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Original article

Pattern of Presentation and Treatment of Prostate Cancer in Southwestern, Nigeria

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ABSTRACT

Aims. *This study was aimed at finding the pattern of presentation and treatment of prostate cancer in our community and was to determine the socio-demographic data, clinical features at presentation, investigations done including PSA, treatments offered, incidence and outcome of prostate cancer in our immediate community.* ***Method.*** *The records of patients that were managed for histologically confirmed prostate cancer were retrieved from the hospital medical record department. The information gathered from the case files was analyzed by using SPSS version 23.* ***Results.*** *A total number of 181 patients were histologically confirmed with prostate cancer during the year under review. This is equivalent to an average hospital incidence of 0.024569. The age range of the study group was 46-90years with a mean of 66.67+/8.7SD. All the patients presented with lower urinary tract symptoms. 98.89 % (n=179) were diagnosed with advanced prostate cancer. 93.92 % (n=170) had bilateral total orchidectomy while 5.52% (n=10) preferred medical castration. 0.552 % (n=1) is on watchful waiting. Some of the patients had marked clinical improvement following androgen deprivation therapy (ADT) 19.32% (n=35) mortality was recorded. 44.19% (n=80) were lost to follow-up. 16.57% (n=30) developed castrate resistant prostate cancer (CRCP).* ***Conclusion.*** *The average hospital incidence was 24.5per 1000(2012-2022) and the average age of incidence was 66.67 years. Majority of the study group presented with metastasis.*

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INTRODUCTION

Prostate cancer is the most frequently diagnosed cancer in men.[1] It is the 3rd most common cause cancer death in men and 4th most common cause of cancer death overall.[2] It is rare before the age of 50years.[3] Average age of diagnosis is 67years.[4] Incidence rate is higher among Africans-Americans, intermediate in Caucasians, lowest in Orientals and Chinese Americans.[5] There is no direct evaluation of the incidence of prostate cancer in Nigeria, however cancer registries across the state indicate that it is the most common malignant tumor in men in Nigeria.[6] The etiology of prostate cancer is still largely unclear.[7] Some of the risk factors that have been linked with prostate cancers are increasing age, family history, high intake of omega-polyunsaturated fatty acids, physical inactivity, obesity and certain race.[8] Patients with organ confined disease maybe asymptomatic while patients with advanced disease often present with complication.[9] The diagnosis of prostate cancer is suspected following suspicious findings on digital rectal examination or an elevated serum prostate specific antigen. This is confirmed by prostatic needle biopsy. Abdominipelvic magnetic resonance and chest imaging are done to stage the disease. Patients with clinical T3,or T4, disease, Gleason score of more than eight or serum prostate specific antigen of more than 15-20ng/ml have a high risk of bone metastasis from prostate cancer.[10] These patients may require radioisotope bone scan.[11] Active

surveillance, watchful waiting, radical prostatectomy, radiotherapy, focal prostate cancer therapy and androgen deprivation therapy are the options of treatment for prostate cancer. Patients with organ confined disease, life expectancy of more than 10-15 years, good performance status may benefit from radical prostatectomy or radical radiotherapy to cure the disease.[12] The gold standard treatment option for metastatic prostate cancer is androgen deprivation therapy (ADT).[13] It is palliative.[14] The approaches to androgen deprivation therapy are either surgical castration or medical castration. The outcome of these approaches has been reported to be similar.[15] The knowledge of the pattern of presentation and treatment of prostate cancer are key to understanding the natural history of the disease. This study could be part of several similar studies that could serve as the hypothesis about the pathology of prostate cancer. This study was aimed at finding the pattern of presentation and treatment of prostate cancer in our community and our objective is to determine the socio-demographic data, clinical features at presentation, investigations done including PSA, treatments offered, incidence and outcome of prostate cancer in our community.

METHODS

Study design and setting

It was a retrospective hospital based study.

Study population

This study included all patients with histologically confirmed prostate cancer between July 2012-June 2022.

Data collections procedures

The records of patients that were managed for histologically confirmed prostate cancer during the years under review were retrieved from the hospital medical record department including the total number of surgical patients seen during the years under review. The information gathered from the case files of the patients include socio-demographic data, the clinical features of the patients at presentation, investigations done, treatments offered and outcome.

Data analysis

The information was entered into SPSS version 23 for analysis. Descriptive analysis was done and the results were presented in tables.

RESULTS

A total number of 181 patients were histologically confirmed with prostate cancer during the year under review. All of them had digitally guided prostate needle biopsy. The total number of surgical disaese seen over the same period was 7,367. The average hospital incidence of prostate cancer over the 10-year period (2012-2022) was 24.5per 1,000. The age range of the study group was 46-90years with a mean of 66.67+/8.7SD and peak incidence at seventh decade of life. (Table1).

Table 1. Age distribution of the study group

Age in year	Frequency n (181)	Percentage (%)
40-50	07	3.9
51-60	35	19.3
61-70	87	48.1
71-80	42	23.2
81-90	10	5.5
	66.67+/8.7	

The Yoruba (98.89%, n=179) and Igbo (1.12%, n=2) were the only ethnic group discovered among the study group. Their occupational distribution showed skilled labor (22.09%, n=40), semi-skilled labor (33.14%, n=60) and unskilled labor (44.75%, n=81). All the patients presented with lower urinary tract symptoms. Other symptoms noted at presentation were hematuria (17.26%, n=32), positive family history of prostate cancer (2.2%, n=4), history of cigarette smoking (22.09%, n=40), low back pain (66.29%, n=120), bilateral leg swelling (27.60%, n=50), significant unintended weight loss (11.04%, n=20), hypertension (33.14%, n=60) and diabetes (16.57%, n=30). Significant findings on examination were pallor, inguinal hernia and paraplegia. A total number of 30 patients (16.54%) presented with an indwelling urethral catheter while71.80 %(n=130) had suspicious findings on examination. Pathological fracture, renal failure and castrate resistant prostate cancer were complications noted in the patients. (Table2). The

mean Gleason score was 7.883+/0.88 while serum prostate specific antigen (PSA) ranged from 3-126 with a mean of 64.8ng/ml+/28. A total number of179 patient (98.80%) was diagnosed with advanced prostate cancer. while 1.12 %(n=2) were diagnosed with organ confined disease. These two patients were confirmed following open simple prostatectomy specimen for benign prostate enlargement. Bilateral total orchidectomy was done in 170 patients (93.9) while 5.52 %(n=10) had medical castration. The remaining one patient is on watchful waiting. The duration of follow-up was six months to ten years. All the patients with pallor were adequately transfused. Mortality was recorded in 19.33% (n=35) while 44.17 %(n=80) were lost to follow-up. Thirty-seven percent (n=66) are still on follow-up. Ten out of these patients have lived up to 10 years. The serum prostate specific antigen (PSA) six weeks after androgen deprivation therapy ranged from 0.1-90ng/ml with a mean of 4.9ngml+/10. Serum PSA of less than four was noted in 156 (86.18%) following androgen deprivation therapy (ADT) and serum testosterone at castrate level. while in 13.81% (n=25) it was more than four. Patients with serum PSA of more than four after ADT had maximum androgen blockade. Thirty patients (16.57%) developed Castrate Resistant Prostate Cancer (CRCP). The average duration of Androgen Deprivation Therapy (ADT) to the development of CRCP was 48.1Months. Sixty percent (18 patients) out of 30 patients that presented with an indwelling urethral catheter had successful trial of voiding without catheter following ADT. The remaining 12 patients that had failed attempts at trial of voiding without catheter were referred for channeling transurethral resection of the prostate. Twenty percent (4 patients) out of the 20 patients with paraplegia were able to walk with support after ADT. All the patients with large bowel obstruction regained normal bowel habit following ADT. Sixty percent (3 patients) out of the patients with pathological fracture had open reduction and internal fixation of the femur. Patients with anemia were transfused. Patients with renal failure were managed conservatively and with salvaged haemodialysis. Patients that developed CRCP were managed palliatively with antiandrogen, secondary hormonal therapy, docetaxel based chemotherapy and some were referred for radiotherapy.

Table 2. Clinical features of the study group

Factors	Frequency N	Percentage (%)
Lower urinary tract symptoms	181	100
Hematuria	32	17.26
Positive family history	4	2.2
Tobacco smoking	40	22.09
Low back pain	120	66.29
Bilateral leg swelling	50	27.6
Weight loss	20	11.04
Hypertension	60	33.1
Diabetes mellitus	30	16.57
Pallor	89	49.17
Inguinal hernia	30	16.97
Paraplegia	20	11.04
Indwelling urethral catheter	30	16.97
Suspicious DRE	130	71.82
Pathological fracture	5	2.76
Large bowel obstruction	5	2.76
Renal failure	55	30.38

DISCUSSION

We have highlighted the clinical burden of prostate cancer considering our observation on the pattern of presentation. The average hospital incidence of prostate cancer noted in this study was relatively higher than what was observed in a similar study in an environment similar to ours eight years prior to this work by Badmus et al in Ife.[4] This may indicate rising incidence of prostate cancer in this environment. This study did not differ from previous similar study on the average age of incidence of prostate cancer.[16] Old age has been consistently linked with the development of the disease.[2] Majority of the study group were Yoruba. This perhaps reflects the location where this work was done. The incidence of hereditary prostate cancer is largely unknown, however it has been inconsistently reported that hereditary prostate cancer accounts for 12% of prostate cancer.[17] Positive family history of prostate cancer was noted in 2.2%, although, the establishment of hereditary prostate cancer will require germ line and genetic

investigation, positive family history maybe a pointer to the diagnosis. We observed that some of the study group reported history of tobacco smoking. Although tobacco smoking is a primary cause of various cancer, the association between prostate cancer between tobacco smoking and prostate cancer remains inconsistent.[18]

All our patients presented with symptoms and some with complication. This connotes an advanced disease as early prostate cancer is essentially asymptomatic. This is in conformity with similar studies done in an environment similar to ours[4]. This may be due to factors such as poor health care seeking behavior, inadequate prostate cancer awareness programme and lack of prostate cancer screening programme. Two patients among the study group had organ confined disease. These two patients were confirmed with prostate cancer after simple prostatectomy. The development of lower urinary tract symptoms in them even though they had organ confined disease might be due to co-existed benign prostate enlargement. The rate of organ confined disease is in contrast to what was reported in Lagos, Nigeria as well as Ghana where organ confined prostate cancer was diagnosed in 26% and 15.3% respectively.[19],[20] This differs from the report in the developed countries where the diagnosis of organ confined disease is higher.[21] This has been linked to increased prostate cancer awareness and effective screening program.[22]

The minimum value of 3ng/ml of serum prostate specific antigen (PSA) observed in this study further corroborated the fact that PSA cannot sufficiently discriminate between a benign and malignant prostate as generally serum PSA of less than four is not considered as high risk for prostate cancer and thus the need for prostate needle biopsy in this environment.[23] However some authorities have considered PSA of 2.5ng/ml or less as an indication for prostate biopsy.[24] A maximum value of 126ng/ml was synonymous with metastatic disease as noted at presentation. Serum PSA of more than 100ng/ml has been linked with extra-capsular prostate cancer disease.[25]

Majority of the patients had surgical castration as a form of androgen deprivation therapy (ADT) because nearly all our patients presented with metastasis. ADT is the gold standard palliative intervention for metastatic prostate cancer. Although the incidence of metastatic prostate cancer is lower in the developed world, medical castration remains the most common interventions.[15] This may not be unconnected with a likely phobia for surgery despite its potential advantage of low cost, less tedious follow-up and similar survival compared to medical castration.[26] Some of our patients had improved clinical status following ADT. This showed the efficacy of androgen deprivation therapy in ameliorating the burden of advanced prostate cancer. Two of our patients that were diagnosed with organ confined disease were counseled for radical prostatectomy or radiotherapy but they declined due to the fear of the extensive surgery and likely attendant complication of urinary incontinence. The high mortality rate of prostate cancer in this series may not be unconnected with late presentation with probably no chance of cure. Although duration of symptoms was not determined but clinical features at presentation are strong pointers to delayed presentation.

Ten of our patients have lived up to ten years. This lays credence to the effectiveness of ADT in palliating metastatic prostate cancer. We noted that the mean duration of time of development of CRCP from the time of ADT was 48 months. This is low compared to similar studies where the median time to the development of CRCP was over a hundred months.[27] This may not be unconnected with the high presence of metastasis at presentation. A longer time to the development of CRCP from the time of ADT is usually observed in patient with locally advanced prostate cancer treated with ADT. The presence of metastasis is an independent predictor of a shorter time to the development of CRCP.[28] The study was a retrospective study and thus prone to recall bias.

CONCLUSION

we have highlighted the clinical burden of prostate cancer in our environment. The average hospital incidence was 24.5per 1000(2012-2022) and the average age of incidence was 66.67 years. Majority of the study group presented with metastasis. Androgen Deprivation Therapy (ADT) was the most common surgical intervention for prostate cancer in our environment since nearly all of them presented in advanced stage. Androgen deprivation therapy is an effective palliative therapy for metastatic prostate cancer.

We recommend general prostate cancer awareness and screening programme to ensure an early diagnosis and possibility of curative therapy. The management of prostate cancer should be included in the country National Health Insurance Scheme (NHIS).

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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