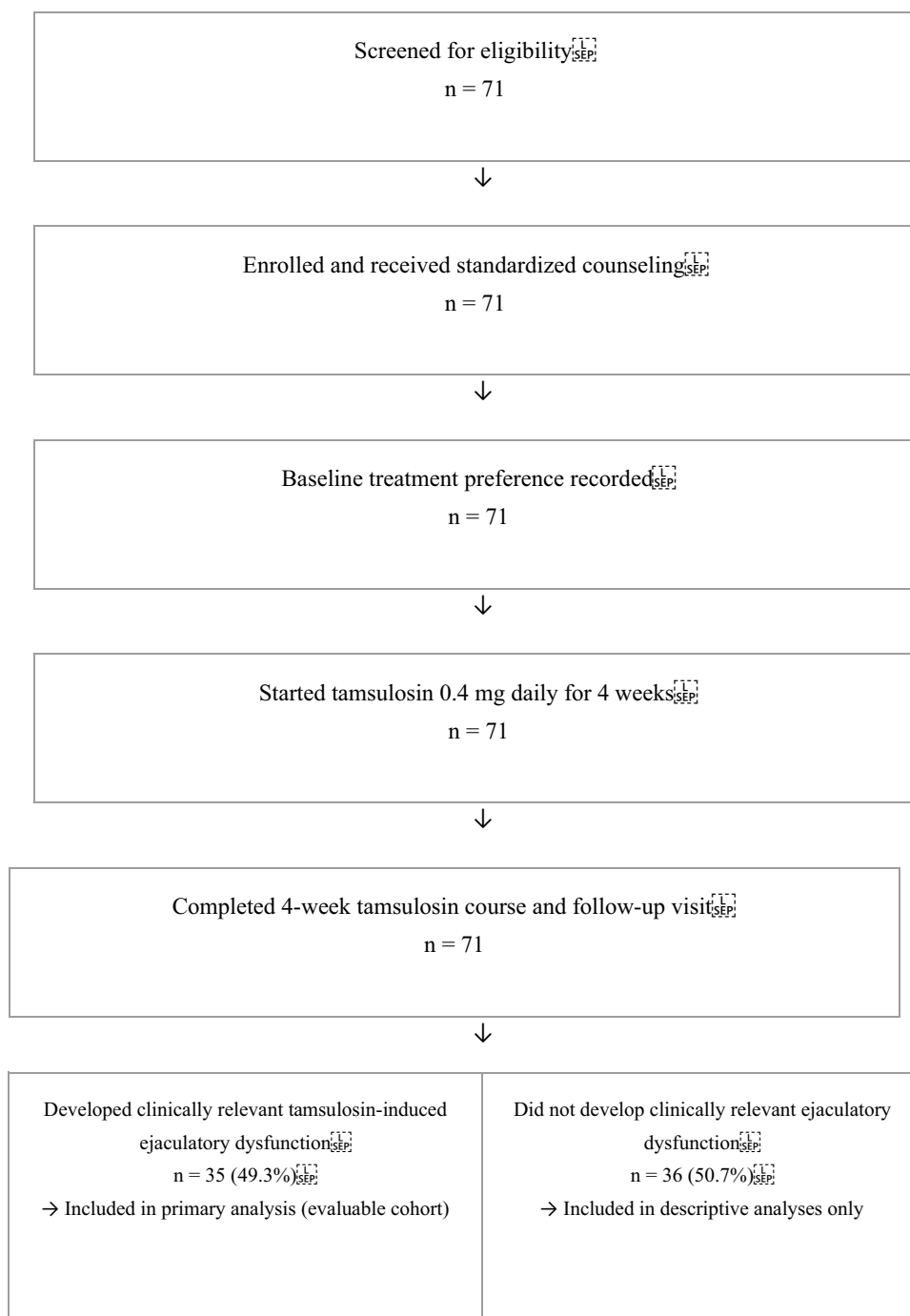
Results

A total of 71 patients met the inclusion criteria and were enrolled in the study (Fig. 1). During the 4-week course of tamsulosin therapy, 35 patients (49.3%) developed clinically relevant tamsulosin-induced ejaculatory dysfunction, as predefined by the study protocol. These patients constituted the prespecified evaluable cohort for the primary analysis. The remaining 36 patients, who did not develop clinically relevant ejaculatory dysfunction, were excluded from the primary endpoint analysis but were included in secondary analyses assessing overall changes in urinary symptoms and erectile function.

Baseline demographic and clinical characteristics of the study population are summarized in Table 1.

Primary outcome

Among the 35 patients included in the evaluable cohort, 25 initially preferred TURP and 10 preferred Rezūm. Following the 4-week course of tamsulosin, 12 patients (34.3%)

Fig. 1 Patient flow diagram

modified their initial treatment preference. Specifically, nine patients changed their preference from TURP to Rezūm, whereas three patients who had initially chosen TURP decided to postpone surgical treatment and opted for conservative management. No patient who initially preferred Rezūm subsequently changed preference to TURP. Overall, the occurrence of clinically relevant tamsulosin-induced ejaculatory dysfunction was associated with a significant shift away from TURP as the preferred treatment option (McNemar's test, $P < 0.001$) (Table 2).

Secondary outcomes

Changes in urinary symptoms after 4 weeks of tamsulosin therapy were minimal, with no clinically meaningful differences in IPSS score. Likewise, erectile function remained unchanged, as reflected by stable IIEF-5 scores throughout the study.

In contrast, among patients who developed clinically relevant tamsulosin-induced ejaculatory dysfunction, both the MSHQ-EjD function score and the MSHQ-EjD bother

Table 1 Baseline demographic and clinical characteristics of the study population

Variable	Overall population (<i>n</i> = 71)
Age, years	61.5 ± 7.4
Age range, years	42–70
BMI, kg/m ²	27.3 ± 3.9
PSA, ng/ml	1.8 ± 1.4
Prostate volume, ml	54.6 ± 11.8
IPSS	18.6 ± 4.8
IIEF-5	22.1 ± 2.3
Preserved antegrade ejaculation at baseline	71 (100%)
Sexually active in previous 6 months	71 (100%)
Baseline treatment preference	
TURP	50 (70.4%)
Rezūm	21 (29.6%)
No surgery	0 (0%)

Table 2 Changes in treatment preference after four weeks of tamsulosin therapy in the evaluable cohort (*n* = 35)

Treatment preference	Baseline	Follow-up
TURP	25 (71.4%)	13 (37.1%)
Rezūm	10 (28.6%)	19 (54.3%)
No surgery	0 (0%)	3 (8.6%)

P value refers to McNemar's test comparing TURP versus non-TURP preferences before and after tamsulosin exposure: *P* < 0.001

domain significantly worsened after treatment. These changes were accompanied by a significant increase in the VAS score assessing the importance attributed to preserving ejaculation, indicating that direct experience of ejaculatory dysfunction led several patients to reconsider the value of ejaculatory preservation when choosing surgical treatment.

Detailed changes in patient-reported outcome measures are summarized in Table 3.

Table 3 Changes in patient-reported outcome measures after four weeks of tamsulosin therapy

Variable	Baseline	Follow-up	<i>P</i> value	Population
IPSS (0–35)	18.6 ± 4.8	17.9 ± 4.6	0.11	<i>n</i> = 71
IIEF-5 (5–25)	22.1 ± 2.3	20.9 ± 3.0	0.09	<i>n</i> = 71
MSHQ-EjD Function score (0–15)	12.8 ± 1.4	9.1 ± 2.2	< 0.001	<i>n</i> = 35
MSHQ-EjD Bother score (0–5)	0.8 ± 0.7	3.7 ± 1.0	< 0.001	<i>n</i> = 35
VAS importance of ejaculation (0–10)	5.9 ± 2.3	7.8 ± 1.9	< 0.001	<i>n</i> = 35

Discussion

The present study introduces a novel concept in BPH decision-making: direct experience of temporary ejaculatory dysfunction may influence the perceived value of ejaculation preservation and modify treatment preference. Among men who developed clinically relevant tamsulosin-associated ejaculatory dysfunction, one third changed their initial treatment choice, with a significant shift from TURP toward Rezūm. Importantly, this change occurred despite stable urinary and erectile outcomes, suggesting that the decision was specifically driven by the personal perception of ejaculatory loss. Traditionally, surgical success in BPH has been defined by improvements in IPSS, urinary flow rate and quality of life. However, accumulating evidence indicates that sexual outcomes, particularly ejaculation, represent a major determinant of treatment satisfaction in sexually active men [32, 33]. Although TURP provides excellent functional outcomes, postoperative ejaculatory dysfunction occurs in the majority of patients and remains one of the most frequent causes of dissatisfaction [34–36]. Conversely, ejaculation-preserving procedures have gained popularity because they address an unmet need among men who prioritize maintenance of sexual function [37]. The emergence of Rezūm and other minimally invasive therapies reflects this paradigm shift. In addition to Rezūm, several other minimally invasive surgical therapies (MISTs) have been developed with the aim of providing symptom relief while minimizing sexual adverse events. These include prostatic urethral lift (UroLift), temporary implantable nitinol device (iTind), aquablation, and laser-based approaches such as transperineal laser ablation (TPLA). Randomized and prospective studies have demonstrated that many of these techniques are associated with lower rates of ejaculatory dysfunction compared with conventional tissue-removing procedures, although durability and retreatment rates may vary [38–42]. The 2026 EAU Guidelines recognize Rezūm and selected MISTs as conditional options for appropriately selected patients who prioritize preservation of sexual function [5].

Randomized and prospective studies have demonstrated durable improvement in LUTS with substantially lower rates of ejaculatory dysfunction compared with conventional tissue-removing procedures [43, 44]. However,

counseling remains based mainly on statistical probabilities, and patients are rarely able to appreciate the personal relevance of losing ejaculation before experiencing it. In our cohort, clinically relevant ejaculatory dysfunction occurred in 49.3% of patients after four weeks of tamsulosin exposure. This proportion appears higher than the approximately 20% reported in randomized clinical trials [45, 46]. However, these differences may be explained by several methodological aspects. Clinical trials frequently rely on spontaneous reporting of adverse events, whereas sexual adverse effects are often underreported unless specifically investigated. In addition, our study population consisted exclusively of sexually active men with preserved baseline ejaculation, and dysfunction was defined according to patient-perceived bother rather than only investigator-reported adverse events. Therefore, our findings should not be interpreted as a population incidence estimate, but rather as evidence that clinically meaningful ejaculatory changes may be more frequent when actively assessed. The concept of an experiential model is particularly relevant in the context of shared decision-making. Previous studies have shown that patients frequently struggle to translate probabilities of adverse events into personal preferences. Experiencing a reversible alteration of ejaculation may provide additional information that cannot be obtained through conventional counseling alone. Our findings suggest that the subjective impact of an adverse event may differ considerably from its simple numerical probability. This study has several limitations. The single-center, exploratory interventional design, and the modest sample size restrict the generalizability of our findings and preclude definitive conclusions about causality. The primary analysis was restricted to patients who developed clinically relevant tamsulosin-induced ejaculatory dysfunction, as these were the only patients who experienced the “experiential” condition under investigation; although this was a prespecified design choice consistent with our research question, it limits the applicability of the results to the entire enrolled population. Pharmacologically induced ejaculatory dysfunction does not reproduce the anatomical and physiological mechanisms of post-TURP retrograde ejaculation and should therefore be regarded as a preference-elicitation tool rather than as a direct model of surgical outcomes. In addition, prior exposure to alpha-blockers and other BPH medications was not collected in a standardized manner, and data on the actual treatment subsequently performed and on the long-term stability of preferences after tamsulosin discontinuation were not systematically recorded. These limitations underscore the hypothesis-generating nature of our findings and highlight the need for larger, multicenter studies to validate this experiential counseling strategy and to assess its impact on treatment selection and patient satisfaction.

Conclusions

Temporary pharmacologically induced ejaculatory dysfunction was associated with a significant change in treatment preference in a substantial proportion of sexually active men undergoing counseling for surgical management of benign prostatic hyperplasia. Importantly, the subjective distress associated with altered ejaculation appeared to represent a key determinant of treatment modification, rather than the objective change in ejaculatory function alone. These findings suggest that experiential exposure to temporary ejaculatory dysfunction may represent a novel, hypothesis-generating decision-support strategy during preoperative counseling, allowing patients to better understand the personal relevance of potential postoperative sexual outcomes. Rather than replacing conventional counseling, this approach may complement existing shared decision-making models. Further studies are needed to validate this concept, to assess its impact on actual treatment selection, and to evaluate long-term satisfaction and stability of preferences.

Author contributions V.I. and V.Im. conceived and designed the study. A.D.G., R.B., G.S., and R.V. provided administrative support. F.F., A.F., E.D.M., G.V., and R.Ba. provided study materials and/or patients. V.I. collected and assembled the data. V.I. and V.Im. analyzed and interpreted the data. C.M. and F.C. supervised the statistical analysis. V.I. wrote the main manuscript. All authors reviewed the manuscript, contributed to the article, and approved the submitted version.

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Data availability Data can be obtained from the corresponding author upon reasonable request.

Declarations

Conflict of interest The authors declare that there are no competing interests.

Informed consent Written informed consent was obtained from all subjects to use their data and information for publication.

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