

Prostate cancer: pathology and effects



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Prostate Cancer

Prostate cancer, or also referred to as adenocarcinoma of the prostate, is a type of cancer affecting solely men, as it is formed in prostate tissues, which is a gland found in the male reproductive system. It is the second most common cause of cancer-related male mortality, in the United States (Velcheti). According to the National Cancer Institute, about 29, 500 people have already died from prostate cancer, in the US, from the beginning of this year (2014). At the same time, there have been more than 233, 000 new reported cases of prostate cancer, during the last four months, from January, 2014 until now (National Cancer Institute). In 2008, more than 186, 000 men were diagnosed with this malignant disease and about 29, 000 died from prostate cancer. Deaths from prostate cancer represent approximately ten percent of all cancer deaths and the time of diagnosis plays a significant role in determining the survival rate (Velcheti). Between years 2004 and 2010, the five-year survival rate is 98. 9 percent; however, if a metastasis, even distant, is found upon diagnosis of prostate cancer, rates drop significantly to 32 percent (National Cancer Institute).

The chestnut-size prostate gland, located bellow the bladder, is part of the male reproductive system. It's most significant function is to produce a fluid which is mixed with fluids from other glands of the body, as well as sperm cells produced from the testicles, make up semen (US National Library of Medicine). Moreover, the prostate muscles are held responsible for proper ejaculation. However, apart from producing the fluid for semen, the prostate gland has other functions too. It helps metabolize the male sex hormone, <https://assignbuster.com/prostate-cancer-pathology-and-effects/>

namely testosterone, close the seminal ducts during urination, and close up the urethra to the bladder during ejaculation (US National Library of Medicine). The tissue surrounding the prostate gland is divided into three zones: the transition zone (smallest of the three) surrounding the urethra, the central zone, and the peripheral zone (largest of the three). Most cancerous tumors are found in the peripheral zone (US National Library of Medicine).

In regards to pathology, prostate cancer is considered unpredictable, given that it has variable clinical behavior, meaning it is multi-focal, multi-centric, develop/progress over time, and begin to metastasize (Crawford et al).

Bearing that in mind, it is obvious that the prognosis in prostate cancer, like any other cancer, is the key. When a man is diagnosed with prostate cancer, he usually has previously experienced a prostate enlargement, which had affected his urination, since the prostate is the surrounding glans of the urethra (Robin). The prostate enlargement causes a series of other problems, including difficulty when trying to control the urine system, while the male may also see blood traces in the urine and feel pain during sexual activity (Robin). Other than that, it is also possible that the man has nocturnal urination. Some less frequent effects include anemia, abdominal pains, weight loss and feeling of fatigue (Robin).

Other effects from prostate cancer come from surgery (either to remove the prostate or to destroy the cancer cells), and, in some cases, they can be permanent (Robin). It has been reported that " *Cryosurgery, rapid freezing and thawing of the cancer cells, causes nerve damage that leads to impotence 85 percent of the time [...] Temporary incontinence affects many*

men after radical surgery, while impotence affects 45 to 60 percent ”

(Robin).

Medications that are injected, so to reduce testosterone levels and reduce the growth of prostate cancer, also have side-effects for the body. A male with prostate cancer that takes medication as aforementioned may experience vomiting, impotence, hot flashes, nausea, liver malfunction, and breast enlargement (Robin).

Finally, radiation affects the body of the prostate cancer patient, either permanently or temporarily. Like in other cancer patients that undergo radiation treatment, prostate cancer patients may experience pain during urination, impotence, skin tenderness/redness, diarrhea, erectile dysfunction, and problems in the bladder and bowel that could continue to have an effect on the man up to three years after the last radiation (Robin). If prostate cancer is metastatic and metastasizes to the bones, it can bring pain in the lower torso; however, if it metastasizes to the lymph nodes, the entire body is affected.

Prostate cancer is usually asymptomatic, until cancer has grown into a substantial size that presses the urethra, which in turns creates the first problems a man can see and relate to urination. According to the NHS Choices, certified member of the British government, a man with prostate cancer may need to urinate more often; has a sense of urgency when it comes to his urination; hesitancy when trying to urinate; and a feeling that the bladder has still urine inside it (2012). However, these symptoms are also symptoms of other diseases, not necessarily of prostate cancer, so,

even though they should not be ignored; it is best not to panic from the first minute. Additionally, prostate tends to enlarge with age, but, in these cases, it is a growing benign tumor. Finally, if the prostate cancer metastasizes, the man may experience weight loss, and, like any other cancer type, loss of appetite, and pain in the bones, back, and testicles (NHS Choices).

The current prognostic methods are considered imperfect, according to assistant professor of pathology of Kimmel Cancer Centre and the Johns Hopkins University School of Medicine, and PhD, Alan Meeker. The new prognostic method introduced relates to telomere length. Telomeres act protectively towards the interior-gene that contains part of a cell's instructional material (Johns Hopkins Medicine). It is known that cancerous cells have shorter telomeres than non-cancerous cells, and it is believed that *" just how short they are from cancer cell to cancer cell may be a determining factor in a prostate cancer patient's prognosis "* (Johns Hopkins Medicine).

The best widely accepted treatment for metastatic disease is androgen blockage; however, it can only provide patients with a few more months of life (Crawford). Therefore, early diagnosis and/or screening is required. It has been evidenced that PSA (prostate-specific antigen) is a 100 percent effective prescreening prostate cancer test, far better than the transrectal ultrasound and the digital rectal examination that are also used (Crawford). Consequently, prostate cancer can be successfully diagnosed, completely eradicating the prognosis of metastatic disease.

The most effective way to remove prostate cancer is surgery. In order to cure prostate cancer that has not had any metastasis, the prostate needs to be eliminated through total surgical removal of the prostate (Walsh). Other methods used include radiation therapy, watchful waiting, early androgen suppression therapy, and cryotherapy (Tewari).

The Prostate Cancer Foundation has listed some considerations to be taken into account, so to prevent prostate cancer (n. d). The age, race, family history, and environmental factors contribute to increase the risk for developing prostate cancer. Men in their late 60s, African Americans, men with a first degree relative (father or brother) who had developed prostate cancer (especially at a young age), and men that live in regions with inadequate sunlight, run a higher risk of developing the onset of the disease (Prostate Cancer Foundation). Although there is not much someone can do to change the aforementioned factors, it is strongly believed that proper diet can help the body fight oxidative DNA damage.

Adenocarcinoma of the prostate or prostate cancer is a male-dominant cancer that affects the prostate and creates a lot of problems to the patient, including liver malfunctions, urination problems, erectile dysfunction, and pain in the lower back, among others. The prostate is responsible for producing the fluids that form the sperm, and one of the primary symptoms of prostate cancer is prostate enlargement. Being the second main cancer-related disease that men die from in the US, and completely asymptomatic, it is serious and requires early diagnosis, before it spreads to other body parts. If prostate cancer is localized and has not metastasized, there is a five-year cap for life expectancy. However, this cap reduces significantly if it

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has metastasized, especially to the lymphatic system. Current treatments include radical prostatectomy through surgery, while it is closely related to a man's family history, race, age, and living environment.

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