IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Benign Prostatic Hyperplasia

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Abstract:

Benign prostatic hyperplasia (BPH) is an increasingly common diagnosis seen in men over age 50 years. Primary care providers must be aware of patient presentation, diagnostic tests, appropriate lifestyle modifications, treatment options, and potential complications in order to properly manage and educate patients with BPH. If left untreated, BPH can significantly decrease a man's quality of life; however, many pharmacologic and surgical treatments are available to control the symptoms.Benign prostatic hyperplasia (BPH) is one of the leading diagnoses affecting men of increasing age. By age 50 years, about 50% of men are diagnosed with BPH; by 80 years, 90% of men are diagnosed, and the greatest prevalence occurs among men ages 70 to 79 years.1,2 In BPH, a proliferation of prostatic cells leads to an increase in prostate size, urethral obstruction, and lower urinary tract symptoms.2,3 Men with BPH can experience great discomfort with urination and may develop complications including recurrent urinary tract infections (UTIs) and renal failure.2 Given the aging population, healthcare providers can expect an overall increase in the rates of BPH diagnoses, and must be able to recognize and treat the disorder.

Keywords: Benign prostatic hyperplasia (BPH), BPH epidemiology, future therapies, urologic surgery

Introduction:

Benign prostatic hyperplasia (BPH) refers to the nonmalignant growth or hyperplasia of prostate tissue and is a common cause of lower urinary tract symptoms in men. Disease prevalence has been shown to increase with advancing age. Indeed the histological prevalence of BPH at autopsy is as high as 50% to 60% for males in their 60's, increasing to 80% to 90% of those over 70 years of age.Several definitions exist in the literature when describing BPH. These include bladder outlet obstruction (BOO), lower urinary tract symptoms (LUTS), and benign prostatic enlargement (BPE). BPH describes the histological changes, benign prostatic enlargement (BPE) describes the increased size of the gland (usually secondary to BPH) and bladder outlet obstruction (BOO) describes the obstruction to flow. Those with BPE who present with BOO are termed benign prostatic obstruction.Lower urinary tract symptoms (LUTS) simply describe urinary symptoms shared by disorders affecting the bladder and prostate (when in reference to men). LUTS can be subdivided into

storage and voiding symptoms. These terms have largely replaced those historically termed "prostatism."The development of benign prostatic hyperplasia is characterized by stromal and epithelial cell proliferation in the prostate transition zone (surrounding the urethra), this leads to compression of the urethra and development of bladder outflow obstruction (BOO) which can result in clinical manifestations of lower urinary tract symptoms (LUTS), urinary retention or infections due to incomplete bladder emptying.[5] Long-term, untreated disease can lead to the development ofchronic high-pressure retention (a potentially life-threatening emergency) and long-term changes to the bladder detrusor (both overactivity and reduced contractility).

Treatment options for BPH range from watchful waiting, to medical and surgical intervention. Risk factors may be divided into non-modifiable and modifiable, with factors such as age, genetics, geographical location, and obesity, all shown to influence the development of BPH.It is, therefore, important to be able to identify those at risk of disease progression and those who can be managed more conservatively to reduce associated morbidity and health care burden.This review provides an overview of the etiology, pathophysiology, recognition, and management of benign prostatic hyperplasia as well as interprofessional aspects that may enhance patient care.

Historical background :

The classical Unani literature reveals that symptoms of the prostate enlargement were managed in the past by different traditional medicines and some surgical procedures like punching, incision, and puncturing. However, a clear pathological picture of the disease was obscure. Jean Riolan, the younger (1577–1657) had first suggested that the enlarged prostate could be the cause for urine retention. Still, least importance was given by the scientists towards the prostate enlargement for a longer time even after the discovery. In the late 18th century, various surgical instruments for the purpose were designed. In early 19th century, it was understood that mere removal of obstruction without paying attention towards the gland could prove fatal for the patient. It was at this juncture when the prostate enlargement gained more attraction of the scientists and with time different modes of treatment, both medical and surgical were introduced. Further, the increase in average human age also became a reason for seeking the best quality treatment in prostate enlargement. The term “prostatism”, earlier used for the symptoms of BPH, was marked as obsolete term in 4th international consultation on BPH and was then replaced by the term “LUTS”.

In the elective setting, a focused medical history should include all aspects of symptomatology, and this includes onset, timing, exacerbating, and relieving factors.Lower urinary tract symptoms can be divided into storage (frequency, nocturia, urgency) and voiding symptoms (stream, straining, hesitancy, prolonged micturition) and can help establish other causes of urinary symptoms such as urinary tract infections/overactive bladder, in addition to determining the site affected (bladder vs. prostate). Men with BPH are likely to report predominant symptoms of nocturia, poor stream, hesitancy, or prolonged micturition.Red flags help point to more sinister causes of urinary symptoms such as bladder/prostate cancer, neurology such as cauda equina, or chronic high-pressure retention (which can lead to silent renal failure). The presence of these can be established by asking about visible haematuria/bone pain/weight loss, neurology, and nocturnal enuresis/incontinence, respectively.

Complete medication history should be taken, including any medications they have tried and use of anticoagulants or antiplatelets, which may increase the risk of intra-operative bleeding or need to be held before surgery.The overall fitness of the patient should also be established to determine suitability for any future interventions (fitness for anesthesia, independence, exercise tolerance, ability to complete activities of daily living), and the symptom burden on quality of life should also be established.(1)

Symptoms:

BPH is often asymptomatic but can lead to benign prostate enlargement. This causes the prostate to compress on the urethra and neck of the bladder, leading to lower urinary tract symptoms and bladder outflow obstruction. However, not all males with lower urinary tract symptoms will have BPH, nor will all males with BPH have bladder outflow obstruction.Lower urinary tract symptoms are divided into three categories: voiding symptoms, storage symptoms and post-micturition symptoms. Other symptoms of BPH include both acute and chronic urinary retention, renal impairment, haematuria (blood in urine) and frequent urinary tract infections (UTIs).

Red-flag symptoms that require referral or further investigation include:

1)Haematuria,

2)Cloudy, foul-smelling urine,

3)Associated symptoms of infection, such as fever or flank pain,

4)Associated symptoms of cancer, such as night sweats and weight loss.

BPH symptoms can be divided into those caused directly by urethral obstruction and those due to secondary changes in the bladder.

Typical obstructive symptoms are:

Difficulty starting to urinate despite pushing and straining,

A weak stream of urine; several interruptions in the stream,

Dribbling at the end of urination.

Bladder changes cause:

A sudden strong desire to urinate (urgency),

Frequent urination,

The sensation that the bladder is not empty after urination is completed,

Frequent awakening at night to urinate (nocturia).

As the bladder becomes more sensitive to retained urine, a man may become incontinent (unable to control the bladder, causing bed wetting at night or inability to respond quickly enough to urinary urgency).Burning or pain during urination can occur if a bladder tumor, infection or stone is present. Blood in the urine (hematuria) may herald BPH, but most men with BPH do not have hematuria.[2]

Ethiology:

The etiology of BPH is influenced by a wide variety of risk factors in addition to direct hormonal effects of testosterone on prostate tissue.Although they do not cause BPH directly, testicular androgens are required in the development of BPH with dihydrotestosterone (DHT) interacting directly with prostatic epithelium and stroma.Testosterone produced in the testes is converted to dihydrotestosterone (DHT) by 5-alpha-reductase 2 in prostate stromal cells and accounts for 90% of total prostatic androgens.DHT has direct effects on stromal cells in the prostate, paracrine effects in adjacent prostatic cells, and endocrine effects in the bloodstream, which influences both cellular proliferation and apoptosis (cell death).BPH arises as a result of the loss of homeostasis between cellular proliferation and cell death, resulting in an imbalance favoring cellular proliferation. This results in increased numbers of epithelial and stromal cells in the periurethral area of the prostate and can be seen histopathologically.The cause of BPH is still unclear, but it is of no doubt that androgens play a key role in its development.Different researchers have given different opinions for the development of BPH which are discussed below briefly.[3]

Risk factors:

1. Age,
2. sedentary lifestyle and lack of exercise,
3. cigarette smoking,
4. Excessive alcohol intake,
5. Depression,
6. Hypertension and cardiovascular diseases.

1)Age:

Nowadays, sexual activity has been reconsidered for aging men, and the concept of sex is different from the past. Sexual activity is more common among older men than before, being an important component of quality of life for aging men.The majority of men between the ages of 50 and 75 years report that they are sexually active, but many are bothered by sexual problems, including ED. Because of LUTS/BPH treatment-related sexual side effects and the known strong association between LUTS/BPH and ED, the effects of LUTS/BPH medical therapies on sexual function are an important consideration when selecting the most appropriate LUTS/BPH treatment and when monitoring men on LUTS/BPH treatment.

2) sedentary lifestyle and lack of exercise:

Many evidence support the central role of exercise in ameliorating both LUTS/BPH and ED. No daily walking is associated with more progressive LUTS than to stable or remitting LUTS and physical exercise at a level that can decrease low-grade clinical inflammation has been recognized as central factors influencing both vascular NO production and erectile function. Moreover, this lifestyle habit may have a role in reducing the burden of sexual dysfunction.

It can be stated that moderate physicalactivity can have significant effects in improving erectile function as well as on serum testosterone levels. Therefore, as an independent risk factor, there may be a role for lifestyle measures to prevent progression or even enhance the regression of the earliest manifestations of ED, as well as to help stabilization or remission of LUTS/BPH.

3) Cigarette smoking:

The past three decades have led to a compendium of evidence being compiled into the development of a relationship between cigarette smoking and ED. A positive dose–response relationship suggests that increased quantity and duration of smoking correlate with a higher risk of ED (dose-dependent and cumulative effect). The risk of ED is higher for smokers and ex-smokers than no-smokers, but this risk is higher for smokers than ex-smokers. It is possible that smoking cessation can lead to recovery of erectile function, but only if limited lifetime smoking exposure exists.

Studies have shown that the increased risk of ED associated with smoking becomes statistically significant only after 20 pack-years or more (20 cigarettes/day for 1 year). The physiopathological mechanism that leads to ED involves decreased penile neuronal NOS expression, decreased endothelial integrity, and diminished smooth muscle content. Smoking has also been shown to impair endothelial NOS-mediated vascular dilation in young men.

4) Excessive alcohol intake:

The role of alcohol in the development of LUTS/BPH – ED is more difficult to establish compared to other risk factors. The moderate consumption of alcohol may exert a protective effect on ED in the general population,but some studies have not confirmed this protective role. Population-based studies showed that low-alcohol consumption was predictor of ED and among drinkers, the odds were lowest for consumption between 1 and 20 standard drinks per week.In general, the overall findings are suggestive of alcohol consumption of a moderate quantity conferring the highest protection.The beneficial effects of alcohol on erectile function may be due, in part, to long-term benefits of alcohol on high-density lipoprotein cholesterol and other variables that increase the bioavailability of NO.Data on the association between LUTS/BPH and alcohol consumption are conflicting.

While some studies have shown that alcohol consumption is associated with a decreased risk of BPH, others have not. Moreover, some studies have reported an association between alcohol and LUTS, but not BPH. Light drinking (less than one per day) may increase the likelihood of LUTS, whereas moderate-to-heavy drinking has shown no associations with LUTS.Urgency symptoms may be the exception, as they more likely occur among all alcohol drinkers. A review of studies concluded that daily drinking might increase the likelihood of LUTS, while decrease the risk of BPH.

Indeed, one out of the two prospective studies examining LUTS found that daily drinking increased the risk of moderate-to-severe LUTS over a 4-year follow-up whereas the other showed that heavier drinking decreased the risk of high-moderate-to-severe LUTS or medically-treated BPH over 7 years.

5) Depression:

The Massachusetts Male Aging Study (MMAS) showed that ED was associated with depressive symptoms after controlling for potential aging and para-aging confounders [Citation46]. ED is also associated with untreated and treated depressive symptoms. The association between ED and depression may be disorienting in clinical practice.

Indeed, depression can be the consequence of or trigger for ED, as moderate or severe depressive mood or anti-depressant drug use may cause ED and ED independently may cause or exacerbate depressive mood. This kind of bidirectional relationship has also been discovered for depression and LUTS/BPH: depression can be not only developing from the pathological condition of LUTS/BPH, but also be triggered or exacerbated by systemic inflammation, which is alsoassociated.

6)Hypertension and cardiovascular disease:

Most men with hypothetic vasculogenic ED present at least one traditional cardiovascular risk factor [Citation51]. These evidences allowed the consideration of ED as a clinical manifestation of a functional (lack of vasodilation) or structural abnormality in penile circulation as component of a systemic vasculopathy. It is well known that ED may predict 5-years before the development of a major coronary event in 11% of ED cases; this, in terms of preventive medicine, means that ED could be considered equivalent to the coronary disease.The association between cardiovascular health and ED has not always been so clear in past years. One of the first studies to ask about sexual function among patients with hypertension was the classic TOMHS (The Treatment of Mild Hypertension Study) and its results contributed to the false belief that ED was rare in this population since they found only 12.2% of men referring any degree of sexual dysfunction at inclusion. TOMHS excluded subjects with comorbidities, such as DM or hyperlipidemia, older and moderate or severe hypertension. At the end of TOMHS, ED was more frequent among those patients using more antihypertensive drugs or with systolic blood pressure over 140 mmHg. Other trials also refuse the high prevalence of ED among patients with hypertension probably due to the characteristics of the sample and the method to diagnose ED.[4]

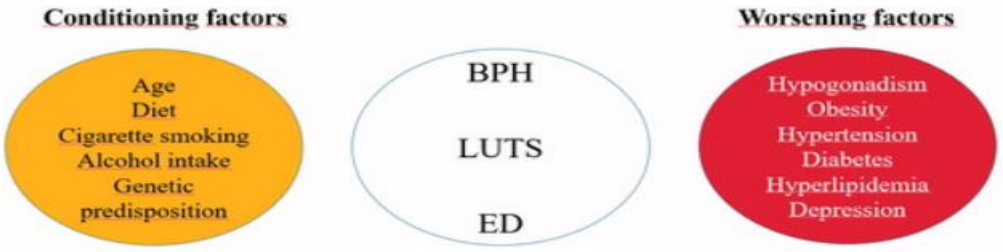

Fig:1 Riskfactors of lower urinary tract symptoms/benign prostatic hyperlasia and erectile dysfunction.

Pathophysiology:

Both the development of lower urinary tract symptoms and bladder outlet obstruction in men with BPH can be attributable to static and dynamic components. Static obstruction is a direct consequence of prostate enlargement resulting in periurethral compression and bladder outlet obstruction. Here, periurethral compression requires increasing voiding pressures to overcome resistance to flow; in addition, prostate enlargement distorts the bladder outlet causing obstruction to flow. Dynamic components include the tension of prostate smooth muscle (hence the use of 5-alpha reductase inhibitors to reduce prostate volume and alpha-blockers to relax smooth muscle). This is explained by decreases in elasticity and collagen in the prostatic urethra in men with BPH, which may further exacerbate bladder outlet obstruction due to loss of compliance and increased resistance to flow and may explain why prostate size alone is not always a predictor of disease.

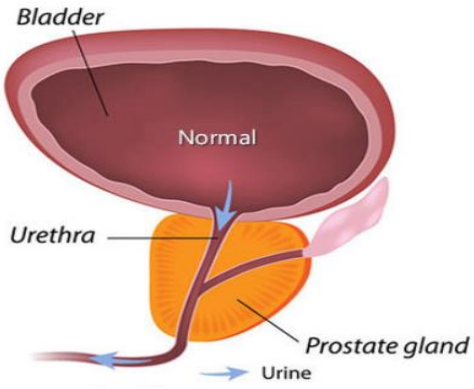

Fig2: A noncancerous enlargement of the prostate gland

In BPH, when prostatic urethra or bladder neck gets obstructed, LUTS appear which may be mild, moderate, or severe. More explicitly, microscopic BPH in the transitional zone of prostate gland may develop prostate enlargement or smooth muscle hyperplasia followed by bladder outlet obstruction, clinical BPH, and LUTS, or it may directly produce bladder outlet obstruction and hence LUTS. The relation between BPH and development of LUTS.In vitro studies have shown that large numbers of alpha-1-adrenergic receptors are located in the smooth muscle of the stroma and capsule of the prostate, as well as in the bladder neck. Stimulation of these receptors causes an increase in smooth-muscle tone, which can worsen LUTS. Conversely, blockade of these receptors (see Treatment) can reversibly relax these muscles, with subsequent relief of LUTS.

Microscopically, BPH is characterized as a hyperplastic process. The hyperplasia results in enlargement of the prostate that may restrict the flow of urine from the bladder, resulting in clinical manifestations of BPH. The prostate enlarges with age in a hormonally dependent manner. Notably, castrated males (ie, who are unable to make testosterone) do not develop BPH.[5]

Lifestyle advice:

For many patients, lifestyle modifications can improve symptoms without the need for further ininterventio,

Regularly practise pelvic floor exercises to strength the muscles that control urine flow,

Stop smoking to reduce the incidence of coughing, which can strain the pelvic floor mumuscle,

Reduce caffeine intake to limit irritation to the bladder,

Decrease alcohol consumption as alcohol acts as a diuretic,

Drink six to eight glasses of water per day,

Limiting fluid intake can reduce bladder capacity and make incontinence worse,

Avoid constipation to prevent strainig,

Lose excess weight to lessen pressure on the bladder,

Avoid heavy lifting. This can put pressure on the pelvic floor muscles, increasing the risk of leaks.

Cognitive behavioural therapy and bladder training both include techniques to increase the time between feeling the urge to urinate and passing urine. For instance, in bladder training, patients learn to suppress the urgency for urination by contracting their pelvic muscles, hopping from one foot to another and distracting themselves. Evidence has shown the impact of bladder training on both incontinence and an overactive bladder, with up to 87% of patients demonstrating improvement.[6]

Epidemiology:

BPH is a common problem that affects the quality of life in approximately one third of men older than 50 years. BPH is histologically evident in up to 90% of men by age 85 years. As many as 14 million men in the United States have symptoms of BPH.Worldwide, approximately 30 million men have symptoms related to BPH.The prevalence of BPH in white and African-American men is similar. However, BPH tends to be more severe and progressive in African-American men, possibly because of the higher testosterone levels, 5-alpha-reductase activity, androgen receptor expression, and growth factor activity in this population. The increased activity leads to an increased rate of prostatic hyperplasia and subsequent enlargement and its sequelae.(7)

Evaluation:

Standard investigation of BPH may include bedside urine dipstick, post-void residual, IPSS, and urine flow studies to establish if there is evidence of obstructive voiding. Further tests may be indicated depending on the patient/history.

Blood Tests:

Blood tests, including renal function tests, are useful to establish baseline renal function and can help support the diagnosis of renal failure/acute kidney injury in someone with chronic high-pressure retention or acute retention, for example.

Urinalysis:

Urine specimen testing can help detect infection, non-visible haematuria, or metabolic disorders (glycosuria). Leucocytes and nitrites are common findings with infection; the presence of proteinuria may point towards nephrological conditions. The American urological association recommend urinalysis using a dipstick test, further tests may be requested based on abnormal dipstick findings (culture, etc.).

Ultrasound:

Ultrasound scans are used to look for evidence of hydronephrosis and are indicated in patients with high residual volumes or renal impairment. Other indications include suspicion of urinary tract stones or the investigation of haematuria.

Cystoscopy

Flexible cystoscopy should be used to investigate red flag symptoms such as visible haematuria/suspected bladder cancer and can also be used to look treat for strictures, which may also result in poor flow/decreased urinary flow studies.(8)

Diagnosis:

Particularly in men over 50 years of age, micturition-related symptoms should be specifically addressed in the general medical history. Dividing them into storage symptoms and voiding symptoms is helpful for the choice of drug therapy. Complications such as urinary retention, recurrent or persistent urinary tract infections (UTIS),renal dysfunction, or suspected malignancy should always prompt referral of the patient for further evaluation by a specialist.After the initial urological referral, the specific tests outlined below are carried out to determine the severity of the disease and whether active treatment is required.Special questionnaires are used for the patient history; the most commonly used is the International Prostate Symptom Score (IPSS) questionnaire (also available in German).

A particularly important step is to measure the concentration of prostate-specific antigen (PSA). Clinical interpretation of the test result is a complex task that depends on the expertise of the physician in question, and it should therefore be carried out by an interdisciplinary team or a urologist. PSA level, unless influenced by other pathologic processes, correlates with prostate volume and is a strong predictor of prostate growth. In addition, baseline PSA is a predictor of risk of urinary retention and surgical risk. However, there is no known direct association between BPH and prostate cancer and patients with BPH should be advised about the advantages and disadvantages of prostate cancer screening.

Pain in the penis or bladder area may indicate bladder stones, infections, or irritation or compression of the pudendal nerve. A neurogenic bladder is suggested when a man has diabetes or a neurologic disease such as multiple sclerosis or Parkinson's disease, or recent deterioration in sexual function. A thorough medical history should include questions about any worsening of urinary symptoms when taking cold or sinus drugs, and previous urinary tract infections or prostatitis (inflammation of the prostate, which may cause pain in the lower back and the area between the scrotum and rectum, and chills, fever and general malaise). The physician will also ask whether any over-the-counter or prescription medications are being taken, because some can make voiding symptoms worse in men with BPH.

The physical examination may begin with the doctor observing urination to completion to detect any urinary irregularities. The doctor will manually examine the lower abdomen to check for a mass, which may indicate an enlarged bladder due to retained urine. In addition, a digital rectal exam (DRE), which allows the physician to assess the prostate's size, shape and consistency, is essential for proper diagnosis. During this important examination, a gloved finger is inserted into the rectum ─ this is only mildly uncomfortable. The detection of hard or firm areas in the prostate raises suspicion of prostate cancer. If the history suggests possible neurologic disease, the physical may include an examination for neurologic abnormalities that indicate the urinary symptoms result from a neurogenic bladder.[9]

Pharmacological management:

The aim of pharmacological treatment is to manage symptoms based on patient-related goals focusing on issues prioritised by the inindividua.Medication should be offered to patients with bothersome symptoms for whom lifestyle changes have not been successful. Symptoms, comorbidities, age, concurrent medication and recent observations (such as blood pressure) should be taken into consideration before starting trtreatmet.[10]

Treatment:

Watchful Waiting:

As treatment of BPH-related LUTS is aimed at improvement of quality of life, watchful waiting is recommended by both the AUA and the European Association of Urology for patients with mild symptoms (AUA symptom score <8) or moderate-to-severe symptoms with minimal impairment in quality of life.Watchful waiting should include education, modification of lifestyle factors (e.g., weight loss, increase in physical activity, and reduction of caffeine and alcohol intake), and yearly re-evaluation. Patients should be counseled appropriately on their risk of AUR, which is increased for those with moderate-to-severe symptoms, diminished urinary flow rates, larger prostate volumes, increasing serum PSA, and older age.

Watchful waiting is inappropriate for patients with complications of bladder outlet obstruction related to BPH—such as renal insufficiency due to obstructive uropathy, recurrent UTI, bladder stones, and refractory urinary retention (failed at least one voiding trial after catheter removal).

Alpha blockers:

Alpha-adrenergic antagonists, or alpha blockers, relieve LUTS by reducing smooth muscle tone in the prostate and bladder neck. Alpha blockers have been demonstrated to significantly improve symptom scores (both irritative and obstructive symptoms), quality of life, and urinary flow rates, but they do not reduce the risk of AUR or risk of requiring BPH-related surgery.

5-Alpha reductase inhibitors:

5-Alpha reductase inhibitors (5-ARI) block the conversion of T to DHT by inhibition of type I (peripheral) and/or type II (lower genitourinary tract) 5-alpha reductase. Finasteride inhibits type II 5-alpha reductase, whereas dutasteride inhibits types I and II 5-alpha reductase. Reduction in DHT levels results in prostate volume reduction of 20–25% and decreases in serum PSA of ~50% after one year. For men with LUTS and enlarged prostates (typically defined as >30 g), 5-ARI use has been demonstrated to significantly improve symptoms, improve urinary flow rate, reduce the risk of AUR, and reduce the risk of requiring BPH-related surgery.

Phosphodiesterase type 5 inhibitors:

Phosphodiesterase type 5 inhibitors (PDE5-I) are well known to be effective in the treatment of erectile dysfunction. PDE5-I increase nitric oxide signaling in genitourinary tract tissues, which causes calcium-dependent relaxation of endothelial smooth muscle and increased blood flow. By the same mechanism of action, PDE5-I have been found to improve BPH based on preclinical studies.

Combination therapy:

Treatment of LUTS related to BPH with a combination of the above-described medications is common in practice. Two studies have shown alpha blocker and 5-ARI treatment to be synergistic for men with demonstrable prostatic enlargement. The Medical Therapy of Prostatic Symptoms (MTOPS) study found that finasteride and doxazosin significantly reduced the risk of AUA symptom score rise, AUR, urinary incontinence, renal insufficiency, or recurrent UTI compared to either drug alone.The Combination of Avodart and Tamsulosin (CombAT) study found that dutasteride and tamsulosin significantly reduced the risk of BPH clinical progression compared to either drug alone.

The main factor in the decision about treatment is, in the first place, the patient’s perceived burden of suffering, which is best assessed using the IPSS and Quality of Life (QoL) score. Uroflowmetry results, PVR measurements, and IPSS and ICIQ are all included in the overall assessment, making cut-off values for treatment decisions impracticable. In patients with mild distress, the natural course of the BPH can be initially monitored by watchful waiting. Patients can also be offered counseling on lifestyle and nutritional changes. The following suggestions can, if followed, have a positive impact on BPH-related symptoms and may potentially slow disease progression:

Avoiding alcohol and caffeine,

Adjusting timing of fluid intake to daily routine,

Ongoing monitoring of symptoms,

Using relaxation exercises and distraction techniques,

Adjusting other medications (especially diuretics).

Drug therapy should be considered if the patient’s symptom burden requires it or if initial watchful waiting has not led to satisfactory improvement in symptoms. The choice of drug therapy depends on the symptoms.[(11)]

Surgery:

Guidelines for the indications for surgery in BPH as outlined by the European Association of Urology (EAU) are follows:

Refractory urinary retention,

Recurrent urinary infections,

Haematuria refractory to medical treatment (other causes excluded),

Renal insufficiency,

Bladder stones,

Increased post-void residual,

High-pressure chronic retention (absolute indication).

Surgical management of BPH has broadened significantly over the years, with the development of further minimally invasive techniques. Recommended procedures include transurethral incision of the prostate,

transurethral resection fo the prostate, in addition to newer techniques such as laser vaporization and holmium laser enucleation, which have largely replaced open prostatectomy.

Complications:

1)Urinary retention,

2)Urinary tract infection (due to incomplete emptying),

3)Haematuria,

4)Bladder calculi.

Other complications may arise as a result of catheterization for management of LUTS in BPH and include:

Failed trial without catheter,

Long-term catheter complications (blocked catheters, retention, haematuria, urinary tract infection).

1)Urinary Retention:

International studies have demonstrated that BPH accounts for over two-thirds of cases of acute urinary retention.Further to this, 15% of those who experience acute urinary retention experience another episode in the future, with 75% requiring surgery compared to those with precipitating causes (only 26%).Men with BPH can also develop chronic retention. This is usually chronic high-pressure retention due to high voiding detrusor pressures in the bladder as a result of outflow obstruction. Due to the inability to empty the bladder completely, the pressure within the bladder can increase, resulting in hydronephrosis and subsequent deterioration in renal function leading to renal failure. Management of these subsets of patients is, therefore, urgent catheterization and urgent surgery to relieve the obstruction (TURP) or long-term catheter (those with high-pressure retention should not undergo TWOC).

2)Urinary Tract Infections:

This occurs due to incomplete bladder emptying resulting in incomplete bladder emptying and stagnant urine. Recurrent infections may indicate a need for treatment or long-term antibiotics to prevent associated co-morbidity (admissions with urosepsis).

3)Haematuria:

This is a common complication in BPH and a common cause for referral for further investigation. Due to the increased vascularity of larger prostate vessels may be disrupted, causing bleeding. Finasteride has been shown to decrease the density of vessels and can help manage problematic BPH related haematuria.

Management consists of catheterization to relieve the bladder pressure and definitive management to prevent retention and further renal dysfunction. Management options include TURP or long-term catheter/intermittent self-catheter. Following catheterization, the patient may undergo post-obstructive diuresis. This is characterized by increased urine output in the following 24 to 72 hours and may require IV fluid supplementation if exceeding >200 ml per hour. There is no evidence to suggest any benefit in gradual vs. rapid decompression, and so patients should be left on free drainage following catheterization for HPCR.[(12)]

Conclusion:

Primary care providers must be well-versed on the definition, pathophysiology, associated risk factors, evaluation, diagnosis, treatment, prevention, and complications of BPH. Providers must ask patients about lower urinary tract symptoms when taking a health history of older men, so they can manage patients optimally and refer them to a specialist when indicated. The scrupulous review of BPH in the modern medicine and its appreciation in Greco-Arab (Unani) system of medicine enlightens the disease awareness and its treatment in the Unani classical medicine. The discussion also reveals a close relation of the disease perception in both the systems of medicine. This encourages the discovery and validation of effective medicinal herbs and other natural ways of treatment for BPH and its associated symptoms. Unleashing the

natural remedies will prove beneficial to decrease the burden of conventional medicines and need of the surgery with their different possible side effect.

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