International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Prostate Cancer Screening Approach as Well Disease Burden and its Precision Medicine Outlook Purely in Indian Context

Major M. Q Baig[1], Ansu Goel[2]

[1]Associate Professor J. K Cancer Institute Kanpur

[2]Assistant Professor J. K Cancer Institute Kanpur

Abstract: ***Risk of clinically significant prostate cancer is related to age, family history, PSA level, free and total PSA ratio as well as finding of digital rectal examination DRE, subclinical prostate cancer is common in men over 50 years of age, hence PSA (Prostate specific Antigen) testing Hs been recommended in men over 60years of age if PSA level is more than 2ng/ml. The 5 - year survival rate for prostate cancer in India is 64%. Although many cancer deem fit for cancer screening but prostate cancer screening having limited role author will try described about current recommendation of prostate cancer screening , recent data of HBCR Hospital based cancer registry shall also be discussed in order to understand disease burden in Indian context. Recently precision medicine has open its wings for prostate cancer as well what we achieve out of it shall further addressed in this review article.***

Keywords: Screening test, Cancer registry in India, Precision medicine, Prostate cancer.

1. Discussion

Prostate cancer is one among the top ten leading cancer in India. It usually affects men in the age group of 65+ years. However, recently there has been an increase in reports of cancer in younger men in the age group of 35 - 44 and 55 - 64 residing in metropolitan cities. Old age, obesity, improper diet, and genetic alterations have been identified as some of the main contributing factors towards an increased cause of prostate cancer.

A study revealed that those patients who underwent prostate cancer treatment with surgery had a better survival rate (91%). These findings prove that while treatment may save a life or extend the number of survival years, awareness about and prevention of the disease has become crucial in today's day and age. Compared data available from various cancer registries and observed that the average annual cancer incidence rate for prostate cancer in India ranged 5.0 - 9.1 per 100, 000/year, whereas the comparative rate in the United States were 110.4 for whites and 180.9 for blacks.

Projected cases of prostate cancer in India for the periods 2010 and 2015 were estimated as 26, 120 and 28, 079. The incidence rates of this cancer are constantly and rapidly increasing and the cancer projection data shows that the number of cases will double by 2020.

Recommendation for prostate cancer screening as per ESMO guidelines:

1) Population based PSA screening of men for prostate cancer reduces prostate cancer mortality at the expense of over diagnosis and over treatment thus it is not recommended.
2) Early PSA testing can offered to men over 50 years of age with family history of prostate cancer and BRCA - 1/ BRACA - 2, genetic mutations.
3) Testing for prostate cancer in asymptomatic men with life expectancy more than 109 years should not be done.

Precision Medicine in Prostate cancer:

In precision medicine various tissue based molecular test provide us prognostic as well as predictive information in many solid tumors and prostate cancer is not exception to that, in prostate cancer targets are identified in molecular test like immunohistochemistry (IHC), FISH test, etc, approximately 20% of metastatic prostate cancer harbors genetic abrasions like we look for BRACA 1/ BRACA2, mutations BRACA - 2 mutations are more commonly associated with prostate cancer, BRACA 2 mutant prostate cancer often having Gleason score more than 8 (GS»8) as well as commonly associated with pelvic lymph node involvement along distant metastasis at the time of diagnosis, henceforth mutation in BRACA2 associated with poor clinical outcome in these patients, men with prostate cancer should also be considered for genetic testing if at least two close blood relatives have been diagnosed with breast cancer /ovarian cancer/prostate cancer/ colorectal cancer, so far as prediction is concerned those who have been diagnosed to have BRACA2 mutations will very well response to platinum based chemotherapy as well as polymerase inhibitors example Pembrolizumab targeted drugs.

2. Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationship that could be constructed as potential conflict of interest.

References

[1] Schro¨der FH, Hugosson J, Roobol MJ et al. Screening and prostate - cancer mortality in a randomized European study. N Engl J Med 2009; 13: 360.
[2] Andriole GL, Grupp RL III, Buys SS et al. Mortality results from a randomized prostate - cancer screening trial. N Engl J Med 2009; 13: 360.

[3] Thompson IM et al. Assessing prostate cancer risk: results from the Prostate Cancer Prevention Trial. J Natl Cancer Inst 2006; 98: 529–534.
[4] Gleave ME, Coupland D, Drachenberg D et al. Ability of serum prostate - specific antigen levels to predict normal bone scans in patients with newly diagnosed prostate cancer. Urology 1996; 47: 708–712.
[5] O'Sullivan J et al. Broadening the criteria for avoiding staging bone scans in prostate cancer: a retrospective study of patients at the Royal Marsden Hospital. BJU Int 2003; 92: 685–689.
[6] Partin AW et al. Contemporary update of prostate cancer staging nomograms (Partin Tables) for the new millennium. Urology 2001; 58: 843–848.
[7] Lu Yao GL, Yao SL. Population - based study of long - term survival in patients with clinically localised prostate cancer. Lancet 1997; 349: 906–910.
[8] Bill - Axelson A et al. Radical prostatectomy versus watchful waiting in early prostate cancer. N Engl J Med 2005; 352: 1977–1984.
[9] Steineck G. Quality of life after radical prostatectomy or watchful waiting. N Engl J Med 2002; 347: 790–796.