



## Illuminating Detection Methods for Prostate Cancer

Nicolas Venegas\*

Department of Pathology, Pontificia Universidad Católica de Chile, Santiago, Chile

### DESCRIPTION

Prostate cancer, a prevalent malignancy affecting men, poses significant health challenges. Understanding the complexities of prostate cancer, its risk factors, and the evolving landscape of detection and treatment is important for early intervention and improved patient outcomes. In this article, we explore the intricacies of prostate cancer, explain on its nuances and the advancements in the field of oncology.

The prostate, a small gland situated below the bladder and surrounding the urethra, plays a significant role in male reproductive function. Prostate cancer occurs when cells within the prostate undergo genetic mutations, leading to uncontrolled growth and the formation of malignant tumors. While many prostate cancers progress slowly, some can be aggressive and require prompt intervention.

Age is a significant risk factor for prostate cancer, with the likelihood of developing the disease increasing with age. The majority of cases are diagnosed in men over the age of 65.

Individuals with a family history of prostate cancer are at an elevated risk. Having a first-degree relative, such as a father or brother, diagnosed with the disease increases the likelihood of developing prostate cancer.

Prostate cancer is more prevalent in African American men, who also tend to develop more aggressive forms of the disease. Conversely, Asian American and Hispanic/Latino men have a lower incidence.

Inherited genetic mutations, such as those in the *BRCA1* and *BRCA2* genes, are associated with an increased risk of prostate cancer. These mutations may also be associated to a higher risk of other cancers.

Dietary factors, including a diet high in red and processed meats, low fruit and vegetable intake, and obesity, have been associated to an increased risk of prostate cancer. Regular exercise and a healthy lifestyle may contribute to a lower risk.

Prostate cancer in its early stages often does not cause noticeable symptoms. As the disease progresses, symptoms may include

difficulty urinating, frequent urination, blood in the urine or semen, and discomfort in the pelvic region.

The PSA test measures the levels of a protein produced by the prostate in the blood. Elevated PSA levels may indicate the presence of prostate cancer, although other factors can also contribute to increased PSA levels.

A digital rectal exam involves a physician inserting a gloved, lubricated finger into the rectum to assess the size, shape, and texture of the prostate. While not definitive, abnormalities may prompt further investigation.

A prostate biopsy involves collecting tissue samples from the prostate for examination under a microscope. This is the definitive method for confirming the presence of cancer and determining its aggressiveness.

For low-risk, slow-growing prostate cancers, active surveillance involves monitoring the cancer closely but not immediately initiating treatment. This approach aims to avoid unnecessary interventions and their potential side effects.

Radical prostatectomy involves the surgical removal of the prostate gland. This is a common treatment for localized prostate cancer. Advances in surgical techniques, such as robotic-assisted surgery, have improved outcomes and reduced recovery times.

External beam radiation and brachytherapy (internal radiation) deliver targeted radiation to the prostate to destroy cancer cells. Radiation therapy may be used as a primary treatment or in combination with surgery.

Prostate cancer, with its intricate interplay of risk factors, detection methods, and treatment modalities, remains a significant health concern for men worldwide. Comprehensive understanding, early detection, and advancements in treatment approaches are pivotal in improving outcomes for individuals affected by this condition. Through ongoing research, multidisciplinary care, and a commitment to preventive measures, the medical community strives to utilize the complexities of prostate cancer and enhance the prospects for those navigating the journey of diagnosis and treatment.

**Correspondence to:** Nicolas Venegas, Department of Pathology, Pontificia Universidad Católica de Chile, Santiago, Chile, China, E-mail: Nicolasvenegas@gmail.com

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