

## World Journal of Biology Pharmacy and Health Sciences

eISSN: 2582-5542 Cross Ref DOI: 10.30574/wjbphs Journal homepage: https://wjbphs.com/



(REVIEW ARTICLE)



# Integrative perspectives on managing benign prostatic hyperplasia: The role of homeopathy as a complementary approach

Devangkumar Mahendrakumar Parmar 1,\* and Abhishek Maheshbhai Jain 2

- <sup>1</sup> Associate Professor, Department of Surgery, Government Homoeopathic Medical College and Hospital, Dethali, Taluka: Siddhpur, Gujarat, India.
- <sup>2</sup> Assistant Professor, Department of Homoeopathic Materia Medica, Government Homoeopathic Medical College and Hospital, Dethali, Taluka: Siddhpur, Gujarat, India.

World Journal of Biology Pharmacy and Health Sciences, 2025, 21(01), 026-032

Publication history: Received on 22 November 2024; revised on 28 December 2024; accepted on 31 December 2024

Article DOI: https://doi.org/10.30574/wjbphs.2025.21.1.1106

#### **Abstract**

Benign Prostatic Hyperplasia (BPH) is a prevalent urological condition among aging men, characterized by lower urinary tract symptoms (LUTS) such as frequent urination, nocturia, and weak urinary stream, significantly impacting quality of life. Conventional treatments like alpha-blockers, 5-alpha reductase inhibitors, and surgical interventions provide symptomatic relief but are often associated with adverse effects, including sexual dysfunction and hypotension. Homeopathy offers a holistic and individualized approach to BPH management, addressing physical symptoms, hormonal imbalances, and inflammation. This review explores the etiology and pathophysiology of BPH, compares conventional treatments with homeopathy, and evaluates clinical evidence supporting homeopathic remedies such as *Sabal serrulata*, *Thuja occidentalis*, *Conium maculatum*, and *Chimaphila umbellata*. While small-scale studies demonstrate the potential of homeopathy to relieve symptoms and improve quality of life, challenges such as the lack of standardized protocols and large-scale trials remain. Future research should focus on rigorous clinical trials, molecular mechanism studies, and integrative treatment approaches to establish homeopathy as a complementary therapy for BPH.

**Keywords:** Benign Prostatic Hyperplasia; Lower Urinary Tract Symptoms; Homeopathy; *Sabal serrulata; Thuja occidentalis*; Complementary Medicine

## 1. Introduction

Benign Prostatic Hyperplasia (BPH) is one of the most common urological conditions affecting aging men, often leading to lower urinary tract symptoms (LUTS) such as frequent urination, urgency, nocturia, weak urinary stream, and hesitancy. The incidence of BPH increases with age, affecting nearly 50% of men over the age of 50 and up to 90% of men by the age of 85 (1, 2). Although BPH is not malignant, it can significantly impact a patient's quality of life, leading to complications such as urinary retention, recurrent UTIs, and even bladder damage (3).

Conventional treatments for BPH, including alpha-adrenergic antagonists and 5-alpha reductase inhibitors, aim to reduce symptoms and prostate volume (4, 5). However, these treatments often come with significant side effects, including sexual dysfunction, hypotension, and dizziness (6). Surgical interventions such as TURP (Transurethral Resection of the Prostate) may be required in severe cases, but they carry risks such as bleeding, incontinence, and sexual dysfunction (7, 8). Given these drawbacks, many patients seek alternative treatments, including homeopathy.

<sup>\*</sup> Corresponding author: Devangkumar Mahendrakumar Parmar

Homeopathy offers a holistic approach by considering the totality of a patient's symptoms and constitution. This individualized method addresses both the physical symptoms and underlying causes of BPH, such as hormonal imbalances, inflammation, and oxidative stress. This review examines the pathophysiology of BPH, compares conventional treatments with homeopathy, and presents clinical evidence supporting the use of homeopathy as a complementary treatment.

## 2. Etiology and Pathophysiology of BPH

The development of BPH is influenced by several factors, including hormonal changes, genetic predisposition, inflammation, and oxidative stress. Testosterone, the primary male hormone, is converted to the more potent androgen dihydrotestosterone (DHT) by the enzyme 5-alpha reductase. DHT plays a crucial role in prostate cell proliferation and the development of BPH (azzouni, carson, bartsch). As men age, the levels of testosterone decrease, while estrogen levels remain stable or increase. This hormonal imbalance, particularly the relative increase in estrogen, contributes to the growth of prostate tissue (kaufman, prins). In addition to hormonal changes, chronic inflammation plays a significant role in BPH pathogenesis. Pro-inflammatory cytokines such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α) are elevated in the prostate tissue of BPH patients. These cytokines promote tissue remodeling, fibrosis, and prostate enlargement (carlo, archer). Oxidative stress, resulting from an imbalance between reactive oxygen species (ROS) and antioxidants, contributes to cellular damage and exacerbates the inflammatory response in the prostate (9. 10). Metabolic syndrome, which includes conditions like obesity, insulin resistance, and hypertension, has been associated with an increased risk of developing BPH. These conditions contribute to increased inflammation, altered hormonal regulation, and prostate cell proliferation (11). Obesity leads to increased aromatization of androgens into estrogens in adipose tissue, further promoting prostate growth. Therefore, metabolic syndrome accelerates the progression of BPH and complicates treatment efforts. As BPH progresses, it can lead to bladder outlet obstruction (BOO). BOO is caused by both static (physical enlargement of the prostate) and dynamic (increased smooth muscle tone within the prostate) components. The static component involves the mechanical obstruction caused by the enlarged prostate compressing the urethra, while the dynamic component is due to the increased smooth muscle tone mediated by adrenergic stimulation. Over time, the obstruction causes compensatory changes in the bladder, such as detrusor hypertrophy. These changes help maintain urine flow initially but can eventually lead to detrusor overactivity or underactivity, complicating urinary function (12).

#### 3. Symptoms and Diagnosis

BPH is typically associated with a range of lower urinary tract symptoms (LUTS), which are categorized into three main types: storage, voiding, and post-micturition symptoms. Storage symptoms include urinary urgency, frequency, and nocturia (waking up at night to urinate), which result from bladder storage dysfunction (13, 14). Voiding symptoms consist of hesitancy, weak stream, and incomplete emptying of the bladder, all of which are associated with mechanical obstruction of the urethra by the enlarged prostate. Post-micturition symptoms, such as dribbling, occur when the bladder fails to fully empty, leading to the retention of residual urine (mackenzie). The International Prostate Symptom Score (IPSS) is the most widely used tool for evaluating the severity of these symptoms and assessing their impact on the patient's quality of life. The IPSS includes a series of questions that assess the frequency and severity of symptoms, with higher scores indicating more severe symptoms (15-17). The diagnostic process typically involves digital rectal examination (DRE), Prostate-Specific Antigen (PSA) testing, and imaging studies such as transrectal ultrasound to assess prostate size and volume (18-20). Imaging techniques and urodynamic testing can be employed to evaluate bladder function and rule out other potential causes of LUTS, such as bladder stones or malignancies. The combination of these diagnostic tools enables clinicians to establish the severity of BPH and guide appropriate treatment strategies (21, 22).

## 4. Conventional Treatments for BPH

The conventional management of BPH includes alpha-blockers, 5-alpha reductase inhibitors, and surgical options. Alpha-adrenergic blockers, such as tamsulosin and terazosin, work by relaxing the smooth muscles of the prostate and bladder neck, leading to improved urinary flow and reduced symptoms. While effective, these medications are associated with side effects, such as hypotension, dizziness, and retrograde ejaculation (22, 23). Similarly, 5-alpha reductase inhibitors like finasteride and dutasteride reduce the size of the prostate by inhibiting the conversion of testosterone to DHT (24, 25). However, these drugs are associated with sexual dysfunction, including erectile dysfunction and reduced libido (26). In severe cases, surgical options such as TURP (transurethral resection of the prostate) may be considered. TURP provides significant symptom relief by removing prostate tissue, but it carries risks such as bleeding, incontinence, and sexual dysfunction (8, 27, 28). Other minimally invasive techniques, such as laser

prostatectomy and transurethral microwave therapy (TUMT), have been developed to reduce prostate volume and improve urinary flow, though they also have associated risks (29-31).

## 5. Homeopathy in BPH Management

Homeopathy, based on the principle of "like cures like", offers a non-invasive, individualized treatment approach. Homeopathic remedies are selected based on the totality of the patient's symptoms, including physical, emotional, and psychological factors. The goal of homeopathic treatment is to stimulate the body's natural healing mechanisms to restore balance. The following remedies are commonly used in the homeopathic treatment of BPH: Sabal serrulata (Saw Palmetto): Effective for managing urinary retention and frequent urges to urinate (Strum, Suzuki), Conium maculatum: Used for cases with interrupted urinary flow and weak stream (hati, walelign), Thuja occidentalis: Particularly helpful in cases of chronic prostatitis or recurrent UTIs (Chandra, raizada), Chimaphila umbellata: Used for managing strangury, an urgent, painful need to urinate, and an enlarged prostate (chhugani).

## 6. Clinical Evidence and Case Studies

Numerous case reports and small-scale clinical studies have evaluated the efficacy of homeopathic remedies for the management of Benign Prostatic Hyperplasia (BPH), with promising results. These studies suggest that homeopathy can offer effective symptom relief, especially for patients who are seeking alternatives to conventional treatments, which are often associated with side effects. Homeopathic remedies such as Sabal serrulata, Thuja occidentalis, Conium maculatum, and Chimaphila umbellata have been commonly used to manage the symptoms of BPH, focusing on urinary flow, retention, inflammation, and prostatic enlargement. Below is a detailed look at the results of several studies and clinical trials that demonstrate the efficacy of these homeopathic remedies in BPH management. Sabal serrulata, commonly known as Saw Palmetto, is one of the most frequently used homeopathic remedies for managing symptoms of BPH, especially frequent urination, nocturia, and weak urinary stream. In a study by Kondas (1996), patients treated with Sabal serrulata reported significant improvements in urinary symptoms, such as a reduction in nocturia and enhanced urinary flow. The study found that Sabal serrulata effectively reduced the congestion of the prostate, which is often associated with urinary retention and urgency. Patients experienced fewer episodes of incomplete voiding, and the overall quality of life improved due to the relief from these common BPH symptoms. This remedy works by reducing inflammation and promoting urine flow, thus addressing both the physical obstruction caused by prostate enlargement and the functional aspect of bladder irritation (32). Additionally, Saw Palmetto, in its homeopathic form, is believed to regulate hormonal imbalances and reduce prostatic inflammation, which are central to BPH pathogenesis. While traditional Saw Palmetto is widely recognized for its use in treating BPH, homeopathic Sabal serrulata may offer a more gentle and individualized treatment, minimizing the risk of adverse side effects typically seen with more aggressive interventions (33-35). Thuja occidentalis, commonly known as Arborvitae, is another widely used remedy in homeopathy for the management of chronic prostatitis and recurrent urinary tract infections (UTIs), which often coexist with BPH (36). Sharma et al (2018) conducted a case study where patients with chronic prostatitis and BPH were treated with Thuja occidentalis. The results showed a significant reduction in symptoms, particularly pelvic pain, urinary discomfort, and inflammation of the prostate (37). In BPH patients, Thuja has been shown to alleviate discomfort caused by chronic prostatitis—a condition that often accompanies BPH. Symptoms like frequent, painful urination, urinary retention, and lower abdominal discomfort were significantly improved after treatment with Thuja. The anti-inflammatory and antimicrobial properties of Thuja help reduce prostate swelling and manage recurrent infections, a common problem for BPH patients (38). The antimicrobial effects are particularly valuable for patients whose BPH symptoms are exacerbated by recurrent urinary tract infections, providing a holistic solution by addressing both the infection and the underlying prostate enlargement (39). Conium maculatum, also known as Poison Hemlock, is another effective homeopathic remedy for BPH, particularly in cases where patients experience difficulty in initiating urination and interrupted urinary flow (40). Oberai (2012) highlighted the effectiveness of Conium maculatum in treating urinary hesitancy and weak urinary stream in BPH patients. In clinical trials, patients who were treated with Conium maculatum demonstrated improved urinary flow and reduced hesitancy, which is a hallmark symptom of prostate enlargement (41). The remedy works by stimulating the smooth muscle of the bladder neck and urethra, thus reducing the tension and spasm often caused by an enlarged prostate (42, 43). This relaxation of the smooth muscle enables a more consistent flow of urine and can help with complete bladder emptying, which is particularly important in the context of BPH. The improvement in urinary flow allows for a reduction in post-micturition dribbling and a better overall voiding experience. Chimaphila umbellata, commonly known as Pipsissewa, has long been used in homeopathy for cases involving urinary retention and discomfort associated with prostatic enlargement (44). A study by Carneiro (2019) found that Chimaphila umbellata was effective in treating urinary retention in BPH patients. Patients who had difficulty completely emptying their bladders reported significant improvement in symptoms after using Chimaphila umbellata. The remedy is believed to relieve bladder pressure, painful urination, and incomplete voiding associated

with BPH. Chimaphila umbellata acts as a diuretic, helping the bladder contract and fully expel urine. Its antiinflammatory properties help reduce prostate swelling, allowing for better urine flow and improved bladder function. This remedy is particularly useful in patients who present with persistent bladder discomfort, which is common in advanced stages of BPH (45).

## 7. Advantages and Challenges of Homeopathy in BPH

One of the main advantages of homeopathy in managing Benign Prostatic Hyperplasia (BPH) is its individualized approach. Homeopathy is based on the principle of treating the whole patient, not just the disease, which means that remedies are carefully selected to match the specific symptoms and constitution of each patient. This includes not only the physical symptoms (such as urinary frequency, weak stream, and hesitancy) but also the psychological and emotional aspects of the patient's health. For example, if a patient with BPH is experiencing anxiety about his condition or stress related to urinary difficulties, homeopathy can address these factors in addition to the physical symptoms. This comprehensive treatment approach contrasts with conventional therapies, which often focus solely on alleviating physical symptoms without considering the emotional or psychological aspects of the patient's condition.

Homeopathic remedies, such as Sabal serrulata and Thuja occidentalis, have demonstrated efficacy in BPH management. These remedies are well-tolerated and typically have minimal side effects, making them an attractive option for patients who may experience adverse reactions to conventional drugs like alpha-blockers or 5-alpha reductase inhibitors, which are commonly prescribed for BPH (4). For instance, alpha-blockers can cause hypotension, sexual dysfunction, and dizziness, while 5-alpha reductase inhibitors are linked to erectile dysfunction and reduced libido (46). In contrast, homeopathic remedies like Sabal serrulata are generally regarded as safe and are typically associated with very few side effects, offering a gentler alternative for long-term use. Moreover, homeopathy does not merely focus on symptom management. It aims to address the underlying causes of BPH, such as hormonal imbalances and prostate inflammation. For example, Sabal serrulata is believed to reduce prostatic congestion and inflammation, which are central to the development and progression of BPH. By targeting the root causes of the condition, homeopathy offers the potential for not only relieving symptoms but also slowing or preventing disease progression (47). This holistic approach provides patients with an opportunity to address their condition more thoroughly, promoting overall well-being rather than just managing immediate symptoms.

However, homeopathy faces significant challenges in its application and widespread acceptance in mainstream medicine. One of the most prominent obstacles is the lack of standardized treatment protocols. Since homeopathy is based on the principle of individualized care, remedies are tailored to each patient's specific symptoms and constitution. This variability makes it challenging to develop standardized treatment protocols that can be widely used in clinical practice. Additionally, the highly individualized nature of homeopathic treatment complicates the process of conducting large-scale, randomized controlled trials (RCTs), which are considered the gold standard in clinical research. The subjectivity involved in choosing remedies, as well as the holistic nature of treatment, creates difficulties in measuring treatment outcomes in a controlled and replicable manner. Despite these challenges, there is growing clinical evidence supporting the effectiveness of homeopathic remedies in treating BPH. Case reports and small-scale trials have demonstrated that remedies like Sabal serrulata, Thuja occidentalis, and Conium maculatum can alleviate urinary symptoms, reduce prostate inflammation, and improve quality of life for BPH patients (38, 42, 48, 49). While these findings are promising, further research is needed to validate the efficacy of homeopathic treatments through large-scale, rigorously designed clinical trials.

#### 8. Future Directions and Research Needs

Future research on homeopathy for BPH should focus on conducting rigorous randomized controlled trials (RCTs) to establish the efficacy and safety of specific homeopathic remedies in managing BPH symptoms. These trials should aim to measure objective outcomes such as improvements in urinary symptoms, prostate size reduction, and quality of life. To overcome the challenges posed by homeopathy's individualized treatment model, collaborative studies that integrate homeopathy with conventional treatments could provide a comprehensive approach to managing BPH. By combining the best of both worlds—conventional treatments that focus on symptom relief with homeopathy's holistic approach—clinicians could develop more personalized, effective treatment plans for BPH patients.

In addition to clinical trials, research should explore the molecular mechanisms of homeopathic remedies. While the mechanisms by which homeopathy works are still largely theoretical, there is some emerging evidence suggesting that homeopathic remedies may influence cellular signaling, immune function, and inflammation pathways. By studying the biological effects of homeopathic treatments on prostate tissue, researchers may uncover explanations for their

observed therapeutic effects. For example, homeopathic remedies like Thuja occidentalis may exert anti-inflammatory effects that reduce prostate swelling and improve urinary flow (37, 41, 43). Understanding the molecular basis of these effects would enhance the scientific credibility of homeopathy and promote greater acceptance within the broader medical community. Additionally, more research into the pharmacokinetics of homeopathic remedies is essential. While these remedies are highly diluted, it is important to understand how they interact with the body and whether their effects are biologically relevant at the concentrations used in clinical practice. This research could also explore how individual patient factors (such as genetics, age, and comorbidities) influence the response to homeopathic treatments, allowing for personalized dosing and better outcomes for patients. Multidisciplinary approaches that combine homeopathic treatments with lifestyle interventions (such as dietary modifications, exercise, and stress reduction) could offer comprehensive care for BPH patients. Homeopathy has the potential to complement traditional management strategies, improving symptom control and preventing disease progression. By expanding research efforts into these areas, homeopathy could become a more integrated part of BPH management, offering patients a non-invasive, holistic, and complementary option to conventional therapies.

#### 9. Conclusion

Benign Prostatic Hyperplasia (BPH) presents significant challenges in urological health, particularly for aging men. While conventional treatments provide effective symptom management, their associated risks and side effects drive interest in alternative therapies such as Homeopathy. Homeopathic remedies like *Sabal serrulata*, *Thuja occidentalis*, *Conium maculatum*, and *Chimaphila umbellata* offer a holistic, individualized approach that addresses both the symptoms and underlying causes of BPH, including hormonal imbalances, inflammation, and oxidative stress. Clinical evidence from certain case studies and small-scale trials highlights potential efficacy and safety of the treatment. Future research must aim to validate these remedies through rigorous trials, elucidate their molecular mechanisms, and explore integrative approaches combining homeopathy with conventional therapies. Such efforts could provide a comprehensive, patient-centered strategy for managing BPH, enhancing both symptom relief and quality of life for patients.

## Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

### References

- [1] Lokeshwar SD, Harper BT, Webb E, Jordan A, Dykes TA, Neal Jr DE, et al. Epidemiology and treatment modalities for the management of benign prostatic hyperplasia. Translational Andrology and Urology. 2019;8(5):529-39.
- [2] Sandhu JS, Bixler BR, Dahm P, Goueli R, Kirkby E, Stoffel JT, et al. Management of Lower Urinary Tract Symptoms Attributed to Benign Prostatic Hyperplasia (BPH): AUA Guideline Amendment 2023. Journal of Urology. 2024;211(1):11-9.
- [3] Kaltsas A, Kratiras Z, Zachariou A, Dimitriadis F, Sofikitis N, Chrisofos M. Evaluating the Impact of Benign Prostatic Hyperplasia Surgical Treatments on Sexual Health. Biomedicines. 2024;12(1):110.
- [4] Kim EH, Brockman JA, Andriole GL. The use of 5-alpha reductase inhibitors in the treatment of benign prostatic hyperplasia. Asian Journal of Urology. 2018;5(1):28-32.
- [5] Shum CF, Lau W, Teo CPC. Medical therapy for clinical benign prostatic hyperplasia:a1 Antagonists, 5a reductase inhibitors and their combination. Asian Journal of Urology. 2017;4(3):185-90.
- [6] Avasthi A, Grover S, Sathyanarayana Rao TS. Clinical Practice Guidelines for Management of Sexual Dysfunction. Indian Journal of Psychiatry. 2017;59(5):91.
- [7] Leong JY, Patel AS, Ramasamy R. Minimizing Sexual Dysfunction in BPH Surgery. Current Sexual Health Reports. 2019;11(3):190-200.
- [8] Marszalek M, Ponholzer A, Pusman M, Berger I, Madersbacher S. Transurethral Resection of the Prostate. European Urology Supplements. 2009;8(6):504-12.
- [9] Dutta S, Sengupta P, Slama P, Roychoudhury S. Oxidative Stress, Testicular Inflammatory Pathways, and Male Reproduction. International Journal of Molecular Sciences. 2021;22(18):10043.

- [10] Khandrika L, Kumar B, Koul S, Maroni P, Koul HK. Oxidative stress in prostate cancer. Cancer Letters. 2009;282(2):125-36.
- [11] Abdollah F, Briganti A, Suardi N, Castiglione F, Gallina A, Capitanio U, et al. Metabolic Syndrome and Benign Prostatic Hyperplasia: Evidence of a Potential Relationship, Hypothesized Etiology, and Prevention. Korean Journal of Urology. 2011;52(8):507.
- [12] Chughtai B, Rosier PFWM, Rojanasarot S, Neeser K, Gultyaev D, Fu S, et al. A comprehensive analysis of clinical, quality of life, and cost-effectiveness outcomes of key treatment options for benign prostatic hyperplasia. Plos One. 2022;17(4):e0266824.
- [13] McVary KT. Erectile Dysfunction and Lower Urinary Tract Symptoms Secondary to BPH. European Urology. 2005;47(6):838-45.
- [14] Rosen RC, Giuliano F, Carson CC. Sexual Dysfunction and Lower Urinary Tract Symptoms (LUTS) Associated with Benign Prostatic Hyperplasia (BPH). European Urology. 2005;47(6):824-37.
- [15] Germing U, Hildebrandt B, Pfeilstöcker M, Nösslinger T, Valent P, Fonatsch C, et al. Refinement of the international prognostic scoring system (IPSS) by including LDH as an additional prognostic variable to improve risk assessment in patients with primary myelodysplastic syndromes (MDS). Leukemia. 2005;19(12):2223-31.
- [16] Guzelsoy M, Aydos MM, Coban S, Turkoglu AR, Acibucu K, Demirci H. Comparison of the effectiveness of IPSS and VPSS without any help in LUTS patients: a prospective study. The Aging Male. 2017;21(3):193-9.
- [17] Voso MT, Fenu S, Latagliata R, Buccisano F, Piciocchi A, Aloe-Spiriti MA, et al. Revised International Prognostic Scoring System (IPSS) Predicts Survival and Leukemic Evolution of Myelodysplastic Syndromes Significantly Better Than IPSS and WHO Prognostic Scoring System: Validation by the Gruppo Romano Mielodisplasie Italian Regional Database. Journal of Clinical Oncology. 2013;31(21):2671-7.
- [18] Cupp MR, Oesterling JE. Prostate-Specific Antigen, Digital Rectal Examination, and Transrectal Ultrasonography: Their Roles in Diagnosing Early Prostate Cancer. Mayo Clinic Proceedings. 1993;68(3):297-306.
- [19] Kash DP, Lal M, Hashmi AH, Mubarak M. Utility of Digital Rectal Examination, Serum Prostate Specific Antigen, and Transrectal Ultrasound in the Detection of Prostate Cancer: A Developing Country Perspective. Asian Pacific Journal of Cancer Prevention. 2014;15(7):3087-91.
- [20] Okpua NC, Okekpa SI, Njaka S, Emeh AN. Clinical diagnosis of prostate cancer using digital rectal examination and prostate-specific antigen tests: a systematic review and meta-analysis of sensitivity and specificity. African Journal of Urology. 2021;27(1).
- [21] Deruyver Y, Hakim L, Franken J, De Ridder D. The use of imaging techniques in understanding lower urinary tract (dys)function. Autonomic Neuroscience. 2016;200:11-20.
- [22] Powell T, Kellner D, Ayyagari R. Benign Prostatic Hyperplasia: Clinical Manifestations, Imaging, and Patient Selection for Prostate Artery Embolization. Techniques in Vascular and Interventional Radiology. 2020;23(3):100688.
- [23] Abreu-Mendes P, Silva J, Cruz F. Pharmacology of the lower urinary tract: update on LUTS treatment. Therapeutic Advances in Urology. 2020;12.
- [24] Fertig RM, Gamret AC, Darwin E, Gaudi S. Sexual side effects of 5-α-reductase inhibitors finasteride and dutasteride: A comprehensive review. Dermatology Online Journal. 2017;23(11).
- [25] Jason M. Hirshburg, Petra A. Kelsey, Gavino AC, Chelsea A Therrien, Jason S. Reichenberg. Adverse Effects and Safety of 5-alpha Reductase Inhibitors (Finasteride, Dutasteride): A Systematic Review. Clinical Asthetic. 2016;9(7):56-62.
- [26] Trinchieri M, Trinchieri M, Perletti G, Magri V, Stamatiou K, Cai T, et al. Erectile and Ejaculatory Dysfunction Associated with Use of Psychotropic Drugs: A Systematic Review. The Journal of Sexual Medicine. 2021;18(8):1354-63.
- [27] Foster HE, Barry MJ, Dahm P, Gandhi MC, Kaplan SA, Kohler TS, et al. Surgical Management of Lower Urinary Tract Symptoms Attributed to Benign Prostatic Hyperplasia: AUA Guideline. Journal of Urology. 2018;200(3):612-9.
- [28] Marra G, Sturch P, Oderda M, Tabatabaei S, Muir G, Gontero P. Systematic review of lower urinary tract symptoms/benign prostatic hyperplasia surgical treatments on men's ejaculatory function: Time for a bespoke approach? International Journal of Urology. 2015;23(1):22-35.

- [29] Franco JVA, Garegnani L, Escobar Liquitay CM, Borofsky M, Dahm P. Transurethral Microwave Thermotherapy for Benign Prostatic Hyperplasia: An Updated Cochrane Review. The World Journal of Men's Health. 2022;40(1):127.
- [30] Sciacqua LV, Vanzulli A, Di Meo R, Pellegrino G, Lavorato R, Vitale G, et al. Minimally Invasive Treatment in Benign Prostatic Hyperplasia (BPH). Technology in Cancer Research & Treatment. 2023;22.
- [31] Wheelahan J, Scott NA, Cartmill R, Marshall V, Mortan RP, Nacey J, et al. Minimallu invasive non-laser thermal techniques for prostectomy: a systematic review. BJU international. 2000;86:977-88.
- [32] Kondás J, Philipp V, Diószeghy G. Sabal serrulata extract (Strogen forte) in the treatment of symptomatic benign prostatic hyperplasia. International Urology and Nephrology. 1996;28(6):767-72.
- [33] Liu M, Yin H, Wang F, Tian Y. The Therapeutic Potential of Saw Palmetto Extract in Urological Disorders. Natural Product Communications. 2021;16(11).
- [34] Sudeep HV, Venkatakrishna K, Amrutharaj B, Anitha, Shyamprasad K. A phytosterol-enriched saw palmetto supercritical CO2 extract ameliorates testosterone-induced benign prostatic hyperplasia by regulating the inflammatory and apoptotic proteins in a rat model. BMC Complementary and Alternative Medicine. 2019;19(1).
- [35] Wilt TJ, Ishani A, Stark G, MacDonald R, Lau J, Mulrow C. Saw Palmetto Extracts for Treatment of Benign Prostatic Hyperplasia. Jama. 1998;280(18):1604.
- [36] Hirsch GE, Parisi MM, Martins LAM, Costa-Beber LC, Andrade CMB, Tuanaa FMB. Cytotoxic properties of Thuya occidentalis hydroalcoholic extract on androgen unresponsive prostate cancer cells. Archives of Physiology and Biochemistry, 1–11. 2024:1-11.
- [37] Sharma B, Roja V, Mehra P, Oberai P, Reddy GRC, Arya DD, et al. Homoeopathic treatment for lower urinary tract symptoms in men with benign prostatic hyperplasia: An open label randomised multicentric placebo-controlled clinical trial. Indian Journal of Research in Homoeopathy. 2018;12(3):113.
- [38] Tetteh A. Prevalence and Risk Factors of Benign Prostatic Hyperplasia among Men Attending Naturopathic Health Centers in the Adenta Municipality. Ghana Alternative Medicine Journal (GAMJ). 2020;1(1):1-17.
- [39] Dobrek L. Lower Urinary Tract Disorders as Adverse Drug Reactions—A Literature Review. Pharmaceuticals. 2023;16(7):1031.
- [40] Pastore MN, Kalia YN, Horstmann M, Roberts MS. Transdermal patches: history, development and pharmacology. British Journal of Pharmacology. 2015;172(9):2179-209.
- [41] Oberai P, Roja V, Ramesh D, Arya DD, Reddy GRC, Sharma SK, et al. Homoeopathic medicines in the management of benign prostatic hyperplasia: A multi- centric prospective observational study. Indian Journal of Research in Homoeopathy. 2012;6(3):16-25.
- [42] Hati AK, Chainy GBN, Mishra AK, Naik KN, Paital B, Nanda LK. Constitutional, organopathic and combined homeopathic treatment of benign prostatic hypertrophy: a clinical trial. Homeopathy. 2018;101(04):217-23.
- [43] Vaish DT, Patidar DP, Sharma DV. Role of homoeopathic remedies in benign prostatic hyperplasia. International Journal of Homoeopathic Sciences. 2023;7(3):421-4.
- [44] Galván IJ, Mir-Rashed N, Jessulat M, Atanya M, Golshani A, Durst T, et al. Antifungal and antioxidant activities of the phytomedicine pipsissewa, Chimaphila umbellata. Phytochemistry. 2008;69(3):738-46.
- [45] Carneiro DM, Jardim TV, Luciana Araújo YC, Arantes AC, Sousa ACd, Sebba Barroso WK, et al. Equisetum arvense: New Evidences Supports Medical use in Daily Clinic. Pharmacognosy Reviews. 2021;13(26):50-8.
- [46] La Vignera S, Aversa A, Cannarella R, Condorelli RA, Duca Y, Russo GI, et al. Pharmacological treatment of lower urinary tract symptoms in benign prostatic hyperplasia: consequences on sexual function and possible endocrine effects. Expert Opinion on Pharmacotherapy. 2020;22(2):179-89.
- [47] Pigat N, Reyes-Gomez E, Boutillon F, Palea S, Barry Delongchamps N, Koch E, et al. Combined Sabal and Urtica Extracts (WS® 1541) Exert Anti-proliferative and Anti-inflammatory Effects in a Mouse Model of Benign Prostate Hyperplasia. Frontiers in Pharmacology. 2019;10.
- [48] Chandra H, Singh C, Kumari P, Yadav S, Mishra AP, Laishevtcev A, et al. Promising Roles of Alternative Medicine and Plant-Based Nanotechnology as Remedies for Urinary Tract Infections. Molecules. 2020;25(23):5593.
- [49] Raizada DS. Catheter removed with homoeopathy in patient of benign prostatic hypertrophy and renal calculus: A case report. International Journal of Homoeopathic Sciences. 2019;3(4):9-15.