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Epidemiological Aspects of Prostate Cancer at the Medical Oncology Service of the Yaounde General Hospital -Cameroon

Tchinda Fossi Cedric
Department of Biochemistry, Faculty ofs Sciences, University of Yaoundé 1, Cameroon
Department of Public Health, School of Health Sciences, Central Africa Catholic University, Cameroon

Nguendo Yongsi H. Blaise*
Institute for Population Studies (IFORD), University of Yaoundé II
Department of Public Health, School of Health Sciences, Central Africa Catholic University, Cameroon

Atenguena Etienne
Department of Medical Oncology, Yaoundé Général Hospital, Cameroon

Ndom Paul
Department of Medical Oncology, Yaoundé Général Hospital, Cameroon

Mankollo Bassong Olga
Department of Public Health, School of Health Sciences, Central Africa Catholic University, Cameroon

Abstract

Background: The incidence of cancers is increasing worldwide, particularly in the developing countries as shown by recent cancer stastics from the WHO. It is even anticipated that with the increase in life expentancy, consequent upon inproved standard of living and globalization, the burden of cancers will increase within this millenium. With respective to cancer of the prostate, it is the most common type of cancer in urology. In developing countries, diagnostic is done at a late stage of evolution. In Cameroon, data on prostate cancer are scanty whereas the incidence of this disease is increasing. **Objective**: This article is designed to describe the epidemiological features of prostate cancer at the General Hospital of Yaoundé. **Patients and methods:** A 4-year retrospective study of patients seen with the diagnosis of cancer at the Medical Oncology unit of the Yaoundé General Hospital between January 2012 and December 2015. The demographic pattern (age of patients, socio professional activity, marital status), clinical features (cancer diagnosis), treatment modalities and outcome were studied. **Main results:** Of the 7 775 patients enrolled in the Medical Oncology Service over the study period, 1.4% (n = 108) cases of prostate cancer were seen. The prevalence over the study period was 1.38% and a relatively large annual growth of cases with an annual average of 27 cases was noted. The average age of patients was 67.82 years with a range of 34-83 years. The commonest presenting symptoms were the urinary frequency (54.63%) whereas the least common were fatigue (05.5%) and straining (03.70%). PSA was obtained in 49 patients, representing about 45.4% of all patients. Only 14 (01.26%) had biopsy reports. **Conclusion:** Prostate cancer is a major problem facing the aging male, and inadequate facilities make early detection difficult. Therefore, treatment is mainly palliative because of late diagnosis.

Keywords: Epidemiology; Risks factors; Prostate cancer; Yaoundé general hospital; Cameroon.

1. Introduction

Cancer is a tumor related to the anarchic and indefinite proliferation of a cell clone, leading to destruction of the original tissue, local, regional, general extension of the tumor and most often to the death of the individual [1]. Prostate cancer is therefore an abnormal proliferation of prostate cells. It is most often a hormone-dependent adenocarcinoma. Prostate cancer is the most commonly diagnosed non-skin cancer in most western countries. In the United States for example, it is the second leading cause of cancer death following only lung cancer as during the year 2001, an estimated 31,500 US men died of prostate cancer and 198,100 men were newly diagnosed [2].Despite the substantial morbidity and mortality, the etiology of prostate cancer is unknown. The only established risk factors are age, race, and a family history of prostate cancer. Descriptive studies examining incidence and mortality trends and patterns may yield unique clues to etiology. Its incidence rate (standardized world) in 2009 was 99.4 per 100 000 men, while its mortality rate (standardized world) in 2012 was 10.2 per 100 000 men [3]. Prostate cancer has one of the highest incidence and prevalence rates of any cancer in the world, and is second only to lung cancer as the most common non-cutaneous cancer diagnosed in men worldwide [4]. It is also a leading cause of cancer-related deaths among

men. More than 600,000 new cases of prostate cancer are diagnosed each year, and approximately 200,000 deaths are attributed to prostate cancer worldwide [5]. That is to say that prostate adenocarcinoma is a topic of great relevance since it is more and more frequent. In fact, it is said to be the commonly diagnosed malignancy in males, and ranks second among causes of cancer death in men [6]. Its increasing incidence is explained by the increase in

*Corresponding Author

life expectancy and the improvement of screening techniques [7]. It was previously believed that prostate cancer was rare in Africans [8]. And yet facts emerging from recent reports show that incidence of this disease across Africa is similar to those of African Americans living in the USA [9]. In fact, reports from cancer registries in Africa indicate that carcinoma of the prostate has emerged as the most common cancer in men: in Morocco, the incidence of prostate cancer was 24.11% (258/1070), while localized cancer accounted for nearly one-third (33.33%) of diagnosed cancers [10]; in Nigeria, Osegbe [11] reported a hospital incidence of 127/100,000 for a mortality of 20,000; in Benin and Togo, it was the first urological cancer with a hospital prevalence of 12% [12, 13]; in Cameroon, it is the first urogenital cancer with a proportion of 7.3% [14]. Available records suggest that the disease is increasing in prevalance in the whole sub saharan Africa. Known risks factors for prostate cancer include age, race, positive family history of prostate cancer, diet, lifestyle and especially genetic factors and environmental factors (occupational exposures) [15]. Prostate cancer has increased with age faster than any other malignancy and is currently poised to become a major public health problem in Sub-Saharan Africa as life expectancy continues to increase. Prostate cancer is common around the world, but rates of advanced disease differ substantially by race and geography. Although a major health issue, little is known about prostate cancer presentation in Cameroon. We therefore aimed to examine the situation on prostate cancer in Yaoundé and provide a city-wide incidence rate based on available data. We hope our findings may further assist at identifying relevant gaps, and also contribute to improving knowledge, research, and public health and policy interventions targeted at prostate cancer in the country.

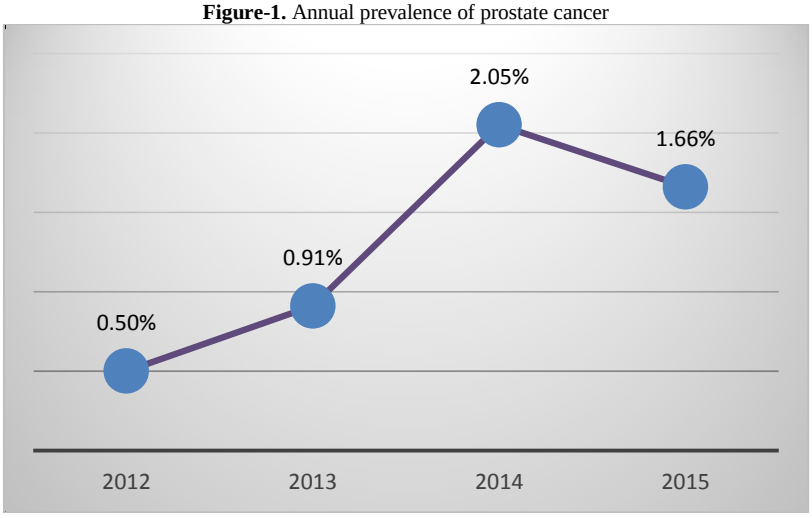
2. Patients and Methods

This is a 4-year retrospective study of patients seen with the diagnosis of cancer of prostate at the Medical Oncology Unit of the General Hospital of Yaounde, from January 2012 to December 2015. The diagnosis of prostate cancer was made from the characters of the rectal (hard or nodular), a PSA> 4ng/ ml and from the result of prostate biopsy (adenocarcinoma) when performed. Clinical signs were obtained using abdominal ultrasound, standard radiography, and thoraco-abdominopelvic (CT) computed tomography.Information regarding the age, presenting symptoms, family history, the socio-professional category and the marital status of the patients were extracted from the registry and/or case notes. Data collected through standardized collection sheets were entered and analyzed using SPSS 18.1 software.

3. Results

Of the 7775 patients enrolled in the Medical Oncology Unit, a total of 108 patients had prostate cancer during the period under review. It is the commonest urological tumour accounting for a prevalence of 1.4%. However, the annual prevalence of prostate cancer varies over the years (Figure 1).

Figure-1. Annual prevalence of prostate cancer



We noticed that there is a gradual increase in the prevalence with a rising profile from 2012 to 2015 with a highest value of 50.93 % registerd in 2015 (Figure 2).

Figure-2. Distribution of prostate cancer cases by year of consultation.

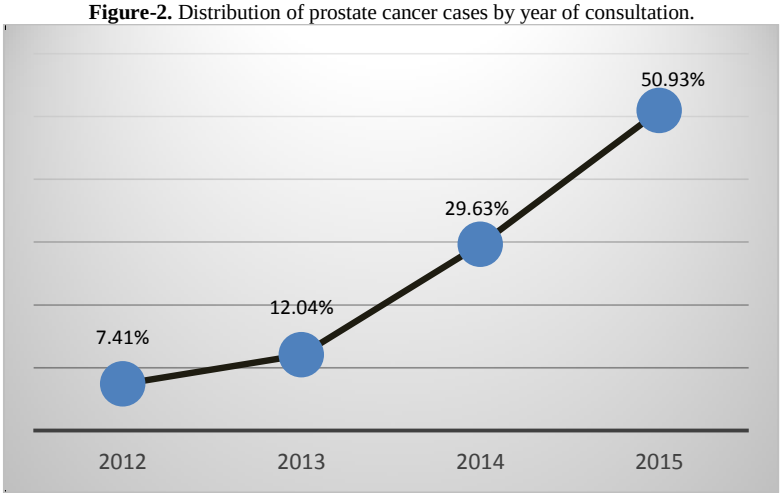
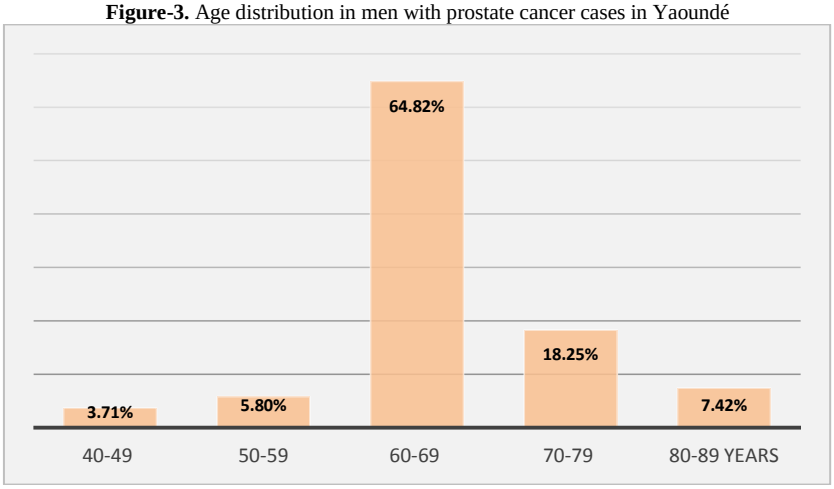


Figure 3 shows the age distribution: the peak age incidence was in the 6th decade of life, representing 70 (64.8%) of cases. The mean age was 67.82 years with a range of 44 to 83 years.

Figure-3. Age distribution in men with prostate cancer cases in Yaoundé



Retirees were the most affected socio-professional category with 47.62% (n = 50) compared to civil servants 32.38% (n = 34), and businessmen 18.10% (n = 19). 93.51% of the patients diagnosed were married, of whom 79.2% were polygamists. The proportions of single and divorced /widowed patients were 0.93% and 5.55%, respectively.

Figure-4. Marital status distribution in men with prostate cancer cases in Yaoundé

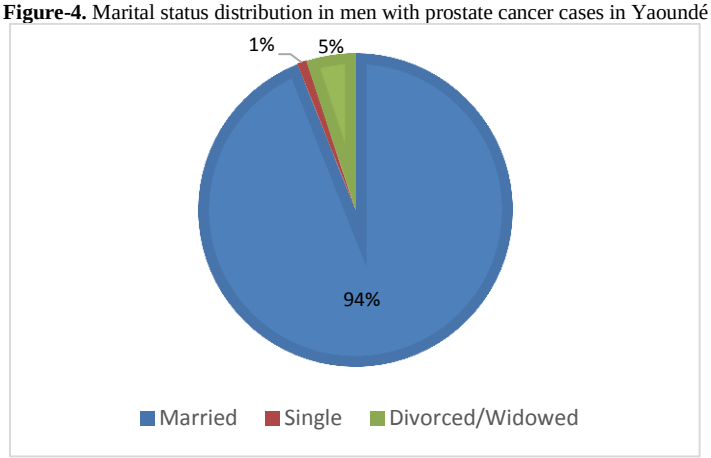


Table 1 shows patients symptoms upon their arrival at the Medical Oncology Unit. The commonest presenting symptoms appear to be the urinary frequency (54.63%) followed by problems urinating, including a slow or weak urinary stream or the need to urinate more often (35.18%); whereas the least common were weght loss (07.40%), fatigue (05.5%) and straining (03.70%). The average duration of symptoms prior a physician consultation was 7.5 months, with 48.15% consulting in 6-12 months while 06.48% consulted more than 02 years from the initial

symptom. PSA was obtained in 49 patients, representing about 45.4% of all patients. Of these 49 patients, 51.41% had values greater than 20ng/ml, 28.57% had values of 10-20ng/ml, and 12.24% of 04-10ng/ml. Serum acid phosphatase was determined in 31 patients (28.7%). Among these, 20 (64.5%) had postatic fraction value less than 4 iu/L, while 7 (22.6%) had value over 4 iu/L. Only 14 (01.26%) had biopsy reports. As far as mode of treatment is concerned, Androgen deprivation therapy (ADT) and chemotherapy were the main modes used by physicians to reach cancer cells: bilateral orchidecttomy was offered to 69 (63.9%) with relatively satisfatory results at 06 months as evidenced by significant reduction in symptoms; 27 (25%) patients had Flutamide in addition as part of TAB with almost similar symptomatology improvement within 6 moths of treatment, and 08 (07.40%) declined any form of treatment. Folow up was for variable periods ranging from 06 months to 05 years. Only 06 cases (05.6%) were folowed up for 5 years and 42 (38.9%) were lost to follow up at different stages while 09 (08.4%) died in the course of the study.

Table-1. Epidemiological features of men suffering from prostate cancer in Yaoundé

Epidemiologic features	Frequency	%
1. Symptoms		
Urinary frequency	59	54.63
Problems urinating, including a slow or weak urinary stream or the need to urinate more often	38	35.18
Blood in the urine or semen	21	19.44
Terminal dribbling	18	16.67
Nocturia	14	12.96
Trouble getting an erection (erectile dysfunction)	13	12.03
Pain in the hips, back (spine), chest (ribs), thighs, shoulders, or other bones	11	10.18
Swelling or edema in the legs or feet	11	10.18
Discomfort when sitting, caused by an enlarged prostate	09	08.33
Unexplained weight loss	08	07.40
Fatigue	06	05.55
Straining	04	03.70
2. Duration of symptoms before viting a physician		
1-6 month	52	48.15
6-12 months	37	34.26
1-2 years	12	11.11
More than 2 years	07	06.48
3. Laboratory findings		
Direct rectal Examination (DRE)	14	01.4
Prostatic Specific Antigen (PSA)	49	45.4
Serum Acid Phosphatase (SAP)	31	28.8
Biopsy	14	01.4
4. Treatment modes offered		
Chemotherapy	74	68.51
Bilateral orchidecttomy	18	16.67
Radiation therapy	03	02.78
No treatment	13	12.04
5. Follow up		
6-12 months	28	25.90
1-4 years	23	21.30
5 years and more	06	05.60
Lost	42	38.90
Death	09	08.40

4. Discussion

The prevalence and even incidence of prostate cancer is increasing worldwide since the discovery of PSA (Specific Prostate Antigen) as a marker for this tumor [16]. Although the prevalence in our study is low, we have however noted an increase in incidence over the 4-year of study. This upholds the result of other works who noted a rising trend not only in developed countries, but also in developing societies such as ours [12, 17]. This increasing trend is probably due the awareness towards the disease and availabilty of facilities (hospital with ultrasound, x-ray). Also, the number of new cases from one period to another would largely be attributable not only to the increased use of the various detection or screening techniques for this cancer (Specific Prostate Antigen Assay, Rectal Touch, etc.), the vulgarization of the PSA dosage during health check-ups, but also to the increase in the number of health personnel, specialist in medical oncology. In addition, radio and television broadcasts are organized by urologists on both local and international channels, which promote a better knowledge of the disease by the population, thus increasing the number of consultations [13]. The mean age as well as the peak age prevalence is comparable to

reports from Africa sub-saharan countries and even in developed countries [18, 19], and this gives evidence that age is a key risk factor of cancer [20]. In our study, the average age of patients with prostate cancer is 67.82 years. This result may be comparable to that of Gueye, *et al.* [21] and Tengue, *et al.* [13], and it indicates that the occurrence of prostate cancer in patients under 50 years of age is part of a family prostate cancer and/or black subjects. Retirees were the most affected socio-occupational category in our study. Most of these retirees are men whose age exceeds 55 years at the societal level and the age of the latter would be a high risk factor for the occurrence of prostate cancer among them. Then, came businessmen, namely traders (18.10%). Depending on the type of trade and on the nature of the sales product, some may contain harmful substances such as cadmium that could be retained and accumulated in the prostate. Indeed, the induction of prostate cancer by heavy metals in particular Cadmium has been found in the influence of the action of androgen. Cadmium has been shown to weaken cellular mediation, phagocytosis and natural killer cell activity [22]. However, the physiopathology inducing prostate cancer remains poorly understood. In our study, 93.51% of the patients diagnosed were married, of whom 79.2% were polygamists. This high level of polygamy may suggest a risk of sexually transmitted infections (STIs). Strickler and Goedert [23] compiled the results of a number of studies and found that the relative risk was high for some variables such as early age at first sexual intercourse and a high number of sexual partners. Diallo, *et al.* [19] showed that several risk factors such as sexual factors and multiple partners were suspected in the carcinogenicity of prostate cancer.

Features of clinical symptoms like urinary frequency, erectile dysfunction, pains in the hips/back(spine)/bones, and swelling are obvious evidence of late disease since prostate adenocarcinoma is a malignous chronic diseases. Prostate cancer has a propensity for late presentation.

In this study, most of our patients presented with advanced disease, with metastatic at the time of presentation. This finding paints a worse picture than the situation in southwestern Nigeria, where a recent study found that at least 50% of patients presented with advanced stages of neoplastic disease [24]. The observation of these authors is similar to the experience among African American men, 47% of who had advanced disease on presentation, 34% being metastatic disease [25].The average duration of symptoms prior a physician consultation was 7.5 months. This seems to be late and may be related to ignorance and perception of the disease by individuals in our societies. According to several authors, cancers are part of the normal ageing process and can not be cured using modern medication [26-28]. But, other reports throughout Africa attribute late consultation to inadequate diagnostic facilities, limited access to care, inadequate technical manpower and infrastructure as well as quality of cancer data systems, the absence of screening programmes, lack or inadequate diagnostic facilities, unsufficient health education [27, 29]. Therapy offered to patients here had no special clinical criteria. Rather, it was based on patient's choice and affordability. However, all treatments modalities were palliative and were based on hormonal manipulation through chemotherapy because of late consultation. Follow up was variable from 6 monts to 5 years, showing little improvement and relatively better quality of life for those who had treatment than those who denied any form of treatment. Besides, it is difficult to make clear statements on the survival rate since almost one-third of patients were lost to follow up. It used be said that patients with prostate cancer die with the disease rather from it [30, 31]. From this study and even with the limited availability of records, a sizeable proportion of patients died from the direct complications of the disease. This suggest that patients with prostate cancer die, not only with it, but also from it. Apart from the 08.40% mortality recorded, most of the patients had one problem or the other, especially bladder outlet obstruction and progressive aneamia which are evidence of progressive disease. In general and despite this substantial morbidity and mortality from prostate cancer, age, ethnicity and a family history of prostate cancer are the only established risk factors [32, 33]. Evidence on diet, especially animal fat intake, is promising but inconclusive (). Data on other risk factors, such as circulating levels of hormones, physical activity, smoking, drinking, sexual behavior and occupational exposures, are conflicting [32]. A careful evaluation of the prevalence or distribution of potential risk factors in high-band low-risk populations should provide clues into the role of putative risk or protective factors. For example and according to Hsing, *et al.* [25], certain dietary factors that are common in Asians but uncommon in western men, such as intake of soy, seaweed, rice, shiitake mushrooms, fish and green tea, may have a role in inhibiting the progression of prostate tumors and warrant further investigation.

5. Limitations

This study was fraught with limitations, which may have affected the overall results. Limitations here include the dominance of its data by hospital-based registry reports and its substantially retrospective nature, both leading to an underestimation of the definite number of prostate cancer cases in the studied populations. The reasons for these low cases could be associated with the incomplete documentation and retrieval systems used by most of the registries.

6. Conclusion

This work has attempted to examine the state of prostate cancer in Yaoundé. Data emerging from the few registries indicate similarity in the patterns of cancer reported in various societies with increase in the prevalence and incidence of the disease. However, we should note that this increase is under estimated due to the absence of population-base cancer registries and lack of reliable census figures and incomplete reporting of deaths. Besides, with the anticipated increase in the proportion of the aged in the populations in Cameroon as well as in most developing countries in the next decades, it is plausible to speculate that the burder of cancer will increase in this millennium. Although several risk factors were suspected in our study such as age, sexual factors, exposure to chemicals of a carcinogenic nature in the workplace, none of them have actually demonstrated of its responsibility in

the genesis of prostate cancer, though we know that age remains the primary risk factor for prostate cancer. Simple means such as physical activity, reducing occupational and environmental exposures to cancer-causing chemicals could reduce the incidence of prostate cancer. However, better management of the different patients suffering from prostate cancer requires an improvement in the conditions for the early and voluntary detection of people at risk, but also by improving quality of care administered to patients. It should be noted that increase awareness will result in increase number of new cases, thus training and re-training of health personnel involved with Cancer diagnosis and management cannot be over-emphasized. Overall, epidemiological and clinical studies on prostae cancer are needed in Cameroon. Notwithstanding the apparent poor economic stutaion in the country, we advocate for public health education, a national prostate cancer screening programme, improved infrastructures for diagnosis and treatment of the disease, and an active population-based national cancer registry to generate relevant cancer statistics necessary for the formulation of appropriate health policies for effective cancer care and prevention. In addition and given the incresasing trend of cancers in the country, a national cancer nnstitute is mandatory which will promote research and training in cancers. Basic treatment of cancer should also be part of that ntional cancer institute.

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