

Care Strategies for Elderly People with Benign Prostatic Hyperplasia: Integrative Literature Review

ABSTRACT

Objective: The objective of the study is to demonstrate, by means of an Interactive Literature Review, the care strategies for elderly patients with Benign Prostatic Hyperplasia (BPH). Methodology: An Integrative Literature Review Study (RIL) was carried out, with data collection through online access in the PubMed, Cochrane Library and VHL databases. After evaluation and synthesis of the articles, the data were analyzed in the IramuTeQ software, presenting the results through the similarity analysis with the identification of co-occurrences between the words and the connection indications. Results: The research showed that the results of non-invasive and surgical therapies were identified as strategic actions. Conclusion: It was concluded that care strategies for the elderly with benign prostatic hyperplasia are still scarce, limiting pharmacological and behavioral interventions.

Keywords: Elderly. Care strategies. Prostatic hyperplasia.

1. INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is characterized by the progressive enlargement of the prostate from changes in the proliferation of smooth muscle epithelial cells in the organ [1]. It is a common disease in elderly men and the number of cases is increasing as the global population ages [2]. Clinical manifestations of prostatic hyperplasia are frequent urination, urgency, incontinence, urinary tract infection, impaired renal function and inflammation of the prostate [3].

Considering the histological aspect, it begins with a simple microtubular hyperplasia, of the stromal cells and the epithelium of the prostate gland, with a consequent macroscopic nodular expansion, generating a benign enlargement of the prostate and a possible interference in the normal flow of urine, caused by compression of the urethra and inadequate relaxation of the bladder neck, which can lead to Lower Urinary Tract Symptoms (LUTS) [4].

BPH causes urinary dysfunction in middle-aged and elderly men, with adverse effects on patients' lives. Aging and abnormal testicular function have been considered the main causes of BPH. With increasing age, as well as levels of estrogen, testosterone and dihydrotestosterone, the body loses balance. This can result in sex hormone disorders in men, leading to prostate hypertrophy and narrowing of the urethral orifice. This also leads to urethral obstruction and voiding dysfunction, which seriously affect the emptying of the bladder and urine [5].

The increase in prostate volume in old age varies between 2.0% and 2.5% per year, and the prevalence is over 70% among men over 60 years of age [6]. While BPH rarely causes problems before age 40, the symptoms affect the daily life and quality of life of elderly individuals [7]. BPH and its symptoms have a negative impact on the patient's emotional, social and economic level, as well as on the lives of family members, friends and caregivers, making it a great challenge for health professionals in the search for alternatives, approaches and therapeutic measures [8].

Health care for benign prostatic hyperplasia is extremely important, as this pathology, if not properly treated, can present complications such as urinary tract infection, bladder lithiasis and even deterioration of the upper urinary tract (kidneys) in more extreme cases, leading to impairment of quality of life of the elderly and even the highest risk of death [9]. Therefore, this study aims to identify the care strategies for elderly patients with Benign Prostatic Hyperplasia (BPH).

2. MATERIAL AND METHODS

It is a study of Integrative Literature Review (RIL), carried out in six distinct stages presented below: 1) Identification of the theme, research problem and object of study; 2) Establishment of search criteria in the main databases; 3) Categorization of studies and data collection using an instrument; 4) Evaluation of studies and data collection; 5) Presentation of results; 6) Discussion and presentation of the Integrative Literature Review.

From the object of study, the following research question was elaborated: What are the care strategies provided to the elderly with benign prostatic hyperplasia available in national and international literature?

Data collection occurred through online access in the following databases: PubMed, Cochrane Library and VHL (Virtual Health Library). In order to optimize and refine the search and guarantee the direction of all relevant works on the theme, the selection of articles occurred based on the combination of controlled descriptors registered in the DeCS (Descriptors in Health Sciences) as: "elderly"; "Care strategies"; "Prostatic hyperplasia" and "man's health" mediated by the Boolean operator "AND", with the aim of expanding the number of studies. The uncontrolled descriptors "care for prostatic hyperplasia" and "interventions for prostatic hyperplasia" were also used.

The inclusion criteria established for the elaboration of this RIL were: research articles of the type field research and systematic review, published in the period from 2010 to 2019, in Portuguese, English and Spanish, available electronically and in full and that addressed the thematic. Studies of the type: editorials, letters to the editor, incomplete articles, reflective studies, gray literature and studies that did not address a topic relevant to the study objective were excluded.

At the end of the data collection, 34 articles emerged in the referred databases. After this stage, the articles were submitted to an evaluation regarding the title and abstract and, of this total, 27 were excluded from the screening process. The evaluation at this stage aimed to discard irrelevant articles. At the end of the data collection, 7 articles emerged, which were evaluated according to the title of the article, authors, year and database, type of study and publication, objective and synthesis of the results and who answered the research question.

Thus, the final sample consisted of 7 publications, which met the established criteria, as shown in Table 1 below:

Table 1 - Identification of selected articles.

TITLE OF THE ARTICLE	AUTHORS / YEAR / DATABASE	TYPE OF STUDY / COUNTRY OF PUBLICATION	OBJECTIVE	SUMMARY OF RESULTS
1-Moxibustion as an adjunct for lower urinary tract symptoms associated with benign prostatic enlargement	Lee et al. 2019. PubMed	Control case. North Korean.	Analyze the effectiveness and safety of additional moxibustion in combination with conventional treatment compared to conventional treatment.	Moxibustion can be considered an adjunct therapy to improve LUTS in BPE patients. A full-sized randomized controlled trial would be feasible with comparator modifications and an extended study period. The study design should include a placebo group and narrow the eligibility to subjects who do not respond well to conventional treatments.
2-Impact of metabolic syndrome-related factors on the development of benign prostatic hyperplasia and lower urinary tract symptoms in Asian population	Park et al. 2019. PubMed.	Retrospective study. South Korea.	Thus is in this study, we aimed to evaluate whether the risk factors for metabolic syndromes, including lifestyle variables, are related to the predictors of BPH/LUTS at initial diagnosis and for the development of BPH/LUTS within a 5-year follow-up in a largescale health program.	A decreased fat mass and LDL level were a significant risk factor for the development of BPH / LUTS within 5 years in men without a BPH / LUTS diagnosis at the initial examination. Metabolic syndrome-related variables were strongly associated with BPH / LUTS and by decreasing fat mass and LDL levels, development of BPH / LUTS could be prevented within 5 years in healthy Korean men.
3-Metformin reduces prostate cancer risk among men with benign prostatic hyperplasia: A nationwide population-based cohort study	Kuo et al. 2019. PubMed.	Retrospective cohort study. Taiwan	Evaluate the effectiveness of metformin for diabetics who have been diagnosed with BPH. BPH patients with and without metformin therapy were compared the occurrence of prostate cancer during the follow-up period.	The drug with metformin can reduce risk of prostate cancer in 40% of diabetic patients with BPH.
4-Hyperlipidemia is associated with an increased risk of clinical benign prostatic hyperplasia	Shih et al. 2017. PubMed.	Longitudinal cohort study. Taiwan	Analyze whether hyperlipidemia is associated with an increased risk of BPH.	Patients with hyperlipidemia are associated with an increased risk of developing BPH and treated BPH compared with nonhyperlipidemia patients.

<p>5- The association of endothelial nitric oxide synthase (eNOS) G894T gene polymorphism with responsiveness to a selective α1-blocker in men with benign prostatic hyperplasia related lower urinary tract symptoms</p>	<p>Lee et al. 2016. PubMed.</p>	<p>Cross-sectional study. New York</p>	<p>Prospectively investigate an association of endothelial polymorphism of the nitric oxide synthase (eNOS) G894T gene response to a selected α1 blocker in men with benign prostatic hyperplasia with lower urinary tract symptoms (BPH / LUTS).</p>	<p>The presence of the eNOS 894T allele had a significantly negative impact on responsiveness to a selective α1-blocker in BPH/LUTS treatment, suggesting that eNOS G894T gene polymorphism may be a genetic susceptibility factor for α1-blocker efficacy in men with BPH/LUTS.</p>
<p>6- Nursing diagnoses of impaired urinary elimination in hospitalized, post-operative elderly: a cross-sectional study</p>	<p>Bitencourt GR, Felipe NHMD, Santana RF. 2016. BVS.</p>	<p>Cross-sectional observational study. Brazil.</p>	<p>Analyze the nursing diagnosis impaired urinary elimination in the elderly in the postoperative period.</p>	<p>The majority presented dysuria, nocturia and urinary urgency as the main defining characteristics. The identification of the diagnosis of urinary elimination is necessary, in the postoperative period of the elderly, in order to favor early intervention in related factors, to avoid possible urinary complications.</p>
<p>7-Giant prostatic hyperplasia: report of a previously asymptomatic man presenting with gross hematuria and hypovolemic shock</p>	<p>Wroclawski ML, Carneiro A, Tristão RA, Sakuramoto PK, Youssef JD, Lopes Neto AC, Santiago LH, Pompeo AC. 2014. BVS.</p>	<p>Case report. Brazil.</p>	<p>To report the case of asymptomatic benign prostatic hyperplasia in an elderly patient with a 720g prostate, sudden onset macroscopic hematuria and hypovolemic shock.</p>	<p>This case report presented one of the five largest prostate glands ever described and the first with an unusual presentation, characterized by the absence of urination symptoms followed by sudden onset macroscopic hematuria, which resulted in hypovolemic shock.</p>

Source: research authors, 2020.

After evaluating and synthesizing the articles, the data were analyzed using the IRaMuTeQ software (Interface of R pour les Analyses Multidimensionnelles de Textes et de Questionnaires). The program is anchored in the R software and allows different forms of statistical analysis on the textual corpus and tables of individuals by words. The textual corpus was built from the results and conclusion of the included studies and placed in a single text file where readings, corrections and codifications were made. To perform classic lexical analyzes, the software identifies and reformats the text units, which are transformed from Initial Contexts Units (UCI) into Elementary Context Units (UCE).

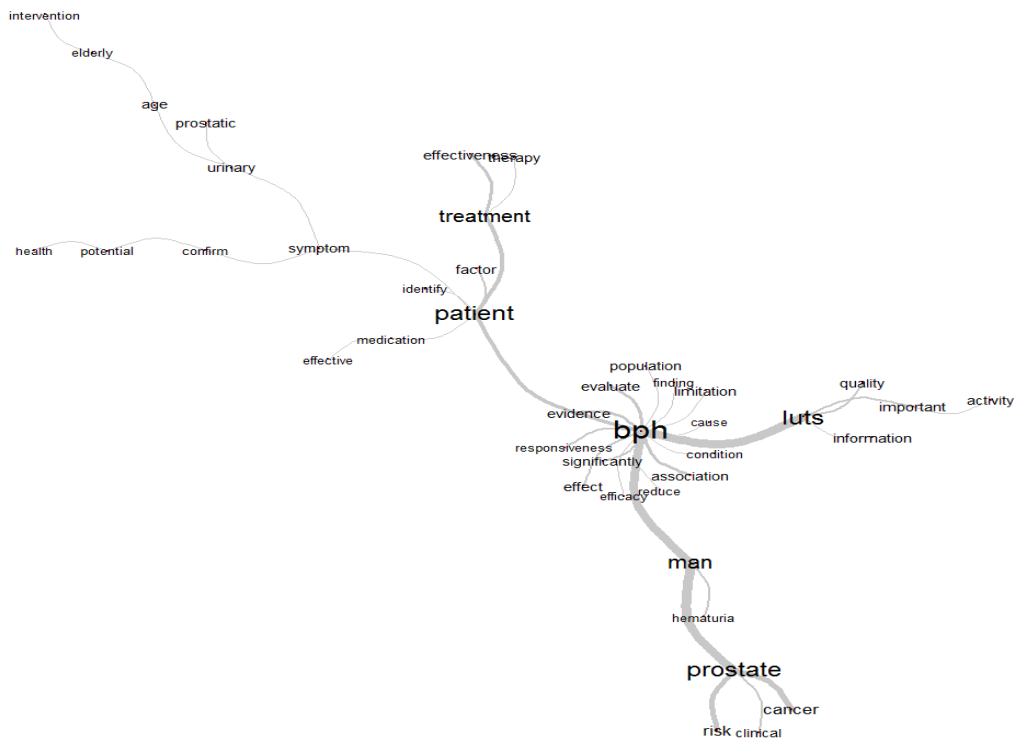
IRaMuTeQ allows 5 types of textual analysis and similarity analysis was used for this study. For Marchand and Ratinaud [10], this type of analysis is based on the theory of graphics and

allows to identify the co-occurrences between words and their results bring indications of the connection between words, helping to identify the representation structure.

3. RESULTS AND DISCUSSION

As shown in Figure 1, the tree is presented in the interface of the results of the similarity analysis with the identification of co-occurrences between words and indications of the connection between the terms: BPH (benign prostatic hyperplasia), LUTS (lower urinary tract symptom), patient, man, prostate and treatment, thus helping to identify the structure of the representational field of the factors associated with prostatic hyperplasia.

Fig 1: Similarity analysis.



Source: research authors, 2020.

The prevalence of BPH with LUTS has been reported to be between 50% and 75% in men over 50 years. The BPH is the most common cause of LUTS in male aging, which can considerably affect patients' quality of life. About 50% of men with histologically confirmed BPH have LUTS, whose symptoms include weak urine flow, a feeling of incomplete emptying of the bladder, urinary hesitation, frequent urination and urge incontinence. This change is considered an aggravation in man's health because it interferes with daily activities and also changes normal sleep patterns, since the main symptom is the increase in nighttime urination [11]. Epidemiological data show an increasing prevalence of BPH / LUTS as men age, with 26%, between the age group of 40 to 50 years old and a rate of up to 79% in men aged > 70 years [5].

Um estudo observed the existence of several risk factors for the development and progression of BPH and LUTS and, interestingly, in addition to the prostate volume and prostate specific antigen, metabolic syndromes were considered important determinants in the development and progression of LUTS [12]. There are different forms of interventions for BPH, including non-invasive therapy and surgical therapies. Conservative treatment, including watchful waiting and changes in behavior and diet is recommended as a first step for patients with mild or moderate symptoms, and pharmacological intervention is recommended as a next step [13].

At study highlights the importance of behavioral changes such as maintaining a healthy lifestyle, quitting smoking and consuming alcohol, increasing physical exercises that lead to normalization of blood glucose, cholesterol levels, etc., and eventually decrease metabolic syndromes can alleviate the symptoms of the disease [12]. A study shows that obesity can increase the risk of worsening BPH, due to increased serum estrogen levels, as well as worsening the symptoms of the lower urinary system, increasing the activity of the sympathetic nervous system. In addition, it is considered that the metabolic syndrome (MS), in association with type II diabetes, hypertension, obesity and dyslipidemia, would be involved with the appearance or worsening of BPH [14].

Healthy habits are protective factors that should be encouraged for treatment effectiveness. A meta-analysis study suggests that moderate to vigorous physical activity reduces the risk of BPH problems by 25% compared to a sedentary lifestyle [15]. Low adherence to the diet is a factor that needs to be evaluated, since the caloric intake and a series of foods such as red meats, fat, milk and dairy products potentially increase the risk of HBP diseases while vegetables, fruits polyunsaturated fatty acids, linoleic acid, vitamin A and vitamin D are associated with a decreased risk of BPH and LUTS [16]. Afirma-se que presented the inverse association between the presence of lycopene, selenium and carotene with BPH and LUTS. In addition, the use of zinc and vitamin C have been associated with both a decrease in BPH and a better quality of life for patients [12].

The many variables, including components of the metabolic syndrome, such as apolipoprotein B, fasting blood glucose, cholesterol, HDL (high density lipoprotein) and LDL (low density lipoprotein) levels, were significantly associated with BPH and LUTS in the initial diagnosis. Among the variables of the metabolic syndrome, the decrease in fat mass and LDL levels were predictive factors for the development of BPH and LUTS [12]. Pharmacological treatments are determined by the size of the prostate, the level of prostate specific antigen (PSA), accompanying symptoms or risk factors. A-blockers are generally considered to be the first treatment option due to their good efficacy and low risk of serious adverse events (AE), but they cannot prevent progression (ie, urinary retention or conditions that require an operation) and can induce dysfunction ejaculatory [17].

Indicated in his study that epidemiological and genetic evidence has a strong link between BPH and prostate cancer and that the use of metformin has been associated with a decreased risk of prostate cancer in men with BPH. Therefore, the incorporation of BPH and LUTS as a parameter to predict prostate cancer would be interesting and could help to increase the accuracy of the prediction of prostate cancer risk [16]. The study analyzed that there are some patients who may lose the presence of LUTS in patients with BPH as an α adrenergic stimulation, which allows an increase in the urethral smooth muscle bonus. The selected α 1 blockers are well known for being an effective and non-invasive treatment option for men with BPH / LUTS, being considered the first line of standard pharmacological treatment [18].

The study effective methods such as transurethral resection of the prostate (also known as TURP or prostate TURP) which is a standard surgical procedure for patients with LUTS-associated BPH, as well as alternative therapies including MTOPS (Medical Therapy Prostate Symptoms) and CombAT (Combination of Avodart and Tamsulosin), which are well tolerated and have few adverse effects [1]. In addition, the moxibustion technique is discussed, which is an isolated treatment method in acupuncture and involves the stimulation of acupuncture points using heat, as a form of adjuvant therapy to improve LUTS in patients with BPH. This type of method is effective in relieving the symptoms of the prostate, mainly incomplete emptying, effort, intermittency, nocturia and quality of life in general [19].

The monitoring of professionals is essential in order to identify aspects that delay or affect the effectiveness of the treatment of the elderly with impaired urinary elimination is shown as a way to promote the quality of the treatment, in addition to observing the results presented by the medications, side effects and specificities of these patients [19].

4. CONCLUSION

It is observed that the care strategies for elderly people with Benign Prostatic Hyperplasia are still scarce, limiting pharmacological and behavioral interventions. The evaluation of the specificities of this population is presented as a way to monitor the results from the treatments, in addition to the adverse effects in order to avoid worsening the condition.

Therefore, the need to produce more scientific content on the topic is highlighted, given the scarcity of articles that address care for the elderly with BHP, considering its importance and prevalence of this pathology.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

REFERENCES

1. Bortnick EM, Simma-Chiang V, Kaplan AS. Long-term Consequences of Medical Therapy for Benign Prostatic Hyperplasia. *Reviews in Urology*. 2019; 21 (4).
2. Shore N. A Review of the Prostatic Urethral Lift for Lower Urinary Tract Symptoms: Symptom Relief, Flow Improvement, and Preservation of Sexual Function in Men With Benign Prostatic Hyperplasia. *Current bladder dysfunction reports*. 2015; 10 (2): 186-192.
3. Zhang W, Ma L, Bauer BA, Liu Z, Lu Y. et al. Acupuncture for benign prostatic hyperplasia: A systematic review and meta-analysis. *PloS one*. 2017; 12 (4).
4. Rył A, Rotter I, Miazgowski T, Słojewski M, Dołęgowska B, Lubkowska A, Laszczyńska M. Metabolic syndrome and benign prostatic hyperplasia: association or coincidence ?. *Diabetology & metabolic syndrome*. 2015; 7 (94).
5. Dai X, Fang X, Ma Y, Xianyu J. Benign Prostatic Hyperplasia and the Risk of Prostate Cancer and Bladder Cancer: A Meta-Analysis of Observational Studies. *Medicine*. 2016; 95(18).
6. Alawamh OAH, Goueli R, Lee RK. Lower Urinary Tract Symptoms, Benign Prostatic Hyperplasia, and Urinary Retention. *Med Clin North Am*. 2018; 102 (2): 301-11.
7. Cureklibatir I, Kizilay F. *Prostate Gland and its Diseases*. 1st ed. Bornova, İzmir: Ege University Public Books Series. 2015; 18.
8. Teixeira ID, Sanches A M, Falcão G. A clinical case of low urinary symptoms. *See Port Med Geral Fam*. 2017; 33: 134-40.
9. Barbosa JA, Antunes A. Minimally invasive techniques for the treatment of benign prostatic hyperplasia. *Revista De Medicina*. 2018; 97 (3): 314-319.
10. Marchand P, Ratanaud P. L'analyse de similitude appliquée aux corpus textuelles: les primaires socialistes pour l'élection présidentielle française. In: *Actes des 11eme Journées internationales d'Analyse statistique des Données Textuelles*. JADT. 2012; 687–699.
11. Lee HY, Bae GE, Lee SD, Nam JK, Yun YJ, Han JY, Lee DH, Choi JY, Parque SH, Kwon JN. Moxibustion as an adjunct for lower urinary tract symptoms associated with benign prostate enlargement: a randomized controlled pilot trial. *Medicine*. 2020; 99 (4).
12. Park JS, Koo KC, Kim HK, Chung BH, Lee KS. Impact of metabolic syndrome-related factors on the development of benign prostatic hyperplasia and lower urinary tract symptoms in Asian population. *Medicine*. 2019; 98(42).
13. Wroclawski ML, Carneiro A, Tristão RA, Sakuramoto PK, Youssef JD, Lopes Neto AC, Santiago LH, Pompeo AC. Giant prostatic

- hyperplasia: report of a previously asymptomatic man presenting with gross hematuria and hypovolemic shock. *Einstein*. 2016; 1-3.
14. Shih HJ, Huang CJ, Lin JA, Kao MC, Fan YC, Tsai PS. Hyperlipidemia is associated with an increased risk of clinical benign prostatic hyperplasia. *The Prostate*. 2017; 1-8.
 15. Parsons JK, Sarma AV, McVary K, Wei JT. Obesity and benign prostatic hyperplasia: clinical connections, emerging etiological paradigms and future directions. *The Journal of Urology*. 2013; 189: 102-106.
 16. Kuo YJ, Sung FC, Hsieh PF, Chang HP, Wu KL, Wu HC. Metformin reduces prostate cancer risk among men with benign prostatic hyperplasia: A nationwide population-based cohort study. *Cancer Medicine*. 2019; 1 (10).
 17. Santos CMB. Systematization of nursing care for the elderly with benign prostatic hyperplasia: an experience report. In: *International Human Development Congress*. 2018; 6.
 18. Lee YC, Juan YS, Liu CC, Bao BY, Wang CJ, Wu WJ, Huang CN, Huang SP. The association of endothelial nitric oxide synthase (eNOS) G894T gene polymorphism with responsiveness to a selective α 1-blocker in men with benign prostatic hyperplasia related lower urinary tract symptoms. *BJU Int*. 2016; 118 (2): 313-9.
 19. Bitencourt GR, Felipe NHMD, Santana RF. Nursing diagnosis impaired urinary elimination in the elderly in the postoperative period: a cross-sectional study. *Rev Enferm UERJ*. 2016; 24 (3): e16629.