

Prostate cancer



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Prostate cancer is a very common type of cancer affecting men over 60 years of age. The number of prostate cancer around the globe is significantly huge, that it even occurs at a higher frequency than that of breast cancer among women. Currently, the only defined risk factors that are strongly associated with prostate cancer are increasing age and a positive family history. There is much curiosity on determining whether other factors such as environment, lifestyle or genes provide an additional influence on the pathogenesis of prostate cancer.

In addition, it is also interesting to know that in the United States, African-Americans show a higher incidence of prostate cancer than Caucasians (Reis et al. , 2003). Prostate cancer has also been observed to have a low case incidence among Asians (Haas and Sakr, 1997). Majority of prostate cancers involve the abnormal proliferation of the prostatic glandular acini, resulting in adenocarcinomas. The Gleason System is the standard protocol for grading prostate cancer according to histological descriptors.

This system employs tumour grades which play a major role in the prognostication of prostate cancers. The Gleason System was created in the 1970s and follows defined levels of cell architecture and differentiation. It also provides patterns to which the tumor grade may be determined, ranging from 1 to 5. A grade of “ 1” denotes highly differentiation cellular architecture, while a grade of “ 5” signifies a poorly differentiated architectural pattern.

The Gleason score thus provides a final score that may be between 2 and 10, which is then equivalent to the degree of aggressiveness of the cancer.

Cancer of the prostate glands first extends to the lymph nodes and other adjacent structures such as the outer tissue of the prostate glands, the seminal vesicle and rectum, and later spreads to other farther organs. At subsequent prostate cancer stages such as metastatic conditions, the cancer spreads to the bones and lungs.

Prostate cancer is occasionally diagnosed during transurethral resection of the prostate (TURP). These cancers are classified as T1 tumors, and further categorized as T1a if less than 5% of the prostate tissue is observed to be highly proliferative. Should more than 5% of the tissue be determined to be highly dividing, the tumor is then categorized as T1b. The T1a tumors are estimated to progress as a cancer within 15 years, while T1b tumors are quicker, only involving a progression of less than 5 years.

Prostate tumors that are detected through palpation of the rectum are classified as T2 tumors. T2 tumors generally progression in their pathogenesis within 15 years, hence most physicians aggressively treat these tumors grade to prolong the lifespan of the patient by approximately 10 years. Prostate tumors that go beyond the covering epithelial tissue of the prostate gland are classified as T3 tumors. Such tumor grades are strongly associated with poor prognosis because the patient usually present sporadic metastatic events.

Prostate tumors that have spreads towards the seminal vesicles and lymph nodes, it is also expected that the cancer has metastasized by 50% (Eastham and Scandimo, 2002). It is often difficult to detect prostate cancer at its early stages because the symptoms are usually not noticeable early on

because it generally involves cellular changes in the cells that make up the periphery of the prostate gland.

Patients that are diagnosed to have benign prostatic hyperplasia (BPH) generally present symptoms of lower urinary tract such as difficulty in urination due to obstruction, poor streaming or intermittent flow. Symptoms that involve pain in the bones usually suggest an advance stage of prostate cancer. One major procedure that facilitates the diagnosis of prostate cancer is digital rectal examination which involves palpation of the prostate gland. Such procedure generally detects 50% of the cases of prostate cancer.

Another technique that is important in the detection of prostate cancer is the screening for prostate specific antigen (PSA). The prostate gland specifically generates this glycoprotein and is distributed in the blood. The amount of PSA in the blood is often influenced by the administration of other urologic procedures such as prostate biopsies and TURP, and may also be correlated with urologic events such as infection of the prostate gland or prostatitis, decreased ability to urinate (urinary retention) and ejaculation during the administration of the procedure.

Pharmacological treatment of high PSA levels may involve to intake of finasteride, which is an anti-androgen drug. In addition, radiotherapy may also decrease the level of PSA. The interpretation of the results of PSA screening has been recently be evaluated in order to increase the specificity and efficiency of detecting prostate cancer among men. Reference ranges of PSA levels in relation to the age of the patient have been thoroughly evaluated.

In addition, the exact measurement of PSA for precise readings has been reviewed to enhance the sensitivity of the test. Currently, the Prost-Asure index has been determined to be a very accurate assay for the diagnosis of prostate cancer (Barry, 2001). The glycoprotein PSA circulates in the blood in two forms, free and conjugated forms, hence it is essential that the ratio of these two forms be determined in order to detect prostate cancer even among younger males.

PSA is often observed as a conjugated protein complex in ascertained prostate cancer cases, hence the ratio is frequently low, while the ratio is usually high in cases of benign prostatic hyperplasia. Transrectal ultrasound is another procedure that may be performed to detect prostate cancer. This procedure is often performed in advanced cases of prostate cancer that show positive results in bone scans. Transrectal ultrasound is a radiologic procedure that employs an ultrasound probe that is passed through the rectal region until the prostate gland may be examined and a biopsy material is collected.

Another sensitive way to detect prostate cancer is through the use of a bone scan. There is a need for randomized controlled trials that may determine the effects of early diagnosis of prostate cancer on patient survival. Several countries have campaigned for the massive and aggressive screening of prostate cancer among men, hence the incidence of prostate cancer cases have significantly decreased by 50% through the subsequent years.

Other countries actually offer free screening for over 10 years (Bartsch et al. , 2001). In the United States, randomized studies are currently being

conducted to determine the results of a decade-long screening test on the incidence of prostate cancer among males. The results of these epidemiologic research will provides significant information on how to reduce the incidence, as well as mortality rates of prostate cancer in the country.

Such information may also be applied to developing measures in preventing further increase in the cases of prostate cancer at a global level. There are certain groups in the society that scrutinize the need to a decision-making process on whether there is an obvious need to perform testing on individuals that do not show any symptoms of prostate cancer. It would be helpful if more information be disseminated that would explain the significance and implications of the PSA screening test in relation to prostate cancer.

It is also beneficial for society to understand that prostate cancer is a very common disease that afflicts aging men, hence it is imperative that early screening and diagnosis is integrated into the healthcare programs around the world. The importance of early diagnosis should also be presented as a major means of decreasing the mortality rate of prostate cancer, because the current general trend is that prostate cancer is diagnosed at a very late stage and usually, there is nothing more a physician can do to prevent the further progression of the cancer.

It should also be noted that early diagnosis of prostate cancer is strongly associated with a greater chance to cure the patient of the cancer, and may eventually prolong the life expectancy of the patient by another 10 to 15 years. Hopefully, more technologies will be developed that would further

enhance and strengthen the diagnostic regimen for prostate cancer. Such endeavor may facilitate efficient diagnosis and provide quicker treatment of prostate cancer among men.