

Diseases of the Male Genital-Urinary Tract – Prevention is the Best Cure **By Thomas A Kruzel, ND**

Men begin to experience diseases of the prostate beginning with the onset of puberty and the physical, hormonal and biochemical maturation of the organs of reproduction. This trend continues throughout the rest of our lives, even into old age when our reproductive capacities have declined. Depending upon a variety of factors, such as genetic make up, over all health and potential exposures, each man will experience different challenges when it comes to disease exposure and development of symptoms, as we are unique and complex individuals.

The conventional medical approach to men's health in general has been to utilize suppressive therapies to allow for a quick resolution of symptoms. The theory is that if there are no symptoms, the disease must no longer be present. This approach overlooks the effects of any disease process on the entire organism in contradistinction to the naturopathic model of looking for the root cause of the disorder and treating it holistically. In the conventional medical paradigm, it has long been postulated that it is the organism or offending agent that is the cause of the disease and once eradicated, the disease has been eliminated. In the naturopathic/holistic view it is rather the soil or internal environment that contributes to whether the person develops an infection or other malady, as while we all are exposed to various organisms or the conditions that predispose one to developing a disease, not everyone will do so.

The prostate is a fibro muscular and glandular organ comprised of 5 lobes weighing about 20 grams. The urethra passes through the prostate where it connects with the ejaculatory ducts for delivery of sperm with ejaculation. The prostate gland because of its biochemical make up and location is in essence the guard gate (from Ancient Greek *prostates*, which means "one who stands before", "protector", "guardian") [1] to the male reproductive system and as such its over all health is important to decreasing the risk of developing the various prostate diseases and afflictions that affect men during their lifetime. The prostate gland is high in enzymes, prostatic specific antigen, prostatic acid phosphatase, beta-microseminoprotein, zinc and citric acid or Vitamin C, the combination of which makes prostate fluid slightly acidic. The concentration of zinc in the prostate is estimated to be 500 to 1000 times greater than blood levels as it is essential for the prevention of prostatic hypertrophy, functions as an immune modulator and protects against the effects of heavy metals such as cadmium and lead. Addition of fluid from the seminal vesicles during ejaculation causes the solution to become more alkaline in order to survive the acidic vaginal environment. Prostatic specific antigen plays a role in liquefying seminal fluid ejaculate to allow sperm to migrate easily.

The view can be taken that the prostate gland is a dynamically functioning organ, which like all organ systems, is responsive to the environment in which it exists. An example would be its response to an exposure to an infective agent, during which there is an intense tissue inflammatory reaction resulting in hyperplasia and destruction of tissues as well as a proliferation of white blood cells. Acute reactions with proper treatment usually resolve but may leave behind some fibrous scarring. If incompletely treated however, the

excretory ducts are unable to clear the tissue debris contributing to a state of chronic inflammation characterized by aggregates of lymphocytes, plasma cells and macrophages within the gland. These same changes are also found with normal changes of aging but to a lesser degree. Repeated prostate infections contribute over time to additional pathological changes making the likelihood of developing prostatic hypertrophy and repeated infections greater.

Disease of the prostate follows essentially the same pattern of inflammation in general where inflammation is seen as an adaptation, a coordinated and protective response as well as a period of recovery once the initial insult has been eliminated. Acute inflammation may be triggered by exogenous sources such as microbes or allergens as well as endogenous sources such as oxidative stress from advanced glycan end products (AGE's), lipoproteins or glycosylation. [2]

Essentially every disease process has a beginning, middle, end and recovery period, all of which are crucial to restoration of cellular and organ homeostasis. If any one of these are disrupted or circumvented, then an environment that fosters chronic disease remains and symptoms continue, even after the “causative agent” has been eliminated.

In patients with diabetes or hyperlipidemia, it becomes much harder for there to be a return to normal function because the environment or soil is compromised. Therefore, the prostate gland becomes much more susceptible to developing disease and takes longer to recover once it does. Often, the condition cannot be entirely eliminated until blood glucose and/or lipid levels are normalized.

Early in life our homeostasis set point margins are able to adapt to insults and often recover on their own, returning to optimal levels. This is because our auto-regulating system (ARS), a complex cybernetic system that merges and integrates control and corrective feedback mechanisms in order to maintain optimal homeostasis, functions at a much higher level. As we age however, this ability wanes resulting in more pronounced and longer lasting symptomology. This especially can occur if symptoms have been suppressed through various drug therapies that disrupt this complex mechanism, ultimately leading to chronic disease. [3] Along with the normal changes of aging, this is one of the reasons it takes longer to recover from any disease process the older we get.

Despite the fact that bacteria are only found with 5% to 10% of prostate infections, antibiotics are routinely prescribed and are often accompanied by NSAIDs or other anti-inflammatory medicines to treat the symptoms. Frequently, after the course of therapy is finished, the initial symptoms return with the same or similar therapeutic regimen prescribed. Often this regimen is repeated multiple times, further adding to the likelihood of developing a chronic condition because the healing process has not been able to complete its cycle.

While there is temporary relief from the symptoms of inflammation, inflammation is of itself a homeostatic mechanism employed by the body to eliminate the offending agent and should be viewed as a cleansing process. Under normal conditions, the interstitial

fluid environment is alkaline but becomes acidic due to the accumulated excess wastes from the inflammation. With repeated suppression, the system has difficulty eliminating or can no longer excrete the acidic waste materials. When allowed to complete its action, the body's healing process generally does so in a timely and thorough manner, but when cut short by NSAIDs and repeated courses of antibiotics, a chronic disease cycle ensues.

Prostatic Specific Antigen

Prostatic specific antigen (PSA) is a serine protease produced almost exclusively by the prostate gland. PSA has little diurnal variation and thus samples obtained at varying times of the day will provide an accurate measure. [4] Variations in PSA values are often seen when samples are performed in different laboratories due to different methodologies. The PSA is a nonspecific test of prostate function that can be elevated for any number of reasons but has been largely used as a measure for detection of prostate cancer. PSA can be elevated due to inflammation from infection, following ejaculation or digital rectal exam, benign prostatic hypertrophy, urinary tract infection, ageing, high cholesterol levels [5,6] prostate cancer and trauma such as catheterization or biopsy. [4] More controversial is whether bicycle riding affects a rise in PSA.

More recently use of PSA as a marker for disease, especially prostate cancer, has been questioned as increased use has resulted in more diagnostic procedures and treatment for CAP than was previously seen. [7,8] About 40% of men with organ confined CAP will have a normal PSA [9] and autopsy studies show that 30% of men over age 50 who have no clinical evidence of CAP have cancer foci present. [10]

Use of total and free PSA provides a better evaluation for prostate cancer, but should be used in conjunction with other testing such as prostate cancer antigen-3 (PCA-3) a measure of the probability CAP will be found on biopsy and the TMPRSS2-ERG which predicts tumor aggression level. Additional testing such as color Doppler ultrasound provides information on tumor size, density, location and vascularity, while the 3Tesla MRI can be used for high resolution imaging of suspect lesions.

Many of the patients that I see with elevated PSA's often show up because they wish to avoid a biopsy, something that is more often than not the first procedure offered by their Urologist. Before I refer for color Doppler, I will perform a few additional blood tests such as fasting chemistry screen and lipid panel, CCRP and a CBC to look for inflammation, infection or any other organ system disease and elevated cholesterol. I perform either a 2 or 3 glass urinalysis following prostate massage to look for infection.

Urethritis

While the prostate gland is considered to be the first line of defense against infection to the male genital-urinary tract, it is the urethra that is first exposed to potential infecting organisms. Non-gonococcal urethritis due to *Chlamydia trachomatis* and *Ureaplasma urealyticum* are found in up to 50% of the cases, but other organisms such as *Mycoplasma hominis*, *Candida albicans*, and *Trichomonas* are also found. [11, 12] With the exception of *Trichomonas*, the other organisms are often found on routine culture of the perineal area of men and vaginal tract of women and do not cause symptoms of

infection. This is because the environment is not conducive to allowing the organisms to set up “house keeping” and the organism and host remain in a symbiotic relationship.

Because of the biphasic life cycle of Chlamydia, Ureaplasmin and Mycoplasma, infestation in the male genital urinary tract often produces no symptomology. This biphasic lifestyle pattern also makes it more difficult to eradicate an infection with antibiotics once it occurs, often leading to a return of symptoms following treatment. Urethritis in men usually presents with a purulent (gonococcal) discharge or a whitish mucoid (non gonococcal) discharge, which is the bodies attempt to eradicate the infection.

Prostatitis & Chronic Prostatitis

Acute bacterial prostatitis is as previously mentioned, only found about 5% to 10% of the time and is accompanied by fever, chills, low back and perineal pain. Affected individuals usually have problems with urination including frequency, urgency, and difficulty initiating urine flow and pain with urinating along with frequent urination at night. Digital rectal examination shows a swollen, tender and indurated gland. There may be a urethral discharge present but this is more often seen with chronic prostatitis. [13]

Chronic prostatitis can occur following an incompletely treated acute prostatitis when the healing reaction has not had a chance to go to completion. Bacteria may be found but more often other agents such as Chlamydia, Ureaplasmin, Mycoplasma, Trichomonas or allergens contribute. Signs and symptoms are similar to that found with acute onset prostatitis, but usually are experienced to a lesser degree. Men will complain that they experience exacerbations and remissions of symptoms but that they never fully go away. Some times this condition can last for years and is almost always exacerbated by stress. Most of the men I see have had numerous courses of antibiotics and anti-inflammatories as well as numerous tests, none of which has resolved their symptoms or provided a definitive diagnosis.

Benign Prostatic Hypertrophy

Enlargement of the prostate gland is caused by an abnormal over-growth or swelling of tissue, termed hyperplasia. The increase in size is felt to occur because of an alteration in the testosterone/estrogen ratio accounts for the effects of estrogen upon accumulation of androgens in the prostate [14]. As the central sulcus surrounding the urethra is higher in estrogen receptors, hypertrophy occurs resulting in urinary obstruction associated with BPH. Urinary obstruction can occur with little overall glandular enlargement but with time the prostate gland can become quite enlarged resulting in urinary obstruction to the point that bladder capacity and function are affected. This ultimately may result in permanent indwelling catheterization. Nodular hyperplasia is differentiated on the basis of whether the nodularity is due to granular proliferation or dilation or to fibrous or muscular proliferation of the stroma. [14] Additionally, because of the close proximity of the bladder sphincter to the prostate, symptoms of frequency and urgency to urinate will occur due to prostatic irritation and enlargement.

On autopsy BPH is found in more than 70% to 75% of men who are age 60 or older. Of these only about 25% exhibit symptoms, which has led some to question whether the variable nature of BPH is a normal part of the aging process. [9, 15]

Men may also develop corpora amylacea or “prostatic concretions” a dense accumulation of calcified proteinaceous material that becomes lodged in the gland. While prostatic calcification is relatively common, their presence may result in symptoms that resemble chronic prostatitis, BPH, chronic pelvic pain syndrome and urinary tract infection. With time, the concretion becomes a breeding ground for infection as it becomes difficult to eradicate due to poor circulation.

Prostate Cancer

A number of factors play a role in the development of prostate cancer (CAP) such as age, race, environmental exposures to toxins, diet and nutrition, endocrine system dysregulation and genetics. The risk of prostate cancer increases steadily after age 40 until a peak incidence is reached about age 80. Pre-malignant changes seen in younger men often do not become apparent until much later in life, thus contributing to the increasing incidence seen with aging. As there are a number of factors involved with the development of CAP, aging alone does not necessarily mean that one will develop the disease.

Most prostate cancers arise in the peripheral zone away from the urethra and therefore symptoms of urinary obstruction develop later on. If the symptoms of obstruction are due to cancer of the prostate it generally means that there is a significant amount present.

Approximately 20% of all prostate enlargements are the result of cancer. About 80% of these cancers are of the slow growing variety, do not metastasize readily and often cause little if any problem. A smaller percentage of these cancers may spread quickly depending upon the type and location of the lesion.

Populations with diets high in animal fats and refined sugar and lower in fiber and vegetable intake have much higher incidences of cancer of the prostate. High animal fat intakes, as well as the development of obesity, has been shown to have one of the strongest associations with prostate cancer. Men from cultures traditionally with low incidences of CAP, who migrate to the United States, develop the cancer at rates comparable to those of their American counterparts. If however, they retain their native diets, the incidence does not increase as much. As a number of studies have shown, with all other contributing factors being equal, diets high in fiber, fruits and vegetables result in a lower incidence of prostate as well as other cancers.

Environmental factors play a variety of roles in the development of CAP. Often there are several factors which contribute over a period of time, but some seem to play a greater role than others. It has been noted that there are higher rates of prostatic cancer in males who are exposed to chemical toxins. Occupations in industries such as petrochemical, rubber and textile are among the highest in number of CAP cases. Urban, as opposed to rural areas, have higher incidences of CAP which is felt to be due to air and other pollutants.

Cadmium has also been implicated in cancer of the prostate as a much higher incidence is found in men who work with batteries. Zinc is normally found in high concentrations in the prostate gland and will be displaced by cadmium.

Allergies

Allergies of the genital urinary tract (GU) is an often unrecognized and under diagnosed condition that can be the cause of considerable discomfort. More often than not symptoms are associated with an infection for which antibiotics are prescribed that ultimately have no effect. There are generally 3 areas of allergic reactions associated with the GU tract: Contact dermatitis involving the penis and scrotum in men and labia, vagina and perineum in women. The lower urinary tract, involving the urethra and bladder in women, and urethra, bladder and prostate in men and the kidneys and ureters.

Signs and symptoms include edema, swelling, inflammation and itching during an acute episode, often with no fever present. Swelling can be severe. There is often frequency, urgency, dysuria, nocturia, and a dull, suprapubic ache that accompany lower urinary tract allergic reactions. Often there is no fever or pyuria present, but flank pain, gross hematuria and occasional urinary retention may be present.

Frequent urination at night or bedwetting is one of the most commonly encountered conditions associated with food allergy. Patients with asthma, hay fever, migraine and urticaria are also frequently found to have urinary symptoms related to allergies as well. [16, 17, 18]

Proctalgia Fugax

Proctalgia fugax is a functional anorectal disorder that occurs due to muscle spasm and cramping of the rectal musculature. The patient experiences a severe and often debilitating pain for which a triggering event or agent may or may not be identified. A comparable condition due to spasm of the levator ani also produces similar symptomology. Often this occurs at night when the person is recumbent and more relaxed and is generally intermittent in nature.

I mention these conditions because often men believe that they have chronic prostatitis because some of the symptoms such as difficulty with urination, burning of the perineum and pain with urination occur. Other contributing conditions such as anal fissure, hemorrhoids or injury to the coccyx need to be considered.

Prevention the Best Cure

A reasonable approach to treating male genital urinary tract disease is preventing them before they even start. While this seems to be a reasonable approach, men's illnesses in American culture, are often viewed as a weakness, and therefore symptoms are frequently ignored or dismissed. Men more often than not are seen when their diseases are in advanced stages making it more difficult to treat. Conventional medical treatments as mentioned previously, are designed to suppress symptoms so that the patient can quickly get back to work or their careers, which ultimately leads to chronicity of the disease.

Some things to consider when developing preventive treatment plans are educating men about diet and nutrition, supplementation, herbal medicines for urinary tract health and lifestyle changes. Developing strategies for prevention of any disease should also provide for screening exams and lab studies so that they can be recognized early on. These can include periodic urinalysis, PSA, fasting chemistry screen and lipid panels, and inflammatory markers such as CCRP, and ferritin.

Diet and Nutrition.

As mentioned previously, populations with diets high in animal fats and refined sugar and lower in fiber and vegetable intake have much higher incidences of cancer of the prostate while those that are higher in fruits and vegetables generally do not. [19, 20, 21]

Overall I recommend a balanced diet that is high in protein and vegetables, lower in carbohydrates and very low in fat. I also utilize diets based upon the patient's blood type in order to decrease the effects of dietary lectins in the development of disease and in particular, allergic reactions. [22]

I also counsel men about their drinking habits, especially beer. Most men do not realize that in order to lower the calories in light beers so they supposedly will not put on weight, the hops content is increased to add flavor. Hops are highly estrogenic which will affect estrogen receptors in the prostate as well as around or midsections. No wonder some men have trouble urinating and can no longer see their shoes!

Antioxidants such as Vitamin C, E, resveratrol, and green tea are helpful in eliminating free radical formation while enhancing cellular oxidation. These support the inflammatory process as well allowing it to complete its work in a timely manner to restore normal homeostasis. Other supplementation with zinc, magnesium and B complex, especially B6 also provides benefit and are often part of prostate health formulas. [23]

Identifying Potential Toxic Exposures.

Environmental factors also play a variety of roles in the development of prostate disease but especially CAP. Often it is several factors which contribute over a period of time, but some seem to play a greater role than others. It has been noted that there are higher rates of prostatic cancer in males who are exposed to chemical toxins. Occupations in industries such as petrochemical, rubber and textile are among the highest in number of CAP cases. Urban, as opposed to rural areas, have higher incidences of CAP which is felt to be due to greater exposure to industrial pollutants. Higher rates of CAP are seen in smokers as well as exposure to arsenic. [24] As previously mentioned, cadmium which displaces zinc, has also been implicated in cancer of the prostate as a much higher incidence is found in men who work with batteries.

Most of the adverse effects of heavy metals and persistent organic pollutants such as PCB's phthalates, pesticides, polychlorinated biphenyl's (PCB), chlorinated compounds and heavy metals, are found to affect fertility by lowering sperm counts while fostering the production of abnormal sperm. Erectile dysfunction due to lower testosterone levels is

also found. In particular phthalates, PCB's, perfluorocarbons and bisphenol A contribute to lower testosterone levels and hypogonadism. [24]

Assessing Genetic Risk Factors

A family history of prostate cancer increases the likelihood of developing CAP. Men, who have a past history of frequent or chronic prostatitis, also are at somewhat of an increased risk for CAP. Genetic factors seem to play a role, as there are higher incidences of CAP in some families than others, especially if there is a father or brother with the disease. An early onset of the disease, in males less than 55 years old, suggests a familial predisposition. Black American males show a 50% higher incidence than whites.

Certain blood types such as Type A and AB show higher incidences of CAP than their O and B counterparts. Non-secretors also appear to be at higher risk. Urinary tract infections including cystitis are found to be higher in blood group B and AB types with O and A types having lower rates. These are because proteins on certain bacteria and cancer cells are similar to those of the host, and as such are not as easily identified by the immune system. [26]

More recently genetic testing has become better able to predict the possibility of developing certain diseases and can be used to help develop individualized prevention strategies.

Lifestyle Modifications

There are many over the counter prostate supplements that are used by men for BPH, prostatitis, CAP and to promote prostate health. While these do provide some benefit when treating various male GU diseases, their real value is in their use as a preventive as they provide what is needed to keep the prostate healthy. I begin to talk with men in their late 30's about using prostate formulas as a preventive against the effects of aging.

Some other things to consider are to keep the interstitial fluid environment pH from becoming acidic by encouraging men to eat the requisite amounts of fresh fruits and vegetables. And yes, they can drink alkaline water to do this but fresh fruits and vegetables contain far more nutrients and minerals that are needed to decrease inflammation. Keeping systemic inflammatory processes low for any condition is important not only for prostate health but for health in general. Use of anti-inflammatories to accomplish this is somewhat counter productive and identification and removal of the cause is preferable.

Promoting pelvic blood and lymph flow through the use of hydrotherapy and exercise is beneficial to maintain health of the male genital-urinary tract. This can be accomplished with a variety of natural therapies and exercise programs. Urinating following intercourse and ejaculation cuts down on the potential for exposure to microorganisms from the vaginal tract.

Reducing chronic stress [27, 28] and finding ones spiritual center are important to help balance our bodies, minds and spirits as well as pursuing those things we love to do to

make our lives fulfilling and rewarding. Talking to our male patients early on about recognition and prevention of disease in general but prostate disease in particular will help decrease the incidence of male genital urinary morbidities.

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