

Week 6 Discussion: Part 2

Benign Prostatic Hyperplasia (BPH)

According to the National Institute of Diabetes and Digestive and Kidney Diseases (n.d.) the prostate is a walnut-sized gland that encircles the urethra near the neck of the bladder. In BPH the prostate becomes enlarged but is not cancerous. This condition is unique to men, as the prostate's main job is to create fluid that contributes to semen and it has an important function in a man's fertility. As men age the prostate grows in two distinct phases. The first phase occurs in puberty when the gland doubles its size. The second phase, when BPH is most likely to occur, starts around the age of 25 and continues for most of a man's life. As the prostate becomes enlarged it compresses the urethra and results in the lower urinary tract symptoms associated with the condition. Symptoms can include bladder hypertrophy, a weakened bladder, incomplete bladder emptying, urethral narrowing, symptomatic urinary retention, pain with urination, trouble starting a stream, and dribbling urine.

Diagnostics

Many of the clues that would lead to including BPH on the list of differentials will come from the patient's subjective reports, their physical examination, evaluation of risk factors, and a thorough family history. Their subjective reports would include symptoms related to lower urinary tract dysfunction, typically evident by alterations in urination and urinary patterns. The physical exam can reveal an enlarged, smooth, semi-firm to firm prostate on digital rectal exam (DRE), tenderness on palpation to the bladder and/or lower abdomen, and potentially enlarged inguinal lymph nodes (Foo, 2019). Risk factors to consider when ruling in BPH in the differential include gender (male), age (over 40), family history, obesity, personal cardiac or diabetic medical history, erectile dysfunction, and lack of physical exercise. When taking the patient's medical history, a key clue is determining if there is a first-degree relative, such as a father or brother, who also has a diagnosis of BPH (NIDDK, n.d.). A helpful tool that can be used by clinicians is the International Prostate Symptom Score (IPSS). This consists of an eight-question screening tool that can be used to screen for, diagnose, track, and guide management in men who have BPH or prostate-related symptoms (Kellogg-Parsons et al., 2021).

After BPH is considered for the differential, the next step is to rule it out or make a diagnosis based on testing. Due to symptomology that could also indicate infection, the patient's work-up should begin with a urine analysis (UA) to rule out any type of urinary tract infection (UTI). In this patient's case the results of the UA would most likely be negative, as the causes of the symptoms stem from the size of the prostate rather than an infectious source. However, a positive UA does not necessarily rule out BPH, as urinary retention and urinary tract dysfunction can contribute to developing a UTI. Other causes of urinary symptoms should also be searched for in the UA. This would include finding proteinuria, glucosuria, and hematuria (Kellogg-Parsons et al., 2021). Blood work for diagnosing BPH should include a prostate specific antigen (PSA). This measures a protein produced by the prostate. Levels in men who have enlarged prostates are expected to be elevated. Results from this test are non-specific, as PSA can be elevated due to age, infection, inflammation, or prostate cancer, in addition to BPH. However,

expected ranges for PSA based on age have been identified. For those less than 40 years old the expected level is less than 2.5ng/ml. From age 40-49 2.5ng/ml or higher may prompt a referral, although as men age a level below 3ng/ml is typically non-concerning. Those age 50-59 are expected to be less than 3.5ng/ml. Men 60-69 are usually 4.5ng/ml or less, and those age 70 or above may be as high as 6.5ng/ml without an underlying pathology. Generally, men should be referred for further work up if their PSA is elevated for age, above 4ng/ml, or when warranted by symptoms (Cancer Research UK, 2022).

Because testing can be expensive it may be advantageous to forgo the less specific testing and have the patient complete a transrectal ultrasound (TRUS). This ultrasound provides an idea of the size of the prostate. Typically, the prostate is $3 \times 3 \times 5$ cm and contains 20-30ml of fluid. On ultrasound a prostate that measures more than 50ml and appears larger than a walnut or golf ball can indicate hyperplasia. In some cases, an MRI of the prostate may be warranted or the preferred method to diagnose BPH. If nodules are noted on imaging or DRE, if the growth of the prostate is rapid, or if the PSA level increases 0.7ng/ml over one year a biopsy to rule out prostate cancer should be performed. Other informative, non-specific, tests that may lead the examiner toward a BPH diagnosis could be an elevated post-void residual or a low uroflowmetry (less than 10ml/second). These tests indicate some degree of obstruction but can be useful in tracking BPH long-term (Kellogg-Parsons et al., 2021)

Treatment Plan for BPH

Unfortunately, modifiable factors play a smaller role in development or worsening of BPH. However, making the necessary lifestyle changes may help improve the quality of life and reduce symptoms. Maintaining a healthy weight, staying physically active, and eating a healthy diet should be discussed with the patient (Kellogg-Parsons et al., 2021). Several small-scale studies have indicated that eating a diet high in red meat can contribute to the development of BPH, while eating non-red meat animal protein was linked to a lower risk of developing it and an improvement of symptoms (Nelson, 2022).

Current level A evidence states that in patients with moderate to severe BPH who are experiencing bothersome symptoms should be started on an alpha blocker. This class of medication works to relax the prostate tissue and bladder neck, reducing obstruction and subsequently improving lower urinary tract symptoms. These medications may include doxazosin, tamsulosin, terazosin, alfuzosin, or silodosin. The drug of choice will depend on the patient's age, comorbidities, and considerations related to side effects (Kellogg-Parsons, 2021). In addition, 5-alpha reductase inhibitors are recommended to block 5-alpha reductase from converting testosterone into dihydrotestosterone (DHT). Currently available medications include finasteride and dutasteride (United States Food and Drug Administration, 2022). These medications work to stop hyperplasia and reduce the size of the prostate, leading to symptom improvement. 5-alpha reductase inhibitors can be used alone or in combination with alpha blockers, depending on treatment response and symptom improvement. Typically, experts recommend a combination therapy to target both modalities of BPH obstruction in those who have objective evidence to support prostate enlargement. As of 2021 there have been no conclusive studies to the benefits of adding supplements or herbal medications to a patient's

regimen for BPH. Although there are studies currently underway regarding Saw Palmetto in the use of BPH (Kellogg-Parsons et al., 2021).

Based on symptomology, prostate size, failure of medical management, and/or shared decision-making by the patient and provider surgery may be considered. Level A evidence recommends that surgery be highly considered in patients with renal insufficiency secondary to BPH, recurrent urinary retention secondary to BPH, recurrent UTIs, bladder stones, or hematuria, refractory symptoms, or patients unwilling to try other therapies. Surgical intervention will depend on the expertise of the performing urologist. One of the more common procedures is a transurethral prostate resection (TURP) to reduce the size of the prostate. Prostatectomies are only recommended in patients with large to very large prostates, per guidelines. A transurethral incision of the prostate (TUIP) may also be considered in BPH surgical candidates. Other operations currently supported by evidence in the guidelines include a photo-selective vaporization of the prostate (PVP), prostatic urethral Lift (PUL), transurethral microwave therapy (TUMT), water vapor thermal therapy (WVTT), laser enucleation, and robotic waterjet treatment (RWT). A prostate artery embolization (PAE) is an available procedure but is not currently supported by clinical evidence and the risks will almost always outweigh the benefits (Kellogg-Parsons, 2021). Ultimately the surgical procedure will be decided on by the surgeon and the patient.

Consults/Referrals

Uncomplicated BPH is routinely managed in primary care. However, when there is a high degree of suspicion for prostate cancer or other more complicated urinary obstructive pathologies it is critical to refer the patient to urology for a further evaluation. In complicated BPH where symptoms are refractory, rapidly worsening, or the prostate is enlarging quickly, and PSA levels are rapidly rising it would best serve the patient to refer them to urology. If medical management has failed at the primary care level a urology referral should be sent to discuss surgical options (Foo, 2019).

Patient Education

Much of the education provided to patients with BPH focuses on management of symptoms. Some useful advice to give patients may include limiting fluid intake before bed and avoiding alcohol and caffeine as they increase urination. It is important to stress that patients should not dehydrate themselves to manage symptoms. Suggesting the use of adult incontinence briefs or other incontinence management strategies can help boost confidence and limit their social isolation. When discussing medications, it is important to note that 5-alpha reductase inhibitors may have undesired sexual side effects, like reduced libido. This class of medications also slightly increases the risk for prostate cancer. Alpha blockers can also increase the risk for hypotension, headaches, and insomnia. These should be discussed with patients to provide them the opportunity to make informed decisions. Patients should also use anticholinergic medications with caution, to avoid urinary retention. Of course discussing maintaining an active lifestyle, staying social and avoiding isolation, having a healthy diet, watching their weight, medication adherence, and appropriate management of comorbidities should be thoroughly discussed (Ng and Baradhi, 2022). One very important teaching topic on 5-alpha reductase

inhibitors is that they can take up to 6 months to adequately reduce the prostate's size and improve symptoms. Therefore patience and medication adherence is critical (Kellogg-Parsons, 2021).

Follow-Up

According to the most recent clinical practice guidelines a patient should be evaluated by their primary care provider within 4-12 weeks after starting treatment, provided there is no adverse medication side effects or worsening of symptoms. Each reevaluation should include the IPSS. If indicated uroflowmetry and PVR can help to track treatment progress. For those patients who elect medical management but do not respond to initial treatment, they may consider switching or escalating medication management. In those who fail medical management completely, surgical options should be pursued (Kellogg-Parsons, 2021).

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