

A Study of Clinical Profile of Patients of Carcinoma Prostate - A Descriptive Study

Dr Prabir Deka¹, Dr Amit Aggrawal²

¹Resident, Department of Surgery, Armed Forces Medical College, Pune-40, India

²Professor, Department of Surgery, Armed Forces Medical College, Pune-40, India

Abstract: *Background:* Wide variation exists internationally for prostate cancer rates due to differences in detection practices, treatment, and lifestyle and genetic factors. With increase in life expectancy, adoption of newer lifestyles and screening using prostate specific antigen (PSA), the incidence of prostate cancer is on rise. Globally prostate cancer is the second most frequently diagnosed cancer and sixth leading cause of cancer death in men. *Method:* This is a descriptive study carried out between Aug 2016 and June 2019 on 30 cases carcinoma prostate patients. *Result:* 60% patients fell in the age group of 50-70 yrs with 60% patients falling in mild symptomatic score. Among the patients 60 % patients had serum PSA level >20 ng/ml at diagnosis and 70% of the patients had moderately differentiated tumours at presentation. At diagnosis 46.6% patients already had metastasis. 50% patient were offered active surveillance, 40% of the patients were offered androgen deprivation therapy as treatment.

Keywords: Carcinoma prostate, PSA, IPSS, Gleason's score

1. Introduction

Prostate cancer is primarily a disease of the elderly with more than three quarter of the cases occurring in men above 65 years of age. This disease has become a major health problem globally during the last few decades. Studies have shown that prostate cancer is the second most frequently diagnosed cancer in men worldwide and the fifth most common cancer overall.(1)Among men alive today, it is estimated that 1 in 7 (15.3%) will be diagnosed with prostate cancer and 1 in 38 (2.6%) will die from this disease. It is disheartening to note that approximately 4.04 million years of healthy life are lost globally due to prostate cancer alone. It is also the sixth leading cause of cancer deaths in men.(2)The incidence of prostate cancer rose dramatically from 1989 to 1992 after the introduction of a prostate-specific antigen (PSA) screening test. Prostate cancer incidence rates vary by 24-fold worldwide, primarily because of differences in screening practices, although the Westernization of lifestyle has also been suggested as a possible explanation.(3) However, the mortality rates of prostate cancer tend to differ in various countries. The mortality has been reported to be the highest in low- to middle-income communities of parts of South America, the Caribbean, and sub-Saharan Africa.(4) In the Asian countries, prostate cancer incidence has been reported to vary from 3.0/100,000 in Iran to the highest of 20.3/100,000 in the Philippines in the year 2000.(5)There has been a consistent increase in the age-standardized incidence rates (ASIRs) of prostate cancer in Asian countries over the last few decades, particularly in Singapore, China, Malaysia, and Japan. This has been reported to be due to changes in diet and other lifestyle factors in these countries.(6,7)Zhang et al.(8)also reported that the average mortality-to-incidence rate ratio (MR/IR) of prostate cancer was 0.57 in China compared to 0.13 in North America, indicating that in China, at the time of diagnosis, most cancers were in the advanced stage and therefore, these patients had a short survival time thereafter. However, it is interesting to note that in another

Asian country, namely, the Republic of Korea, the ASIR of prostate cancer was reported to be small.(2)

Large majority of prostate with early stage of prostate carcinoma are asymptomatic. The presence of symptoms often suggests locally advanced or metastatic disease. Obstructive or irritative voiding complains can result from local growth of the tumour into the urethra or bladder neck or from its direct extension into the trigone of bladder. Much more commonly however such symptoms are attributable to coexisting BPH. Metastatic disease to the bones may cause bone pain. Metastatic disease to the vertebral column with impingement on the spinal cord may be associated with symptoms of cord compression, including paraesthesia and weakness of the lower extremities and urinary or fecal incontinence. Prostate cancer is primarily a disease of the elderly with more than three quarter of the cases occurring in men above 65 yrs of age. The incidence of prostate cancer has shown significant variation across the globe. Though the prevalence and characteristics of this disease have been extensively studied in many countries, data regarding the true incidence of prostate cancer in India is limited due to the fact that there are only a handful of cancer registries in India. The number of community based studies on prostate cancer is also limited in this country.(9)

Patients of prostate cancer in India usually present in late stages compared to western developed countries. This presentation has got much implication in management of these patients compared to western world. Since India would be having more number of cases of prostate cancer than most others in the years to come and since significant differences in incidence, precipitating factors and disease characteristics of prostate cancer in India, adequate population based data regarding the demographic and disease characteristics of this disease among Indian population are of paramount importance in this country.

2. Materials and Methods

This study is a record based descriptive study conducted between August 2016 and June 2019. In total 30 consecutive patients who were diagnosed as carcinoma prostate were included in the study.

Inclusion Criteria

All diagnosed patients with carcinoma prostate.

Exclusion Criteria

Non-consenting patients

All the data of diagnosed patients of carcinoma prostate patients were compiled and analysed with respect to different variables e.g.

- 1) Profile of the patient
- 2) Presenting symptoms of the patient
- 3) Stratification of symptoms as per IPSS score
- 4) Detailed clinical examination
- 5) Investigations (routine & specific)
 - Routine investigations (e.g. CBC, LFT , RFT)
 - Serum PSA level at presentation & PSA density
 - X-ray KUB
 - USG abdomen
 - TRUS guided 12 core prostate biopsy
 - Bone Scan
 - MRI of Pelvis
- 6) Treatment offered

3. Results

Out of all the patients 60% patients fell in the age group of 50-70 yrs and 40% above the age 70 yrs. This reflects that prostate cancer is diagnosed mainly in elderly age groups among the Indians. This may be due to decreased awareness among the general population about the disease or due to poor health care penetrance in the rural areas where most of the population resides.

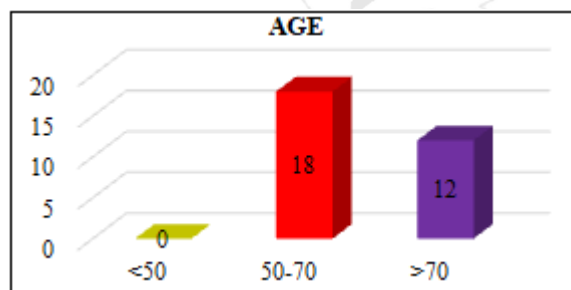


Figure 1: Age distribution

Among the patients with carcinoma prostate main presentation being lower urinary tract symptoms stratified with IPSS (International Prostate Symptom Score) with 60% patients falling in mild symptomatic score.

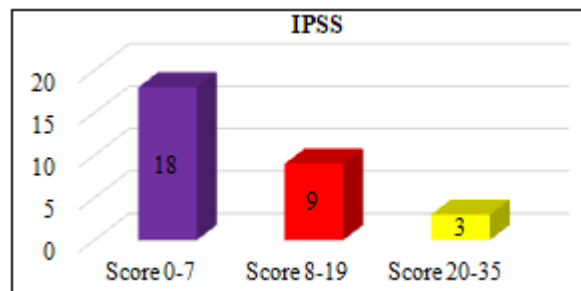


Figure 2: IPSS stratification of patients

Among the patients 60% patients had serum PSA level >20 ng/ml at diagnosis. (Fig 3) which was indicative towards diagnosis of carcinoma prostate before a tissue diagnosis was available.

Gleason's score analysis of the patient showed that 70% of the patients had moderately differentiated tumours at presentation. (Fig 4).

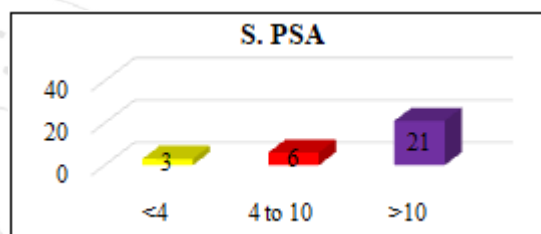


Figure 3: Serum PSA levels at diagnosis

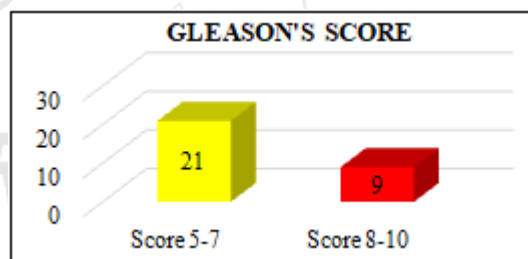


Figure 4: Gleason's score at diagnosis

At diagnosis 46.6% patients already had metastasis from the disease which affected the management of the patients (Fig 5).

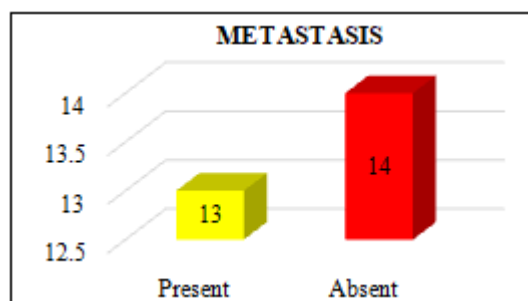


Figure 5: Metastasis at presentation

As per the management is concerned 50% patient were offered active surveillance with serial DRE and PSA assessments, and follow-up TRUS-guided biopsies to ensure stability of the tumor. Cancers are usually treated at the first sign of subclinical progression. 40% of the patients were offered androgen deprivation therapy with either

prescription drugs or with bilateral orchiectomy. Out of 30 patients only 1 patient underwent radical prostatectomy and in 2 patients palliative radiotherapy was administered.

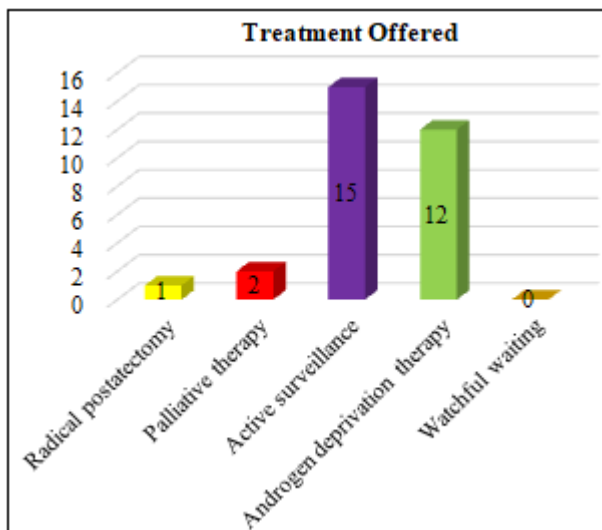


Figure 6: Various treatment modalities offered to patients

4. Discussion

There is an increasing trend in the burden of noncommunicable diseases like cardiovascular disease, diabetes mellitus, and cancers as evidenced by the various demographic and epidemiological studies conducted in India. Oral and esophageal cancers have the highest incidence, whereas rectal, prostate, and lung cancers have the lowest. (10) It has been reported that although the cancer rates in India are lower than those seen in Western countries, increase in life expectancy and changes in lifestyles increase the rates of cancers in this country, particularly prostate cancer. The estimated age adjusted incidence rates (AARs) of prostate cancer in India as a whole was 3.7/10 5 persons during the year 2008. Peak incidence was observed in the age group above 65 years, indicating that prostate cancer was a cancer of the elderly. The estimated annual percentage change (EAPC) in the AAR ranged 0.8-5.8 in the various registries. However, one of the limitations of these cancer registry-based studies was that these registries were mostly urban-based and the data available from the rural population were very little. Projected cases of prostate cancer all over India for the periods 2010, 2015, and 2020 were estimated as 26,120, 28,079, and 30,185, respectively. (11) Jain *et al.* also reported a wide variation in annual percentage change of prostate cancer in various population-based cancer registries of India, ranging from 3.4% in Bangalore to 11.6% in Kamrup District in Assam. (12) Increase in incidence of prostate cancer among Indian population recently could be presumed to be due to the increase in awareness on the part of the treating doctors and the public, leading to better identification of this disease. The author also attributed the increase in the number of new prostate cancer cases to the growth in the size of the population, especially in the proportion of elderly persons. Herbert *et al.* (13) 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. Of all prostate cancers, 85% were

detected late (stages III and IV) in India in contrast to the United States where only 15% were diagnosed in the late stages. A notable difference was also observed between the rural and urban areas. The rural registry at Barshi in western Maharashtra registered the lowest ASIR of 1.5/100,000; while the registry in Mumbai had higher incidence rates of around 7.1/100,000. In 1994, Sharma *et al.* (14) had also reported that the highest incidence of prostate cancer in the country (11.6/100,000) was in the urban city of Jaipur. These indicate that there exist significant differences in the incidence of prostate cancer in the rural and urban areas in India. This again could be either due to the lack of awareness about this disease in the society or due to the poor reporting and documentation of cases in the rural populations.

India is a land of diversity. The religions, cultures, environment, literacy rates, and food habits of the society vary from one region to another. These variations can have a significant bearing on the incidence of prostate cancer in various regions across the country. There are several risk factors implicated in the causation of prostate cancer, namely, positive family history, (15) history of diabetes mellitus, (16) height, weight and obesity, (17) smoking habit, physical activity, (18) body mass index (BMI), (19) and vasectomy. (20) However, in India, the studies on the actual role of these risk factors in the causation of prostate cancer are limited. The risk of prostate cancer reduced with the increasing dietary consumption of tea, citrus fruits, melons, eggs, fish, and sunflower oil. Production of carcinogenic heterocyclic amines during cooking of red meat and pyrolysates during cooking of meat over charcoal/smoke had been attributed as the reason for increased prostate carcinogenesis in the nonvegetarians. (21) Singh *et al.* in 2013 (22) studied the relationship of lifestyle, age, and BMI with PSA levels in benign prostatic hyperplasia (BPH) and prostate cancer in the North Indian population. They found that the mean age of prostate cancer patients (67.56 ± 5.72 years) was significantly higher than that of BPH patients (63.56 ± 7.92 years). The prevalence of hypertension, smoking, use of tobacco, and alcohol consumption was similar in both the groups. However, there was no significant effect of BMI on the risk of prostate cancer that is in contrast to the findings of Amling *et al.* (23) and Freedland *et al.* (24) who had earlier studied the positive correlation of obesity to prostate cancer. A large part of the Indian population is involved in agriculture and associated industries. Therefore, these people are potentially exposed (occupationally or environmentally) to some types of pesticides, either directly or indirectly. In the majority of instances, there exist only poor safety measures during the application and handling of these carcinogenic compounds. This could lead to widespread dispersion of these harmful and carcinogenic compounds, causing toxicity to human beings. (25) Studies conducted by Banerjee *et al.* (26) reported that some of these pesticides, mainly organochlorine pesticides (OCPs), possessed estrogenic properties and could be called xenoestrogenic pesticides. OCPs such as 1, 1, 1- hexachlorocyclohexane (HCH), dieldrin, and endosulfan were found to be the most commonly used xenoestrogenic OCPs in India. He further reported that since prostate cancer was an estrogen-dependent cancer, these pesticides might increase the risk of

prostate cancer incidence in the population exposed to these carcinogenic agents.

5. Conclusion

The actual incidence of prostate cancer in India is lower than that in the Western populations. Within India, prostate cancer has a wide variation in incidence, disease characteristics, and mortality, with the incidence being more in the urban population. Incidence of the disease is increasing in various parts of India. Changes in the diagnostic modalities, increased awareness among the public, and changing lifestyles may be responsible for much of the observed change. The lack of good population-based data in the country limits the ability of researchers to understand and report on the actual pattern and distribution of this disease. Meticulous implementation of registration and reporting mechanisms may improve knowledge regarding prostate cancer in India.

Conflicts of interest

The authors declare no conflicts of interest

Disclosures and funding

None

References

- [1] Center MM, Jemal A, Lortet-Tieulent J, Ward E, Ferlay J, Brawley O, et al. International variation in prostate cancer incidence and mortality rates. *Eur Urol*. 2012;61(6):1079–92.
- [2] Cullen J, Elsamanoudi S, Brassell S, Chen Y, Colombo M, Srivastava A, et al. The burden of prostate cancer in Asian nations. *J Carcinog*. 2012;11(1):7.
- [3] Kuroishi T. [International comparisons of prostate cancer incidence and mortality]. *Nihon Rinsho*. 2000;58 Suppl(May 1999):12–21.
- [4] Jemal A, Center MM, DeSantis C, Ward EM. Global patterns of cancer incidence and mortality rates and trends. *Cancer Epidemiol Biomarkers Prev*. 2010;19(8):1893–907.
- [5] Lalitha K, Suman G, Pruthvish S, Mathew A, Murthy NS. Estimation of Time Trends of Incidence of Prostate Cancer - an Indian Scenario. *Asian Pacific J Cancer Prev*. 2013;13(12):6245–50.
- [6] Rastogi T, Devesa S, Mangtani P, Mathew A, Cooper N, Kao R, et al. Cancer incidence rates among South Asians in four geographic regions: India, Singapore, UK and US. *Int J Epidemiol*. 2008;37(1):147–60.
- [7] Sim HG, Cheng CWS. Changing demography of prostate cancer in Asia. *Eur J Cancer*. 2005;41(6):834–45.
- [8] Zhang L, Wu S, Guo LR, Zhao XJ. Diagnostic strategies and the incidence of prostate cancer: Reasons for the low reported incidence of prostate cancer in China. *Asian J Androl*. 2009;11(1):9–13.
- [9] W. Scott McDougal, Alan J. Wein, Louis R. Kavoussi, Alan W. Partin CAP. *Campbell-Walsh Urology 11th Edition*. 2016.
- [10] <http://www.censusindia.gov.in> published by the Registrar General and Census Commissioner, India, Ministry of Home Affairs.
- [11] National Cancer Registry Programme (NCRP). Time trends in cancer incidence rates 1982-2005. Bangalore, India: Indian Council of Medical Research; 2009.
- [12] Jain S, Saxena S, Kumar A. Epidemiology of prostate cancer in India. *Meta Gene* 2014;2:596-605.
- [13] Hebert JR, Ghumare SS, Gupta PC. Stage at diagnosis and relative differences in breast and prostate cancer incidence in India: Comparison with the United States. *Asian Pac J Cancer Prev* 2006;7:547-55.
- [14] Sharma AG, Ajmera R, Saxena O. Cancer profile in eastern Rajasthan. *Indian J Cancer* 1994;31:160-73.
- [15] Cerhan JR, Parker AS, Putnam SD, Chiu BC, Lynch CF, Cohen MB, et al. Family history and prostate cancer risk in a population-based cohort of Iowa men. *Cancer Epidemiol Biomarkers Prev* 1999;8:53-60.
- [16] Giovannucci E, Rimm EB, Stampfer MJ, Colditz GA, Willett WC. Diabetes mellitus and risk of prostate cancer (United States). *Cancer Causes Control* 1998;9:3-9.
- [17] Giovannucci E, Rimm EB, Stampfer MJ, Colditz GA, Willett WC. Height, body weight, and risk of prostate cancer. *Cancer Epidemiol Biomarkers Prev* 1997;6:557-63.
- [18] Cerhan JR, Torner JC, Lynch CF, Rubenstein LM, Lemke JH, Cohen MB, et al. Association of smoking, body mass and physical activity with risk of prostate cancer in the Iowa 65+ Rural Health Study (United States). *Cancer Causes Control* 1997;8:229-38.
- [19] Alyson LJ, White E, Kristal AR. Anthropometrics and prostate cancer risk. *Am J Epidemiol* 2007;165:1271-9.
- [20] Platz EA, Yeole BB, Cho E, Jussawalla DJ, Giovannucci E, Ascherio A. Vasectomy and Prostate Cancer: A case - control study in India. *Int J Epidemiol* 1997;26:933-8.
- [21] Ali I, Waseem A, Wani, Saleem K. Cancer scenario in India with future perspective. *Can Ther* 2011;8:56-70.
- [22] Singh AN, Kirti, Dalela D, Sankhwar SN, Natu SM, Srivastava AN. Diagnosis and progression of Prostate Cancer in North Indian population: An affect of Body Mass Index and Age. *J Adv Res Biol Sci* 2013;5:256-9.
- [23] Amling CL, Riffenburgh RH, Sun L, Moul JW, Lance RS, Kusuda L, et al. Pathologic variables and recurrence rates as related to obesity and race in men with Prostate Cancer undergoing Radical Prostatectomy. *J Clin Onco* 2004;22:439-45.
- [24] Freedland SJ, Aronson WJ, Kane CJ, Presti JC Jr, Amling CL, Elashoff D, et al. Impact of obesity on biochemical control after Radical Prostatectomy for clinically localized Prostate Cancer: A report by the shared equal access Regional Cancer Hospital database study group. *J Clin Oncol* 2004;22:446-53.
- [25] Abhilash PC, Singh N. Pesticide use and application: An Indian scenario. *J Hazard Mater* 2009;165:112.
- [26] Banerjee BD. Gene-environmental interaction and prostate cancer: The Indian scenario. *Al Ameen J Med Sci* 2011;4:305-8.