International Journal on Oncology and Radiotherapy

Adenocarcinoma of the Prostate in Young Patients: Management and Outcomes in a Urology Center in Douala Cameroon

Research Article

Volume 3 Issue 1- 2022

Author Details

Cyril Kamadjou[1,2], Jerry Kuitche[1], Annie Kameni[1], Justin Kamga[3], Achille Mbassi[4] and Fru Angwafo[5]*

[1]*Medico Surgical Center of Urology and Mini Invasive Surgery, Cameroon*
[2]*Department of Surgery and Specialties, University of Douala, Cameroon*
[3]*Yaounde General Hospital, Cameroon*
[4]*Yaounde Medical Technology Institute, Cameroon*
[5]*University of Yaoundé I, Cameroon*

*Corresponding author

Medico Surgical Center of Urology and Mini Invasive Surgery, Department of Surgery and Specialties. University of Douala, Cameroon

Article History

Received: July 20, 2022 Accepted: July 25, 2022 Published: July 26, 2022

Abstract

Background: Prostate cancer which is the second most frequent cancer diagnosis made in men, more commonly occurs in the elderly. However, it sometimes occurs in younger men, especially in those with a family history of the condition. This study aimed to determine the characteristics of prostate cancer in younger adults and identify the determinants of the early screening and diagnosis of this pathology.

Methods: We performed a retrospective study from 2012 to 2016 at the Centre medico-chirugical durologie in Douala Cameroon in which we included 29 patients aged 60 years or less who had prostate cancer diagnosed via histopathology after either prostate biopsy or palliative endoscopic prostate resection. Epi-info 7 was used for data analysis and the Kaplan-Meier curve was used to estimate the overall survival of the study participants.

Results: The mean age of our study participants was 50.66 ± 5.31 years. Nine patients had a contributive family history of prostate cancer. Seventeen patients had metastases, with ten having bone metastases and thirteen having lymph node metastases. As initial therapy nine patients underwent laparoscopic total radical prostatectomy seven underwent medical Androgen Deprivation Therapy (ADT), ten underwent surgical ADT (bilateral pulpectomy), two underwent radiotherapy and one underwent active surveillance. Four patients underwent secondary treatment with two of them undergoing chemotherapy one undergoing ADT and one undergoing radiotherapy. Tumor recurrence occurred in seven patients. The rate of tumor recurrence was significantly higher among patients with a contributive family history. Six patients died in this study and the five-year overall survival of our study participants was 80%.

Conclusion: Prostate cancer is a major public health issue not only in the elderly but also in younger men. Screening for this condition could be performed in younger patients too especially those with a contributive family history to ensure early diagnosis and reduce the morbidity and mortality associated with the condition.

Keywords: Prostate cancer; Young patients; Prostate biopsy; Palliative treatment

Introduction

Prostate cancer is the second most frequent cancer diagnosis made in men and the fifth leading cause of cancer-related death worldwide [1]. It is the most frequently diagnosed cancer among men in Northern and Western Europe [2]. It is the leading cancer in terms of incidence and mortality in men of African origin and is becoming more and more an issue of public concern in Africa since the majority of new diagnoses are cases of advanced and metastatic cancer, with poor prognosis and low chances of long-term survival [3]. Ferlay et al. [4] estimated that 57,048 deaths will be caused by prostate cancer in Africa by 2030. This represents a 104% increase over the next 10 years [4]. This tendency differs from the one in the developed world. For instance in the United States it was reported that 66% of the patients who had a diagnosis of prostate cancer in 1975 survived more than 5 years and that proportion rose to 98.2% between 2008 and 2014 [5]. Although prostate cancer is essentially a disease of the elderly, it can also occur in younger people. Only 1 in 350 men under the age of 50

years will be diagnosed with prostate cancer [6]; however, the incidence rate increases up to 1 in every 52 men for ages 50 to 59 years and is nearly 60% in men over the age of 65 years [1]. In the United States Bleyer et al. [7] reported that over the past three decades the incidence of prostate cancer in younger men has been increasing [7]. One of the major determinants of the occurrence of this pathology in younger people is a contributive family history. A positive family history of prostate cancer is associated with a two- to three-fold greater risk with additional increases for multiple affected relatives and younger ages at diagnosis [8]. The family history is more contributive in younger men than in elderly men. In the Health Professionals Follow-up Study having a positive family history of prostate cancer was associated with a greater increase in risk among men under 65 years than among their counterparts aged 65 years and over [9]. Hence, our study aimed to determine the characteristics of prostate cancer in younger adults and identify the determinants of the early screening and diagnosis of this pathology in a bid to reduce its associated morbidity and mortality in this part of the globe.

Materials and Methods

This is a retrospective study that was carried out from 2012 to 2016 at the Centre medico-chirugical durologie in Douala, Cameroon. We included 29 patients aged 60 years or less who had prostate cancer diagnosed via histopathology after either prostate biopsy or palliative endoscopic prostate resection and excluded all patients with incomplete clinical records. The data collected from the clinical records of our study participants included each patient's age, family history of prostate cancer, clinical presentation (including digital rectal examination findings), serum Prostate-Specific Antigen (PSA) levels, transrectal ultrasound findings, number of biopsy samples taken, the Gleason score, Computed Tomography (CT) findings, bone scintigraphy findings, pelvic Magnetic Resonance Imaging (MRI) findings, the presence or absence of metastasis (either to the bone or to the lymph nodes), the histological grade, initial treatment, follow-up serum PSA levels (at three, six, and nine months), tumor recurrence, time-lapse till tumor recurrence, serum PSA levels of patients with recurrent tumors, the second treatment, follow-up duration and patient outcome (survival/death). Digital rectal examinations were considered remarkable (or positive) if the examiner felt indurations and/or nodules on the prostate gland on palpation. The Gleason grading system used to classify the tumors in this study is presented in (Figure 1).

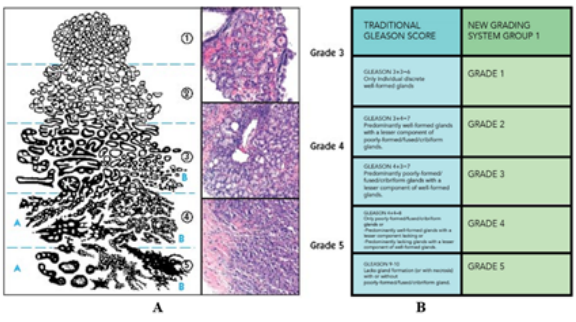

Figure 1: Classification of prostate cancer; A: Gleason grading system, B: New Gleason grading system.

In this study, it was not possible to ascertain the tumor pathologic stage of all the study participants since they did not all undergo surgery. So, the criteria for aggressivity in this study were the presence of metastases, serum PSA > 50 ng/ml and a Gleason score of ≥ 8 and patients who fulfilled these three criteria were considered to have aggressive prostate cancer. Biopsy was performed using a biopsy gun with the patients in the lateral decubitus position and under local anesthesia (using 2% Xylocaine). These biopsy samples were placed in formol inside little containers and transported immediately to the laboratory for histopathological analyses. All study participants received 500 mg of ciprofloxacin twice daily two days before and three days after a biopsy. Samples were taken from both lobes of the prostate gland as follows: two samples each from the right anterior lobe, right median lobe, right apex, left anterior lobe, median left lobe, and left apex. The recommended 12 samples were taken from a majority of the study participants. However, fewer samples were taken from the few patients who had high serum PSA levels and remarkable DRE findings (implying a higher probability of having prostate cancer). In patients who presented with severe lower urinary symptoms, significantly high serum PSA levels, remarkable DRE findings and paraneoplastic syndromes, endoscopic prostate resection was performed to relief them of their symptoms and obtain samples for biopsy at the same time. The extension evaluation in our study participants consisted of thoracic and abdominopelvic CT, pelvic MRI and bone scintigraphy. However, not every patient in our study underwent bone scintigraphy because the only available machine in the country went faulty during our study period. The extension workup of our study participants consisted of thoracic and abdominopelvic computed tomography (Figure 2) and MRI of the vertebral column (Figure 3). (Figure 2) shows advanced prostate cancer with bladder neck infiltration. Magnetic resonance images of bone metastases to the vertebral column and their effects are shown in (Figure 3).

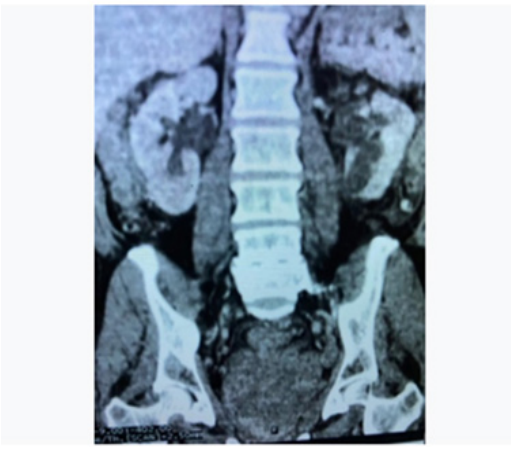

Figure 2: CT image of advanced prostate cancer with bladder neck infiltration and bilateral hydronephrosis.

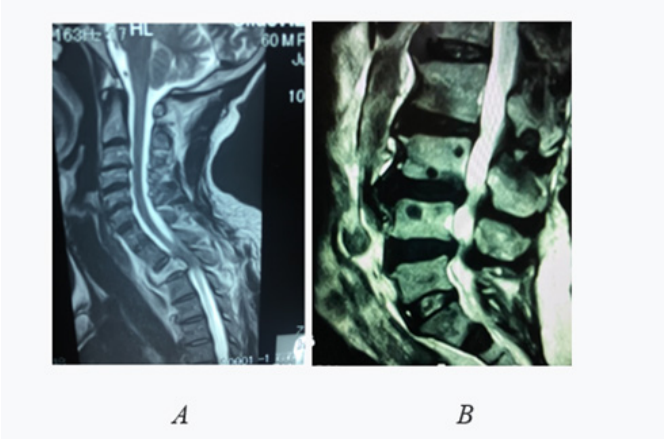

Figure 3: Magnetic resonance image of bone metastases of prostate cancer at the vertebral column and their effects. A: Spinal cord compression; B: Prostate cancer with bone metastasis.

After clinical assessment, biological workups and extension evaluations we proposed an initial treatment for each patient. This treatment was either laparoscopic radical prostatectomy and radiotherapy for

localized tumors or Androgen Deprivation Therapy (ADT) for patients with metastatic cancer. ADT was essentially either medical, with LHRH agonists (intramuscular injections of 11.25 mg of decapeptyl every three months) or surgical, via bilateral pulpectomy. Total radical prostatectomy was always accompanied by ilio-obturator lymph node dissection in our study. However, one of our patients whose condition was diagnosed early enough were managed through active surveillance as he met the criteria for this management method (asymptomatic disease, PSA density of < 0.15 ng/ml, Gleason score < 7, and the presence of fewer than three cores containing malignant cells and the absence of metastasis) [10].

These data were entered into Microsoft Excel 2007 and exported to Epi Info 7 for analysis. Continuous data were presented using the mean value and standard deviation for variables with normally distributed data and the median and interquartile range for variables with skewed data distributions. Categorical data were presented as frequencies and percentages. The Mann-Whitney U test and Student's t-test were used to compare continuous data for skewed and normally distributed variables, respectively, while the chi-square test was used to compare proportions between categorical variables. Kaplan-Meier survival analyses were performed to determine the five-year overall survival of our study participants. P-values of < 0.05 were considered statistically significant. This study was approved by the institutional review board of the Faculty of Medicine and Pharmaceutical Sciences of the University of Douala and the ethics committee of the Centre medico-chirugicale durologie, Douala, Cameroon. The requirement for informed consent was waived due to the retrospective study design.

Results

We included a total of 29 patients aged 42-60 years with a mean age of 50.66 ± 5.31 years. Nine (31.03%) of our study participants had a contributive family history of prostate cancer. Of the 29 patients in our study, 11 (37.93%) had lower urinary tract symptoms, 5 (17.24%) had joint pains, 2 (6.9%) had femoral neck fractures, 1 (3.45%) had intervertebral disc herniation, and 10 (34.48%) were asymptomatic. Digital rectal examination findings were remarkable in 23 (79.31%) patients and unremarkable in 6 (20.69%) patients. The characteristics of the study participants are presented in (Table 1).

Table 1: Characteristics of the study participants.

Variable	Frequency (%)
Age	
42-45	5 (17.24)
46-50	14 (48.28)
51-55	3 (10.34)
56-60	7 (24.14)
Family History	
Contributive	9 (31.03)
Unremarkable	20 (68.97)
Clinical Presentation	
Lower urinary symptoms	11 (37.93)
Asymptomatic	10 (34.48)
Joint pains	5 (17.24)
Femoral neck fracture	2 (6.9)
Intervertebral disc herniation	1 (3.45)
Digital Rectal Examination	
Remarkable	23 (79.31)
Unremarkable	6 (20.69)

The ages of the nine patients with a contributive family history ranged from 42 years to 60 years with a mean value of 41.89 ± 6.07 years. There was no statistically significant difference between the mean age of the patients with and without a contributive family history (P = 0.39). One of them (11.11%) was asymptomatic, 4 (44.44%) had lower urinary tract symptoms, 2 (22.22%) had femoral neck fractures and 2 (22.22%) had joint pains. All nine of them had remarkable Digital Rectal Examinations (DREs). There was no statistically significant difference between the DRE findings of the patients with and without a contributive family history (P = 0.08). Their serum PSA levels ranged from 30 ng/ml to 1000 ng/ml with a median value of 300[75-500] ng/ml. There was no statistically significant difference between the serum PSA levels of the patients with and without a contributive family history (P = 0.15). The volumes of their prostate glands ranged from 29 ml to 270 ml with a median value of 57[45-84] ml. There was no statistically significant difference between the prostate volumes of the patients with and without a contributive family history (P = 0.79). One of them (11.11%) had a Gleason score of 10 (5 + 5), three of them (33.33%) had a Gleason score of 9 (4 + 5), three of them (33.33%) had a Gleason score of 8 (4 + 4), and 2 (22.22%) had a Gleason score of 7 (3 + 4). As for the histological classification, six of them were not classified and 1 (11.11%) each were of grades pT3aN0Mx, pT3N1Mx and pT3bN0Mx. Five (71.43%) of the seven cases of recurrence occurred in patients with a contributive family history. There was a statistically significant difference in the rate of recurrence between patients with and without a contributive family history (P = 0.016). Three (50%) of the six patients that died had a contributive family history of prostate cancer. There was no statistically significant difference in the death rate between the patients with and without a contributive family history (P = 0.26). The profiles of the participants with a contributive family history are presented in (Table 2).

Table 2: Profiles of patients with a contributive family history.

Variable	Frequency (%)	P-value
Age		
42-45	1 (11.11)	0.39
46-50	4 (44.44)	
51-55	1 (11.11)	
56-60	3 (33.33)	
Clinical Presentation		
Asymptomatic	1 (11.11)	
Lower urinary symptoms	4 (44.44)	
Femoral neck fracture	2 (22.22)	
Joint pains	2 (22.22)	
Digital Rectal Examination		
Remarkable	9 (100)	0.08
Serum PSA Level (ng/ml)		
< 500	6 (66.67)	0.15
≥ 500	3 (33.33)	
Prostate Volume (ml)		
< 50	3 (33.33)	0.79
50-100	4 (44.44)	

> 100	2 (22.22)	
Gleason Score		
10 (5 + 5)	1 (11.11)	
9 (4 + 5)	3 (33.33)	
8 (4 + 4)	3 (33.33)	
7 (3 + 4)	2 (22.22)	
Histological Classification		
Not classified	6 (66.67)	
pT3aN0Mx	1 (11.11)	
pT3N1Mx	1 (11.11)	
pT3bN0Mx	1 (11.11)	
Recurrence		
Yes	5 (55.55)	0.016
No	4 (44.44)	
Death		
Yes	3 (33.33)	0.26
No	3 (33.33)	
Aggressive Cancer		
Yes	7 (77.78)	0.22
No	2 (22.22)	

The serum PSA levels of our study participants ranged from 8 ng/ml to 200 ng/ml with a median value of 150[25-450] ng/ml. The prostate volume ranged from 27 ml to 270 ml, with a median volume of 60[45-82] ml. Prostate biopsies were taken from 25 out of the 29 patients in our study. In the remaining four, specimens were obtained directly from the resected prostate glands since the patients involved underwent radical transurethral prostate resection. Of these 25 patients, 12 specimens were taken from 14 (56%) of them, 10, 8, and 4 specimens were taken from 3 (12%) participants each, while 6 specimens were taken from 2 (8%) participants. Regarding the Gleason scores, 2 (6.90%) participants had a score of 10 (5 + 5) 6 (20.69%) had a score of 6 (3 + 3), 7 (24.14%) had a score of 7 (3 + 4), 1 (3.45%) had a score of 7 (4 + 3), 7 (24.14%) had a score of 8 (4 + 4), and 6 (20.69%) had a score of 9 (4 + 5). All 29 participants underwent anteroposterior computed tomography and 10 (34.48%) participants underwent bone scintigraphy and 3 (10.34%) underwent pelvic magnetic resonance imaging. Seventeen (58.62%) of our study participants had metastases, with 10 (34.48%) having bony metastases and 13 (44.83%) having lymph node metastases, and 6 (20.69%) having both bony and lymph node metastases. Histological analyses were performed only for patients who underwent total radical prostatectomy. As such 20 (68.97%) patients did not undergo histological analyses while 9 (31.03%) underwent histological analyses. Of these nine, 4 (44.44%) had tumors of grade pT2cN0Mx, 2 (22.22%) had tumors of grade pT2bN0Mx and one each (11.11%) had tumors of grades pT3aN0Mx, pT3N1Mx and pT3bN0Mx. Eighteen (62.07%) patients had aggressive prostate cancer. The characteristics of the tumors are presented in (Table 3).

Concerning the initial treatment, laparoscopic total radical prostatectomy was performed in 9 (31.03%) participants, medical Androgen Deprivation Therapy (mADT) was performed in 7 (24.14%) participants, surgical Androgen Deprivation Therapy (sADT) was performed in 10 (34.48%) participants, radiotherapy was performed in 2 (6.9%) participants, while one patient (3.45%) underwent active surveillance. Active surveillance in this patient entailed monitoring the serum PSA levels every four months and repeating the biopsy/histopathology at intervals of one year. Based on the results of the PSA levels and histopathology, a decision was taken as to whether active surveillance would be continued or another form of treatment (surgery, radiotherapy or ADT). The follow-up duration of the patients in this study ranged from 8 months to 81 months, with a median duration of 25[13-45] months. The serum PSA levels were followed up for all patients at three months, six months, and nine months. The serum PSA levels at three months ranged from 0 ng/dl to 1505 ng/ml, with a median value of 65[1.5-210] ng/ml. The serum PSA levels at six months ranged from 0 ng/dl to 921 ng/ml, with a median value of 24[0.5-80] ng/ml. The serum PSA levels at nine months ranged from 0 ng/dl to 1200 ng/ml, with a median value of 9.6[0.15-35.5] ng/ml. Tumor recurrence occurred in 7 (31.81%) of our study participants.

Table 3: Characteristics of the tumors.

Variable	Frequency (%)
Serum PSA level (ng/ml)	
0-10	1 (3.45)
11-50	10 (34.48)
51-100	4 (13.79)
> 100	14 (48.28)
Prostate Volume (ml)	
≤ 50	12 (41.38)
51-100	14 (48.28)
> 100	3 (10.34)
Prostate Biopsy	
Yes	25 (86.21)
No	4 (13.79)
Number of Biopsy Specimens Taken	
12	14 (56)
10	3 (12)
8	3 (12)
6	2 (8)
4	3 (12)
Gleason Score	
10 (5 + 5)	2 (6.90)
9 (4 + 5)	6 (20.69)
8 (4 + 4)	7 (24.14)
7 (4 + 3)	1 (3.45)
7 (3 + 4)	7 (24.14)
6 (3 + 3)	6 (20.69)
Imaging Modalities	
Computed Tomography	29 (100)
Scintigraphy	10 (34.48)
Magnetic Resonance Imaging	3 (10.34)
Metastasis	
Yes	17 (58.62)
No	12 (41.38)
Location of Metastasis	
Bone	10 (34.48)
Lymph nodes	13 (44.83)
Bone and lymph nodes	6 (20.69)

Histological Analysis	
Yes	9 (31.03)
No	20 (68.97)
Histological Class	
pT2cN0Mx	4 (44.44)
pT2bN0Mx	2 (22.22)
pT3aN0Mx	1 (11.11)
pT3N1Mx	1 (11.11)
pT3bN0Mx	1 (11.11)
Aggressive Cancer	
Yes	18 (62.07)
No	11 (37.93)

The time-lapse till recurrence ranged from 3 months to 31.27 months, with a median value of 12.37[80.07-15.93] months. Four patients underwent a second course of treatment. Of these four, 2 (50%) underwent chemotherapy (Docetaxel at a dose of 75 mg/m2 once every three weeks) and 1 (25%) each underwent ADT and radiotherapy. Six (20.69%) of the patients in the study died while 23 (79.31%) survived. The causes of death were febrile neutropenia in one patient, pulmonary embolism in one patient and myocardial infarction in one patient. The deaths of the other three patients were directly attributed to prostate cancer. Data on the follow-up and evolution of the study participants are presented in (Table 4). The five-year overall survival of our study participants was 80% as determined using the Kaplan-Meier method. The Kaplan-Meier curve for overall patient survival is presented in (Figure 4).

Table 4: Follow-up and evolution of the study participants.

Variable	Frequency (%)
Initial Treatment	
Prostatectomy	9 (31.03)
Medical androgen deprivation therapy	7 (24.14)
Surgical androgen deprivation therapy	10 (34.48)
Radiotherapy	2 (6.90)
Active surveillance	1 (3.45)
Follow-up Duration (months)	
0-24	14 (48.28)
25-48	11 (37.93)
49-72	3 (10.34)
> 72	1 (3.45)
PSA at Three Months (ng/ml)	
Undetectable	7 (24.14)
1-100	12 (41.38)
> 100	10 (34.48)
PSA at Six Months (ng/ml)	
Undetectable	7 (24.14)
1-100	16 (55.17)
> 100	6 (20.69)
PSA at Nine Months (ng/ml)	
Undetectable	7 (24.14)
1-100	16 (55.17)
> 100	5 (17.24)
Not done	1 (3.45)
Tumor Recurrence	
Yes	7 (31.82)
No	22 (68.18)
Time-Lapse Till Recurrence (months)	
< 10	4 (57.14)
≥ 10	3 (42.86)
Second course of treatment	
Yes	4 (13.79)
No	25 (86.21)
Second Treatment	
Chemotherapy	2 (50)
Androgen deprivation therapy	1 (25)
Radiotherapy	1 (25)
Survival	
Yes	23 (79.31)
No	6 (20.69)
Cause of death	
Prostate cancer	3 (50)
Myocardial infarction	1 (16.67)
Pulmonary embolism	1 (16.67)
Febrile neutropenia	1 (16.67)

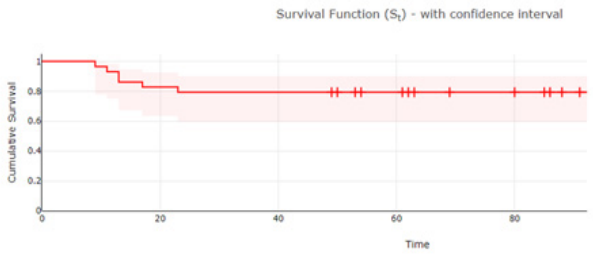

Figure 4: Kaplan-Meier curve for overall patient survival.

Discussion

In this study, we aimed to determine the characteristics of prostate cancer in younger adults and identify the determinants of the early screening and diagnosis of this pathology. The mean age of our study participants was 50.66 ± 5.31 years, which is less than the 68 years reported by Fofana et al. [11] in the Ivory Coast in 2017 [11]. The difference can be accounted for by the fact that Fofana et al. [11] studied a sample of patients with prostate cancer while we focused only on those aged 60 years and below. Seventeen (58.62%) of our patients had metastases while the disease was localized in 41.38. These findings contrast with those of Siegel et al. [12] who reported that the condition was localized in 77% of their study participants in 2020 [12]. This difference can be explained by the fact that Siegel et al. [12] carried out their study in the developed world where the disease is generally diagnosed at an earlier stage. In our context, patients tend to visit the hospital when the disease is at an advanced stage and metastasis has already occurred. This is mainly because early-stage prostate cancer is usually asymptomatic [13] and patients in our context usually do not visit the hospital until they start experiencing disturbing symptoms.

The bone (34.48%) and lymph nodes (44.83%) were the sites of metastasis we identified in our study. This is in line with the findings of Gandaglia et al. who identified the bone (84%) and distant lymph nodes (10.6%) as the most common sites of metastasis in their study. Nine (31.03%) of our study participants had a contributive family history of prostate cancer. This is higher than the 15% reported by Steinberg et al. [14], probably because unlike them, we focused on younger subjects. It has also been proven that a contributive family history not only predisposes a person to prostate cancer [15] but also predisposes people to develop the disease at a younger age [8]. There was a statistically significant association between a contributive family history and tumor recurrence, which is in line with the findings of Thalgott et al. [16].

This is probably because these people tend to develop the disease at a younger age, which means it is diagnosed at a more advanced stage at which there is a higher likelihood of recurrence in them. Eighteen (62.07%) of the 29 patients in our study had aggressive prostate cancer. This proportion is higher than the 15% of aggressive cancer reported by Carter in the general population of prostate cancer patients [17]. Our finding is at odds with those of Milonas et al. [18] who reported in their 2019 study that the disease tends to have less aggressive characteristics in patients aged ≤ 55 years [18]. This discrepancy can be explained by the fact that Milonas et al. [18] carried out their study in the developed world where the condition is diagnosed early enough in young people, which prevents the disease from progressing to its aggressive forms. In our study, only 34.48% of our participants were asymptomatic, which goes to prove that the majority of our participants were diagnosed at an advanced stage as it is well known that early-stage prostate cancer is usually asymptomatic [13]. Since the disease is usually asymptomatic in the early stage, it would be advantageous for the government and other stakeholders to invest more in sensitization campaigns. Primary healthcare providers and occupational physicians should be called upon to identify people with a family history of prostate cancer and also to incorporate prostate examination, ultrasound and serum PSA measurements into the routine medical checkup of men aged 40 years and above. This would go a long way to ensure early diagnosis and hence, a decrease in the morbidity and mortality associated with the progression and complications of the disease.

All the patients in our study underwent CT scanning but only 34.48% and 10.34% of them underwent bone scintigraphy and MRI, respectively. Although MRI has been identified as a non-invasive and direct imaging modality useful for cancer staging, therapy response, detection of recurrence and guided biopsy in previous negative biopsies [19], which makes it instrumental in young patients, only 3 (10.34%) of our participants could afford it because of its high cost. Bone scintigraphy has also been identified as one of the routine imaging modalities in prostate cancer as it enables the physician to rule out bone metastases since they represent the main metastatic site in about 80% of prostate cancer with a significant contribution to the cost of care for those patients [20]. However, only 10 (34.48%) of our study participants could undergo this imaging test because the only available machine in the country went faulty during the study period.

All these challenges impede the proper diagnosis, staging and management of this condition in our context, which further explains the high incidence, morbidity and mortality in Africa [21]. In our study, 31.03% of the participants underwent total radical prostatectomy with ilio-obturator lymphadenectomy, which has been identified as the best treatment for localized prostate cancer [22]. This intervention enables physicians to manage the disease and prevent metastasis while obtaining samples for histopathology without performing a biopsy. In our study, 24.14% and 34.48% of our study participants underwent medical and surgical androgen deprivation therapy, respectively. ADT is a mainstay in the treatment of prostate cancer and is used throughout the disease course. While predominantly used in the metastatic setting, ADT has a role in the treatment of localized disease and in the management of recurrent cancer [23]. Two (6.9%) of our patients underwent radiotherapy and only one (3.45%) underwent active surveillance.

Unlike most of the patients we encounter in our context, this patient met the required criteria for active surveillance (asymptomatic disease, PSA density of < 0.15 ng/ml, Gleason score of < 7 and the presence of fewer than three cores containing malignant cells and the absence of metastasis) [10]. active surveillance is a rare practice in sub-Saharan Africa because the vast majority of patients come to the hospital when the disease is already symptomatic and they no longer meet the criteria for active surveillance. This, once again, highlights the urgency of the need to invest in the early diagnosis and management of the disease in this part of the world. In this study, the five-year overall survival for prostate cancer was 80%, which is lower than the 98% reported by Kensler et al. [24] In the USA [24]. This discrepancy can be explained by the fact that while we focused on people aged ≤ 60 years, Kensler et al. [24] reported a 98% survival rate for all patients with the disease. Furthermore, Bleyer et al. [7] reported that the overall five-year relative survival rate in the United States for men diagnosed between ages 40 and 80 years was between 95% and 100%, it was 30% in those aged 15 to 24 years, 50% in those aged 20 to 29 years and 80% in those aged 25 to 34 years. This means that the overall survival tends to decrease with the age of diagnosis, which further supports our recommendation to lay more emphasis on the early diagnosis of the condition in young people.

However, our study had a few limitations. First, our study sample was small. Second, the retrospective study design comes with recall bias. Third, due to the limited resources in our context, many of our patients could not undergo all the required tests (MRI and bone scintigraphy). These limitations skewed some of our findings. In the future, more cross-sectional and prospective studies with larger samples should be carried out in which all the required imaging tests are performed. Such studies will further investigate our findings and lead to more solid conclusions and recommendations.

Conclusion

Prostate cancer is a major public health issue not only in the elderly but also in younger men. Screening for this condition could be performed in younger patients too, especially those with a contributive family history, to ensure early diagnosis and reduce the morbidity and mortality associated with the condition.

Acknowledgments

The authors thank Health Search Association for critically reviewing the manuscript.

Availability of Data and Materials

The data analyzed in this study are available from the corresponding author upon reasonable request.

Conflict of Interest Statement

The authors have no conflicting interests to declare.

Funding

The authors did not receive any funding for this study.

Ethics Statement

Ethical approval was obtained from the institutional review board of the Faculty of Medicine and Pharmaceutical Sciences and the ethics committee of the Centre medico-chirugicale durologie in Douala, Cameroon. The requirement for informed consent was waived due to the retrospective nature of the study.

References

1. Rawla P (2019) Epidemiology of Prostate Cancer. World J Oncol 10(2): 63-89.
2. Bracarda S, de Cobelli O, Greco C, Prayer-Galetti T, Valdagni R, et al. (2005) Cancer of the prostate. Crit Rev Oncol Hematol 56(3): 379-396.
3. Rawla P (2019) Epidemiology of Prostate Cancer. World J Oncol 10(2): 63-89.
4. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, et al. (2010) Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int J Cancer 127(12): 2893-2917.
5. Noone AM, Cronin KA, Altekruse SF, Howlader N, Lewis DR, et al. (2017) Cancer incidence and survival trends by subtype using data from the Surveillance Epidemiology and End Results Program, 1992-2013. Cancer Epidemiol Biomark Prev 26(4): 632-641.
6. Perdana NR, Mochtar CA, Umbas R, Hamid ARA (2016) The Risk Factors of Prostate Cancer and Its Prevention: A Literature Review. Acta Medica Indones 48(3): 228-238.
7. Bleyer A, Spreafico F, Barr R (2020) Prostate cancer in young men: An emerging young adult and older adolescent challenge. Cancer 126(1): 46-57.
8. Salinas CA, Tsodikov A, Ishak-Howard M, Cooney KA (2014) Prostate Cancer in Young Men: An Important Clinical Entity. Nat Rev Urol 11(6): 317-323.
9. Chen YC, Page JH, Chen R, Giovannucci E (2008) Family history of prostate and breast cancer and the risk of prostate cancer in the PSA era. The Prostate 68(14): 1582-1591.
10. Chodak GW, Warren KS (2006) Active surveillance for prostate cancer: a review article. Prostate Cancer Prostatic Dis 9(1): 25-29.
11. Fofana A, Kouame B, Gowe EE, Kramo NAF, Konan KPG, et al. (2017) Cancer metastase de la prostate: Aspects socio-économiques, radiologiques et évolutifs en cote d'ivoire. Afr J Urol 23(4): 281-285.
12. Siegel DA, O Neil ME, Richards TB, Dowling NF, Weir HK (2020) Prostate Cancer Incidence and Survival, by Stage and Race/Ethnicity-United States, 2001-2017. MMWR Morb Mortal Wkly Rep 69(41): 1473-1480.
13. Shore N (2014) Management of early-stage prostate cancer. Am J Manag Care 20(12 Suppl): S260-S272.
14. Steinberg GD, Carter BS, Beaty TH, Childs B, Walsh PC (1990) Family history and the risk of prostate cancer. The Prostate 17(4): 337-347.
15. Lesko SM, Rosenberg L, Shapiro S (1996) Family history and prostate cancer risk. Am J Epidemiol 144(11):1041-1047.
16. Thalgott M, Kron M, Brath JM, Ankerst DP, Thompson IM, et al. (2018) Men with family history of prostate cancer have a higher risk of disease recurrence after radical prostatectomy. World J Urol 36(2): 177-185.
17. Ballentine Carter H (2012) Differentiation of lethal and non lethal prostate cancer: PSA and PSA isoforms and kinetics. Asian J Androl 14(3): 355-360.
18. Milonas D, Venclovas Z, Jievaltas M (2019) Age and aggressiveness of prostate cancer: analysis of clinical and pathological characteristics after radical prostatectomy for men with localized prostate cancer. Cent Eur J Urol 72(3): 240-246.
19. Mocikova I, Babela J, Balaz V (2012) Prostate cancer-the role of magnetic resonance imaging. Biomed Pap Med Fac Univ Palacky Olomouc Czechoslov 156(2): 103-107.
20. Sevcenco S, Grubmüller B, Sonneck-Koenne C, Ahmadi Y, Knoll P, et al. (2019) Bone Scintigraphy in Staging of Newly Diagnosed Prostate Cancer in Regard of Different Risk Groups. Asia Ocean J Nucl Med Biol 7(2): 149-152.
21. Hamdi Y, Abdeljaoued-Tej I, Zatchi AA, Abdelhak S, Boubaker S, et al. (2021) Cancer in Africa: The Untold Story. Front Oncol 11: 650117.
22. Walsh PC (2000) Radical prostatectomy for localized prostate cancer provides durable cancer control with excellent quality of life: a structured debate. J Urol 163(6): 1802-1807.
23. Magee DE, Singal RK (2020) Androgen deprivation therapy: indications, methods of utilization, side effects and their management. Can J Urol 27(27 Suppl 1): 11-16.
24. Kensler KH, Rebbeck TR (2020) Cancer Progress and Priorities: Prostate Cancer. Cancer Epidemiol Biomark Prev 29(2): 267-277.