SCIENTIFIC ARTICLE

With the rising trend of prostate cancer, where does northern Sri Lanka stand? a cohort study from a tertiary care centre.

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Abstract

Introduction

Prostate cancer is the second most common cancer among males all over the world in 2020. As per the global cancer observatory 1, 414, 259 (7.3%) cases were diagnosed in 2020 worldwide. The study aims to analyse the variations in demographic and clinico-pathological characteristics of prostate cancer in the Northern Province.

Methods

This is a cross-sectional descriptive institution-based study that recruited all the prostate cancer patients who were treated at the Teaching hospital, Jaffna from August 2019 to August 2022. Data were extracted retrospectively from the clinic records of the patients as well as histopathology documents.

Results

A total of 141 diagnosed patients at Teaching Hospital Jaffna were analysed. The mean age of the sample was 70.11± 8.43 years. Out of 141 patients, 30.49% were diagnosed to have localized disease and 26.24% and 43.26% with locally advanced and metastatic disease respectively. Out of those who had localized disease 68.5% were managed with radiotherapy, 23.25% with active surveillance and 11.6% with radical prostatectomy. The mean value of PSA was 70.11±8.4. The majority 97.2% had small acinar adeno carcinoma as histology. As per the D'Amico classification system for prostate cancer, 2.83% belonged to low-risk category, 80.1% belonged to high-risk category.

Conclusion

There is a rising trend in the incidence of prostate cancer in Sri Lanka over the recent past. Most of the cases are advanced at the initial presentation. It implies the need for screening programmes with PSA in near future to detect cancer at early stages, implementation of cancer awareness programmes as practised in Western countries and strict adherence to national guidelines on management and referral pathways

Introduction

Prostate cancer is the second most common cancer among males and the fourth most common cancer all over the world in 2020. As per the global cancer observatory 1, 414, 259 (7.3%) cases were diagnosed in 2020 worldwide. It is the fifth most common cancer among males in Sri Lanka with an incidence of 896 (6.3%) in 2020. 364 deaths have been reported due to prostate cancer in 2020 in Sri Lanka [1].

There is a geographical variation in the incidence and prevalence of prostate cancer worldwide. It is said that the incidence is higher among African American men and their mortality is nearly double than of white men [2]. As per the GLOBOCAN estimate the highest incidence of prostate cancer is in Europe followed by Asia and the mortality is highest in Asia leaving Europe in second place [1,3].

Over the last three decades, there is a dramatic increase in the incidence of prostate cancer due to increased detection by means of serum prostate specific antigen (PSA) testing and the incidental detection from the specimens of transurethral resection of prostate (TURP) specimens as a treatment of symptomatic enlarged prostates, increased awareness of prostate cancer among public and also due to increase in the elderly population [4]. Development of prostate cancer has a multifactorial aetiology. They are age, ethnicity, family history, environmental factors, obesity and dietary factors [4]. Prostate cancer is more common in those above 75 and less likely in those less than 40. The age coincides with the years at which the androgen/ oestrogen level reverses. It is said that Afro-Caribbean men are at greatest risk of prostate cancer than Caucasian men and Japanese men have the least risk than others. Anyhow Japanese men living in other parts of the world have an increased risk which shows a strong geographic and environmental influence on the development of prostate cancer [4-6].

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The objective of this study is to analyse the variations in demographic and clinico-pathological characteristics of prostate cancer in the Northern Province.

Methodology

This is a cross-sectional descriptive institution-based study. The study population was all the prostate cancer patients who were treated at the Teaching hospital, Jaffna. The study period was from August 2019 to August 2022. The sample size was all the patients who were diagnosed and treated for prostate cancer during the study period. Data were extracted retrospectively from the clinic records of the patients as well as histopathology documents. A data extraction sheet was used to collect socio-demographic details and clinical details at initial presentation, imaging data and histopathological data during clinical reviews. The data were analysed using the Pearson chi-square test, and graphical illustrations.

Results

A total of 141 diagnosed patients at Teaching Hospital Jaffna were analysed. The mean age of the sample was 70.11± 8.43 years. Out of 141 patients, 43 (30.49%) were diagnosed to have localized disease and 37 (26.24%) and 61(43.26%) with locally advanced and metastatic disease respectively. Among those with localized disease, 4 had T1 and 39 had T2 stage, in those with locally advanced disease 18 had T3 and 19 had T4 and in those with metastatic disease 8 had T3 and 53 had T4 stage on Digital Rectal Examination (DRE) (Table 1)

The mean value of PSA was 70.11±8.4. 38 (26.9%) patients had a PSA value of more than 100, 44 (31.2%) ranging between 51 and 100, 36 (25.53%) between 11 to 50 and 23(16.1%) less than 10.

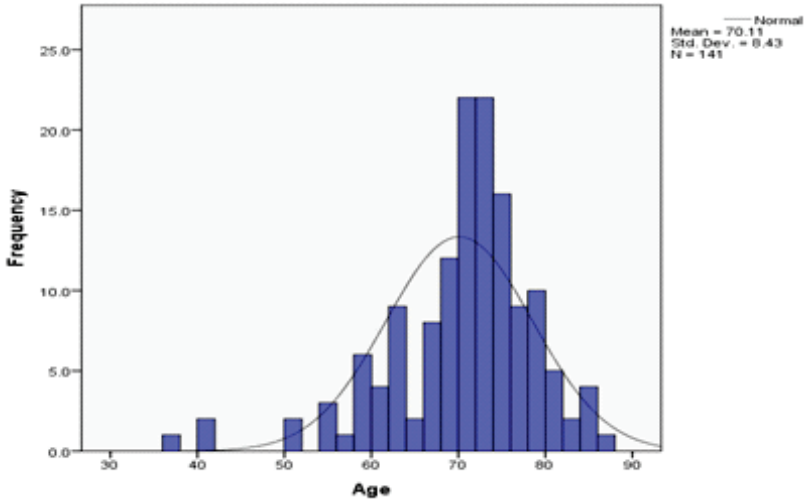

Figure 1. Age distribution of patients.

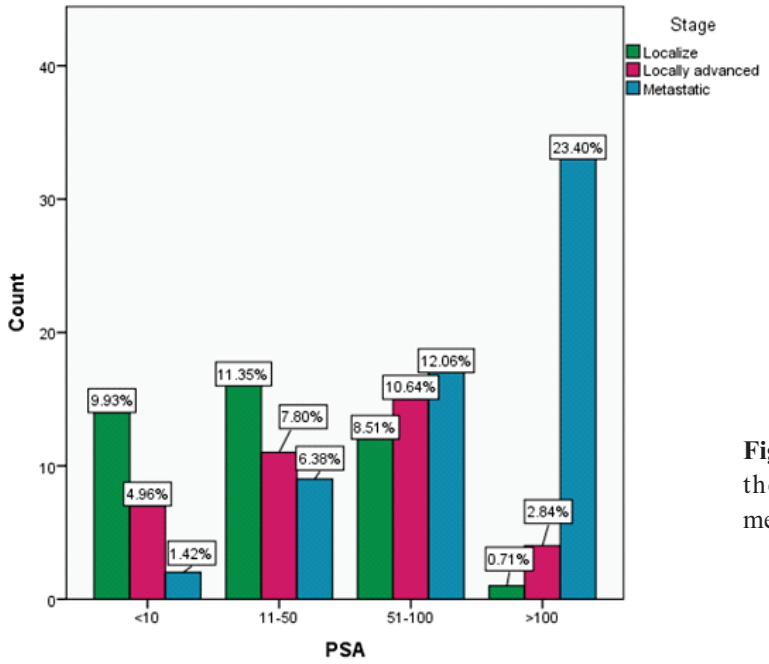

Figure 2. Distribution of PSA value among the localized, locally advanced and metastatic patients

Table 1: Distribution of clinical T staging with the localize, locally advanced and metastatic patients.

Clinical T Stage	Stage			Total
	Localize	Locally advanced	Metastatic	
T1	4(2.8%)	0	0	4(2.8%)
T2	39(27.7%)	0	0	39(27.7)
T3	0	18(12.8%)	8(5.8%)	26(18.4%)
T4	0	19(13.5%)	53(37.6%)	72(51.0%)
Total	43(30.5%)	37(26.2%)	61(43.3%)	141(100%)

Out of the 38 patients who had a PSA of more than 100, 33 were diagnosed to have metastatic disease, 4 had locally advanced and one had localized prostate cancer. Among those who had a PSA value ranging between 51 and 100, 17 had metastatic disease and 15 and 12 had locally advanced and localized disease respectively. Of those who had a PSA value ranging between 11 and 50, 9 had metastatic disease, 11 and 16 had locally advanced and localized disease respectively. Of those who had a PSA less than 10, 2 had metastatic disease, 7 and 14 had locally advanced and localized disease respectively. Among the 141 patients 27 (19.15%), 15 (10.64%), 29 (20.57%), 44 (31.21%) and 26 (18.44%) had an ISUP grade group of 1,2,3,4 and 5 respectively. 19 (73%) patients who had an ISUP grade group of 5 had metastatic disease. 25 (56.8%) patients who had an ISUP grade group of 4 was found to have localized disease. 19 (65.5%) patients who had an ISUP grade group of 3 had metastatic disease. 9 (60%) patients with ISUP grade group of 2 had metastatic disease.

As per the D'Amico classification system for prostate cancer, 2.83% (n=4) belonged to low risk category, none in the intermediate category and 80.1% (n=113) belonged to high risk category (Table 2).

Out of those who had localized disease 28 (68.5%) were managed with radiotherapy, 10 (23.25%) with active surveillance and 5 (11.6%) with radical prostatectomy. Patients with locally advanced disease were offered androgen deprivation therapy followed by radiotherapy. Among the 61 with metastatic disease, 50 had poly metastatic disease and 11 had oligometastasis. Nine (6.1%) had metastasis to the para aortic lymph nodes (M1a), 42 (29.6%) had metastasis to bones only (M1b) and 8 (5.6%) had metastasis to distant organs with or without involvement of bones (M1c). Polymetastatic disease were managed with Androgen Deprivation Therapy (ADT) alone or ADT followed by systemic chemotherapy depending on the performance score of the patients. Oligometastatic disease were treated with ADT followed by radiotherapy to the prostate gland in selected patient.

The majority 139 (97.2%) had small acinar adeno carcinoma as histology whereas 2 (2.8%) had ductal adenocarcinoma.

Table 2: The D' Amico classification system of prostate cancer

Risk category	Localize	Locally advanced	Metastatic
Low risk	4 (2.83%)		
Intermediate Risk	0		
High Risk	15 (10.6%)	37 (26.2%)	61 (43.3%)

Discussion

The incidence of prostate cancer in the Asian population seems to be much lower than in the Western population. Anyhow with the increase in the aging population, increase in PSA screening and disease awareness, increase in imaging modalities and incidentalomas and the westernization of Asians results in the progressively rising incidence of prostate cancer in recent years [7]. A review by Ha Chung et al. showed a general increase in prostate cancer incidence across China, India, South Korea, Vietnam, Japan, and Singapore [8].

Sri Lanka also shows a rising incidence of prostate cancer in recent years. The crude incidence rate of prostate cancer in Sri Lanka was 3.1 per 100 000 population in 2005, while it was 9.5 per 100 000 population in 2019, thus it shows a three-fold increase over the last 14 years[3]. A similar incidence can be noticed in India, which was 9.47/100000 population [1]. 141 patients diagnosed over the last three years in a tertiary care hospital in Northern province is indeed a big number. A similar trend has also been noted in a tertiary care hospital in the south of Srilanka, with 386 cases over 5 years [9].

Prostate cancer is the most common malignancy among older men. 64% of new prostate cancer cases in the United States were diagnosed in men older than age 65 years, and 23% in men older than age 75 years [10]. In a recent Sri Lankan study based on national cancer registry, the age at diagnosis was 65 years and above in almost 76.8% of cases and the highest number of cases was seen in the age group of ≥75 years. In this study, the mean age at diagnosis is 70.11+± 8.43 years. It seems patients from the northern part of Sri Lanka develop the disease fairly at a younger age compared to the other parts of Sri Lanka. Of the patients metastatic disease, the majority of them belongs to an age group of 63 to 75 years (57.3%, n=35) and the majority of patients with locally advanced disease belongs to an age group of 63 to 75 years (56.7%, n=29).

American cancer society (ACS) recommends the use of PSA as a screening test for prostate cancer and there is a rising tendency to use PSA as a screening test worldwide but not in Sri Lanka. There is no cutoff value of PSA to diagnose or exclude malignancy. Many use a cutoff value of 4 ng/ml to decide whether the patient needs further evaluation or not. As per the ACS guidelines, still, about 15% of men with a PSA below 4 will have prostate cancer if a biopsy is done, men with a PSA level between 4 and 10 have about a 1 in 4 chance of having prostate cancer and if the PSA is more than 10, the chance of having prostate cancer is over 50%. In this study, we have noticed 4.9% (n=7) of cases with prostate cancer having PSA less than 4, 23 with a PSA <10, out of which 2 were having metastatic disease.

In countries where routine PSA screening is practised, more than 90 per cent of prostate cancers are detected as localized disease and only 4 per cent of prostate cancers present with metastasis[11]. In India where routine screening with PSA is not practised, the majority of patients present in advanced stages [12]. Similarly in Sri Lanka, we see a majority of cases with an advanced disease which might be due to the absence of screening programmes. In this analysis more than two third of our patients presented with advanced disease, 61 (43.3%) with metastatic disease and 37 (26.2%) with locally advanced disease. Out of the patients with localized and locally advanced disease, a majority (n=52) belong to D' Amico high-risk category.

Recent guidelines by the national cancer control programme of the Ministry of Health, Sri Lanka recommends opportunistic screening with PSA for those with LUTS having clinically malignant or suspicious prostate gland on digital rectal examination or benign prostate on digital rectal examination but age below 70 years [13]. The true incidence of prostate cancer in Sri Lanka is underestimated in most instances due to a lack of proper referral pathways and it is being managed by non-urological surgeons as well.

Conclusion

There is a rising trend in the incidence of prostate cancer in Sri Lanka over the recent past. Most of the cases are advanced at the initial presentation. It implies the need for implementation of screening programmes with PSA in near future to detect cancer at early stages, implementation of cancer awareness programmes as practised in Western countries and strict adherence to national guidelines on management and referral pathways.

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