

Quality of life and erectile dysfunction in patients with benign prostatic hyperplasia

Calidad de vida y disfunción eréctil en pacientes con hiperplasia prostática benigna

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Abstract

Background: The most frequent prostatic pathology is benign prostatic hyperplasia. By the age of 50, 50% are diagnosed with it and by the age of 80, it increases to 90%. The erectile dysfunction prevalence along benign prostatic hyperplasia is 5.2%-40%. Patients with benign prostatic hyperplasia are 1.33-6.24 times more likely to have erectile dysfunction than without benign prostatic hyperplasia. **Objective:** To identify quality of life and to grade erectile dysfunction in patients with benign prostatic hyperplasia. **Method:** A transversal, descriptive study was conducted in patients with benign prostatic hyperplasia. Two questionnaires were applied: SF-12 for quality of life and IIEF-5 for erectile dysfunction. **Results:** 101 patients, mean age 66.5 ± 8.5 years, mean physical aspect 38.68, mean mental aspect 43.35, 14 without erectile dysfunction, 38 mild grade, 33 mild to moderate, 15 moderate and 1 severe. **Conclusions:** Benign prostatic hyperplasia patients have poor physical health and good mental health. 70.3% of patients have a grade of erectile dysfunction between mild and mild-moderate.

Keywords: Life quality. Erectile dysfunction. Benign prostatic hyperplasia.

Resumen

Antecedentes: La patología de la próstata más frecuente es la hiperplasia prostática benigna. A los 50 años, el 50% de los hombres son diagnosticados y a los 80 años aumenta hasta al 90%. La prevalencia de disfunción eréctil en conjunto con hiperplasia prostática benigna es del 5.2-40%, y los pacientes con hiperplasia prostática benigna es 1.33-6.24 veces más frecuente que tengan disfunción eréctil que aquellos sin hiperplasia prostática benigna. Ambas afecciones repercuten en la calidad de vida. **Objetivo:** Identificar la calidad de vida y el grado de disfunción eréctil en pacientes con hiperplasia prostática benigna. **Método:** Estudio transversal, descriptivo, en pacientes con crecimiento prostático benigno a los cuales se les aplicaron dos cuestionarios: SF-12 para calidad de vida e Índice Internacional de Función Eréctil versión 5 para disfunción eréctil. **Resultados:** Fueron 101 pacientes, edad media de 66.5 ± 8.5 años, promedio físico de 38.68, promedio mental de 43.35, 14 de ellos sin disfunción eréctil y 38 con disfunción eréctil leve, 33 leve a moderada, 15 moderada y 1 grave. **Conclusiones:** Los pacientes con hiperplasia prostática benigna tienen una salud física mala y una salud mental buena. El 70.3% de los pacientes muestran grado leve o leve-moderado de disfunción eréctil.

Palabras clave: Hiperplasia prostática benigna. Disfunción eréctil. Calidad de vida.

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Introduction

Erectile dysfunction (ED) is the inability to achieve or maintain a sufficient erection for satisfactory sexual activity. The prevalence of benign prostatic hyperplasia (BPH) with ED is 5.2 to 40%, and patients with BPH report 1.33 to 6.24 times more ED than those without BPH. In addition, patients who show lower urinary tract symptoms (LUTS) have a decrease in the frequency and satisfaction of sexual activity¹.

Some studies have demonstrated that patients with BPH and ED show social and emotional difficulties, such as anxiety, depression, social isolation and pain that can result in fatigue, decreased vitality and insomnia, with a decrease in quality of life^{2,3}. On the other hand, the prevalence of ED is age-dependent and increases from 5% in patients aged 40 years to 15% in those older than 70 years. By 50 years of age, 50% are diagnosed, and by 80 years, the figure increases to up to 90%. The International Index of Erectile Function, version 5 (IIEF-5), shows a strong relationship between LUTS and ED; in patients aged 50-59 years, IIEF-5 score was 22.3 without LUTS and 14.9 with LUTS^{4,5}.

BPH glandular growth creates compression on the urethra, which results in LUTS such as nocturia, urinary urgency, polyuria, feeling of incomplete bladder emptying, vesical tenesmus and decrease in the caliber and force of the urinary stream⁶. The pathophysiological mechanisms whereby BPH causes LUTS are: nitric oxide reduction, guanosine cyclic monophosphate signaling, chronic inflammation/steroid hormone imbalance and RhoA-Rho-Kinase activity increase, autonomic hyperactivity and pelvic atherosclerosis. These factors decrease nerve and endothelial function, cause arterial insufficiency, reduce blood flow, induce hypoxic tissue injury, increase smooth muscle proliferation in the prostate and cause bladder hypertrophy. All these conditions affect erectile function by reducing innervation and decreasing smooth muscle relaxation in the corpora cavernosa⁷⁻⁹.

Comprehensive medical treatment is based on:

- 5 α reductase inhibitors: they inhibit this enzyme involved in the transformation of testosterone into dihydrotestosterone. Finasteride is a type-2 5 α reductase selective inhibitor that decreases dihydrotestosterone concentrations by approximately 60-70%. Adverse effects on sexual health include persistent ED, loss of libido, decreased ejaculation volume and depression⁹.

- Alpha blockers: these agents are selective blockers of α 1 receptors in the prostate and bladder neck, which produce smooth muscle relaxation and favor urination. The drug of this family most widely used is tamsulosin. Adverse effects include retrograde ejaculation, dizziness, syncope, and hypotension¹⁰.
- Psychotherapy: it is suggested that all men undergoing treatment should receive psychological help in order to reduce their anxiety, improve treatment adherence and resume normal sex life. In addition, it is necessary to be aware of possible comorbidities that could negatively affect erectile function, and changes in lifestyle and diet should be promoted, and physical activity should be increased in order to improve overall and sexual health^{4,11}.

IIEF-5 is a questionnaire that has been widely validated for the Latin American population, which is used to evaluate erectile function. It is brief, valid from the psychometric point of view, and self-applicable. Made up of 15 items, it evaluates human sexual response (desire, erection, ejaculation and orgasm), satisfaction with sexual intercourse and overall satisfaction, with the following score: 22-25 points, no ED; 17-21 points, mild ED; 12-16 points, mild-moderate ED; 8-11 points, moderate ED; and 5-7 points, severe ED¹².

Quality of life is considered an essential aspect in the care of different chronic pathologies, such as BPH and ED. The 12-item short-form health survey (SF-12) provides a health status profile in the general population aged 14 years and older. It is a self-administered questionnaire that is answered in less than 2 minutes. It consists of 12 items from SF-36 eight dimensions: physical functioning (two items), social functioning (one item), role-physical (two items), role-emotional (two items), mental health (two items), vitality (one item), bodily pain (one item) and general health perception (one item)¹³.

The purpose of this study was to identify the quality of life and the degree of ED in patients with BPH without comorbidity who had not undergone surgical treatment in order to emphasize the effect of BPH on ED, as well as to relate it to the world literature.

Method

Cross-sectional, descriptive study carried out in patients with BPH who attended the urology outpatient clinic during the period comprised from July to November 2019.

Patients older than 40 years with prostate enlargement (defined as prostate growth by digital rectal examination or ultrasound in patients with "lower urinary tract symptoms") according to the International Prostate Symptom Scale (I-PSS), who signed the informed consent letter, were included. Patients with neoplastic or infectious pathology, any comorbidity that by itself affects quality of life or ED (such as diabetes mellitus, hypertension, or dyslipidemia) and patients without a sexual partner were excluded; in addition, those who did not want to participate in the study were eliminated.

For quality of life to be determined, the SF-12 questionnaire was applied in order to analyze the eight aforementioned domains, and to assess the degree of erectile dysfunction, the IIEF-5 questionnaire was applied for overall evaluation, as well as for evaluation of the previously-described categories.

Convenience consecutive sampling was used, with sample size calculation for finite populations, with a 95% confidence interval and a tolerated error of 5%, which yielded a sample of 89 patients.

Descriptive statistics were used, and the correlation between quality of life and ED was measured using Spearman's coefficient. A p -value ≤ 0.05 was regarded as statistically significant.

Results

Of a total of 250 patients, 149 were excluded for having any associated pathology that might affect quality of life and ED, with 101 patients therefore being left in the final sample. Mean age was 66.5 ± 8.5 years (range: 47-84).

Mean scores obtained on SF-12 for the physical and mental domains were 38.68 and 43.35, respectively. Regarding the degree of ED, 38 (37.6%) patients were found to have mild ED; the rest of details are shown in table 1.

As for the treatment used in the patients, 48.5% were treated with tamsulosin and 12.9% had no treatment because they were newly-diagnosed. The frequency of the rest of treatments that were used and IIEF-5 scores according to the administered treatment are shown in table 2.

The correlation between the degree of ED and the mental component of quality of life did not yield statistically significant results, but quality of life physical component did show a statistically significant correlation ($p = 0.004$) (Table 3).

Table 1. Degree of erectile dysfunction

	n	%
22-25 = no ED	14	13.9
17-21 = mild ED	38	37.6
12-16 = mild-moderate ED	33	32.7
8-11 = moderate ED	15	14.9
5-7 = Severe ED	1	1.0
Total	101	100.0

ED: erectile dysfunction.

Table 2. Score obtained on IIEF-5 questionnaire according to the treatment for benign prostatic hyperplasia established in included patients

	Frequency		IIEF-5 ED average
	Patients	%	
Tamsulosin	49	48.5	16.48
Finasteride	2	2	18.5
Tamsulosin + finasteride	37	36.6	15.51
None	13	12.9	17.53
Total	101	100	16.30

ED: erectile dysfunction.

Discussion

ED and quality of life in patients with BPH are well described; however, in this work, patients who had any comorbidity that by itself affected quality of life or favored ED were excluded in order to identify the direct correlation between both ailments without the interference of other chronic degenerative conditions. On the other hand, the advent of new treatments, as well as the evolution in the approach to and relevance of sexuality, make updating of reports in this regard and verification in patients necessary.

Our results are consistent with other studies by reporting that ED negatively affects quality of life perception, especially at the expense of the physical component^{1,2,5}. Especially relevant is the MALES trial, which divides quality of life into its mental and physical aspects. When quality of life satisfaction levels were evaluated, a pattern was found to appear: men with ED described lower indices of personal satisfaction for all evaluated quality of life attributes in comparison with men without ED, particularly in sex life and general

Table 3. Correlations between IIEF-5 questionnaire result and quality of life in its two components (physical health and mental health)

	SF-12, physical health	SF-12, mental health	IIEF-5 questionnaire result
Spearman's rho			
SF-12, physical health			
Correlation coefficient	1.000	-0.300*	0.285*
Significance (bilateral)		0.002	0.004
n	101	101	101
SF-12, mental health			
Correlation coefficient	-0.300*	1.000	0.035
Significance (bilateral)	0.002		0.726
n	101	101	101
IIEF-5 questionnaire result			
Correlation coefficient	0.285*	0.035	1.000
Significance (bilateral)	0.004	0.726	
n	101	101	101

*The correlation is significant with a value of 0.01.

Table 4. Mental health and erectile dysfunction degree

	Erectile dysfunction degree					Total
	22-25 No ED	17-21 Mild ED	12-16 Mild-moderate ED	8-11 Moderate ED	5-7 Severe ED	
Mental health						
Below the mean	3	13	10	4	0	30
Normal	11	25	23	11	1	71
Total	14	38	33	15	1	101

ED: erectile dysfunction.

Table 5. Physical health and erectile dysfunction degree

	Erectile dysfunction degree					Total
	22-25 No ED	17-21 Mild ED	12-16 Mild-moderate ED	8-11 Moderate ED	5-7 Severe ED	
Physical health						
Below the mean	6	22	24	9	1	62
Normal	8	16	9	6	0	39
Total	14	38	33	15	1	101

ED: erectile dysfunction.

health status^{14,15}. These results are similar to those obtained in our study, since patients referred a quality of life decrease in the physical dimension, but not a significant reduction in the mental field (Tables 4 and 5).

In Spain, in a study with 2,476 patients who had the SF-36 applied for quality of life staging, a decrease was found in the physical component ($p = 0.001$), but not in the mental component¹⁶. This result is similar to that obtained in the present work, in which the relationship of ED with quality of life physical component showed a p -value of 0.004, but without any relationship between ED and quality of life mental component

being found, for which a p -value of 0.726 was obtained.

As for medical treatment and ED average score on IIEF-5, we found similarity with previous works, in which the use of combined therapy with tamsulosin and finasteride is shown to obtain lower averages on IIEF-5 questionnaire (higher ED) than tamsulosin alone^{8,17,18}. On the other hand, in the multinational MALES trial, with a total of 27,839 patients, the groups with ED with and without treatment were found not have significant differences in the quality of life constructs¹⁵.

Most patients in this study (38), according to the IIEF-5 questionnaire, were found to have mild ED. IIEF-5 questionnaire overall score average obtained by our population was 16.30, with the population being classified as having mild ED, which should be differentiated from other published studies in which average is higher, perhaps because, as previously mentioned, in this population, it was sought for patients not to have comorbidities that could favor ED or lessen quality of life perception^{1,4,9,11,18-20}.

Conclusion

Due to all of the above, it is concluded that BPH impacts ED and decreases quality of life in the physical, but not in the mental dimension.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects. The authors declare that the procedures that were followed adhered to the ethical standards of the responsible committee for experimentation on human beings and were in agreement with the World Medical Association and the Declaration of Helsinki.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

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