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RESEARCH ARTICLE

Epidemiological, Clinical and Histological Profile of Urogenital Cancers in the Thies Region in Senegal

Kouka Scn[1*], Thiam NM[1], Faye M[1], Diame A[1], Diop C[1], Diallo Y[1], Sylla C[1], Bentefouet L[2], Jalloh M[3]

[1]Department of Urology, Faculty of Health Sciences, University Iba Der Thiam of Thies, Senegal.

[2]Department of pathological Anatomy, Faculty of Health Sciences, University Iba Der Thiam of Thies, Senegal.

[3]Department of Urology, University Cheikh Anta Diop De Dakar, Senegal.

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Corresponding Author: Saint Charles Nabab Kouka, Departement of Urology, Faculty of Health Sciences, University Iba Der Thiam of Thies, Senegal.

Abstract

Objective: To determine the epidemiological, clinical and histological profile of urological cancers in thies region hospitals.

Patients and Methods: We conducted a descriptive study, from January 1, 2015 to December 31, 2019 and included all patients referred for the treatment of urogenital cancer in the different urology departments in the Thies region.

Results: We included 478 cases of urogenital cancers during the study period. The average age of the patients was 63.1+/-11.1 years with age range 16 and 94 years. The sex ratio (M/F)was 7.69. The circumstances of discovery were dominated by obstructive voiding disorders (64,9%) for prostate cancer, by hematuria (70%) for bladder cancer, by lumbar mass (56.5%) for kidney cancer. Prostate cancer was the most common with 318 cases (66.5%) followed by bladder cancer (19.5%) and kidney cancer (4.8%). The cancer was metastatic in 31.5% at the time of diagnosis. The overall mortality rate was 10.46% after 1 year of follow-up

Conclusion: Prostate cancer is the most common urogenital cancer in the Thies region. The mortality rate from all cancers remains high due to delayed diagnosis. The establishment of a cancer registry is necessary.

Keywords: Urogenital Cancers, Epidemiology, tistology, Thies.

1. Introduction

Urological cancers include tumors affecting the kidney, ureter, bladder, urethra for both sexes and in men, the prostate and the external genitalia (penis, testiclar and scrotum)[1]. Oncology is an important field of activity in our daily urology practice. Several studies on these urogenital cancers have been carried out around the world, such as in Senegal, and have noted the clear predominance of prostate and bladder cancer and the rarity of male genital cancers [1-3]. However, data on incidence and mortality of these cancers are rare in Senegal due to the absence of a cancer registry in our regions [4]. A cancer registry ensures the exhaustive and continuous collection of nominative data on cancer cases in a geographically defined population [5]. Hospitals in the Thies region cover a population of approximately 2,340,869 inhabitants for an area of 6,670 km^2 [6]. The male population is 1,172,603 and the female population is 1,168,266 [6]. This work aimed to determine the epidemiological, clinical and histopathological profile of urogenital cancers in the region of Thiès, Senegal.

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2. Patients and Methods

Wecarried out a retrospective descriptive study between January 2015 and December 2019 in the different hospitals in the Thies region: public hospitals (EPS) of Thies, Mbour, Tivaouane, and Saint Jean Dieu hospital. Data were collected from patient medical records, hospitalization and pathological laboratory registries.

We included all patients followed for urogenital cancer and whosepathological examination confirmed the diagnosis from abiopsy samplesor asurgical specimens. Excluded from this study were all cases of cancer occurring in people not living in the Thies region, recurrences or metastases of a cancers diagnosed out of the study period.

The variables studied were relative frequency, mean ages, sex ratio, personal and family history, risk factors, clinical presentation, results of paraclinical and histopathological exploration examinations, staging and mortality rate. We compared each cancer location to African and global data. Data were entered and analyzed using Microsoft Office Excel 2016 software.

3. Results

In total, 478 patients were treated for urogenital cancer within the 04 urology departments in the Thies region during our study periode corresponding to a frequency of 95.6 cases/year. The annual incidence was higher in 2019 with 117 cases (24.5%) recorded (Table 1).

Prostate cancer was the leading urological cancer (66.5%) followed by bladder cancer (19.45%). Table I shows the distribution of patients according to urological cancers. The average age of our study population was 63.1+/-11.1 years (Range : 16;94 years). Patients over 50 years old accounted for 85.1%. The modal class was 60-69 years old with 141 patients or 29.5% (Figure 1).

The sex ratio (M/F) was 7.69 in favor of men (88.49%). A family history of urogenital cancer was found in 4.39% of patients. Table 3 represents the distribution of risk factors and clinical presentation for each urogenital cancer.

The commonest circumstances of diagnosis were total hematuria (47,8%) and lower back pain (69,6%) were the most frequent for tumors of the upper urinary tract. Lower urinary tract symptoms (LUTS) (64,9%) and bladder urinary retention (%) (table 3). All patients had an ultra sound while CT-scan was performed in 76.6% of patients.

The diagnosis of urogenital cancer was based on pathology confirmation from biopsy (52.1%) and/ or surgical specimens (57.9%), which specified the histological type (table3).

After extension assessment and according to the 2017 cTNM classification, the cancer was localized in 34.3% of patients, locally advanced in 42.9% of patients and metastatic in 17.1% of patients (figure 2). The overall mortality rate in our series was 10.46%. The specific mortality rate for each cancer is reported in Table 3.

4. Discussion

Globally,incidence rates of urogenital cancers vary between regions and countries [7,8]. Cases of prostate, bladder and kidney cancers are estimated at 2.1 million [8]. Higher incidence rates were observed in North America , Western Europe, and Australia [8]. We reported, in the Thies region of Senegal, 478 cases of urogenital cancer in 5 years. Ouatara et al [9], in Benin, reported 158 cases in 4 years.AlsoDiallo et al [4] in Ziguinchor recorded 156 cases of urogenital cancer in 2 years.

Table 1. *Distribution of urologenical cancer according years*

Urological cancer	2015	2016	2017	2018	2019	Total
Kidney cancer	6	4	3	8	2	23 (4,8%)
Upperurinary tract (UUT)	0	0	0	2	0	2 (0,45%)
Bladder cancer	13	16	8	21	35	93 (19,4%)
Prostate cancer	47	61	90	51	69	318 (66,5%)
Urethra cancer	0	0	1	3	2	6 (1,25%)
Penile cancer	0	3	6	2	3	14 (2,9%)
Testicular cancer	3	2	3	6	6	20 (41,8%)
Scrotal cancer	1	1	0	0	0	2 (0,45%)
Total	70	87	111	93	117	478 (100%)

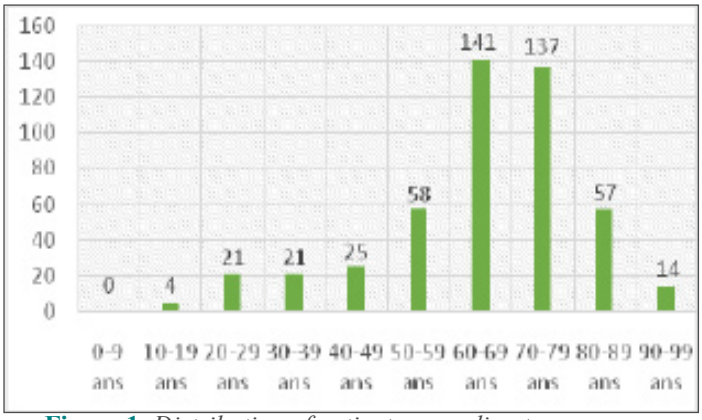

Figure 1. *Distribution of patients according to age group*

Table 2. *Distribution of age and gender according to urological cancer*

Urological cancer	Meanage (years)	GenderMale	Genderfemale	Sex-ratio (H/F)
Kidney cancer	53,3	11(%)	12 (%)	0,916
Upper Urinary tract	25,5	0	2 (100%)	-
Bladder cancer	58,3	58 (%)	35 (%)	1,65
Prostate cancer	72,7	318 (%)	-	-
Urethra cancer	56,6	0	6 (%)	-
Penile cancer	42,93	14 (%)	-	-
Testicular cancer	27	20 (%)	-	-
Scrotal cancer	63	2 (%)	-	-
Total	-	423(%)	55(%)	478 (100%)

Table 3. *Diagnostic aspectsand cancer-specific mortality rate according urological cancer*

Urological cancer	Risk factors/comorbidity	ClinicalPrésentation	Histological type	Mortality rate /recul 1 year
KidneyCancer (n=23)	Smoking (8,7%) Hypertension (17,4%) chronic renal failure/(29%)	Hematuria (47,8%) Flank Pain (69,6%) Lombar mass (56,5%) Urological triade (26,1%)	Clear cell RCC (91,3%) Tubulo-papillarycarcinoma (8,2%)	13%
Upperurinary tract (n=2)	-	Hematuria (50%)	urothelialcarcinoma(100%)	100%
Bladder cancer (n=96)	Bilharziose (19,4 %) Smoking (37,6%) Bilharziasis + Smoking (10,8%) Exposition professionnelle (2,2 %)	Hematuria (70%) urinary retention(66%) Hypogastric pain(36,6%) Hypogastric mass (39,8%)	EpidermoidCarcinoma (66,67%) Urothélialcarcinoma (29%) VesicalAdénocarcinoma (6,4%) VesicalMélanoma (1 ,1%)	10,7%
Prostate cancer (n=318)	History family of PCa(7%)	TUBA (96,9%) Hematuria (30,2%) Urinary retention (74,2%)	ProstaticAdénocarcinoma (100%)	8,53%

Urethra cancer (n=6)	-	TUBA (100%) Hematuria (66,66%) Urinary retention(50%)	Urothélial Carcinoma(100%)	50%
Penile cancer (n=14)	HPVInfection (14,2%)	penile swelling(14,3%) penile pain (63,4%) hemorrhgia(28,5%) urinarydisorders(35,7%)	EpidermoidCarcinoma (100%)	35,7%
Testicularcancer (n=20)	Cryptorchidie (10%) Orchite (10%)	big purse(95%) Inguinal mass(5%) Testicular pain (5%)	TGNS (55%) TGS (40%) Lymphoma (5%)	40%
Scrotal Cancer (n=2)	-	Big purse(100%)	EpidermoidCarcinoma (100%)	50%

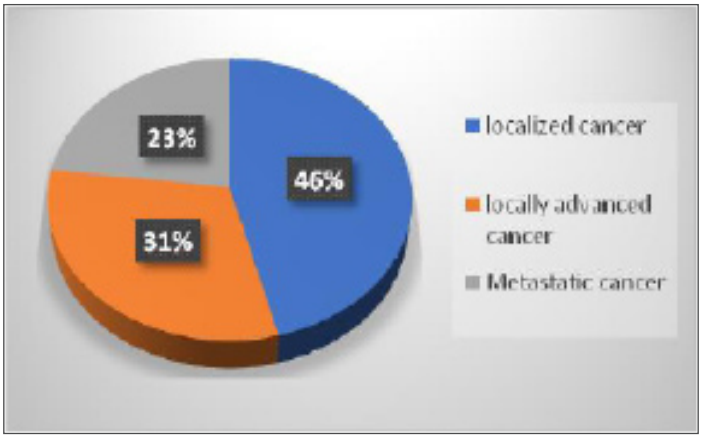

Figure 2. *Distribution of patients according to stage cancer*

These low frequency rates observed in Africa are probably explained to the absence of a cancer registry but also the lack of technical platforms limitations for diagnosis and limitted patient access to care.

The average age of our patients was 63.1+/-11.1 years. This corroborates the data published by Yameogo et al [10] in Burkina Faso and Ouatara et al [9] in Benin whith a respective mean age of 63.32 years and 62.89 years. Several authors have reported a high frequency of these cancers after the age of 50 [1,4,9-14]. In our study the sex ratio (M/F) of 7.69 favors men as in most African studies [9-14].

Ouédrago et al [11] found a sex ratio (M/F) of 4.5. This male predominance was noted by all authors due to the high frequency of prostate cancer [3,4,10-14]. In our series patients were symptomatic in relation either to a locally advanced tumor or to the presence of metastases, or even an alteration of the general condition as in other African series [2-6].

In developed countries, due to the generalization of medical imaging methods, diagnosis more and more fortuitous by ultrasound and by CT scannwith often localized and smalltumours [14]. Ultrasound can discover kidney and bladder tumors and evaluate the entire urinary tract. Computed tomography, in the absence of contraindication to contrast medium, is the gold standard examination for the diagnosis of certain urogenital cancers and for the evaluation of locoregional and distant extension. In our series, the overall mortality rate for all urogenital cancers was 10.5%.

5. Prostate Cancer

Prostate cancer isthe commonnest cancer in men worldwide with 1.4 million new cases worldwide [2-4]. In our series it ranks first among urological cancers as in the majority of studies worldwide [2-14]. On the other hand, in the study by Salah et al [14], inAlgeria,it came in second place after bladder cancer. The average age of the patients was 72.7 years and 7% of them had a family history of prostate cancer. The main risk factors are age, black race and both polygenic and monogenic inheritance. In the French West Indies, the incidence of prostate cancer and its mortality are higher than in mainland France.

This is explained by the African ethnic origin of the majority of this population [15-17]. In our study, adenocarcinoma is the main histological type andlower urinary tract symptoms were the main circumstances of diagnosissuggesting a diagnosis at an advanced stage anda delay in treatment. Its clinical and histological profile is relatively identical to those described in most African series [9-12,16].

According to Globocan, the number of deaths per year due to this cancer is estimated et 375,000 [7]. Mortality rates vary around the world, ranging from 8.1 per 100,000 for developing countries to 5.9 per 100,000 for developed countries [7]. In our study it was estimated at8.53% after 1 year follow-up.

6. Bladder Cancer

With 573,000 new cases worldwide, bladder cancer ranks tenth among cancers in the world in terms of frequency [7]. It represents the second urological cancer in our series. Which corroborates several studies in Africa and Europe [6-12]. The average age of patients in our series was 58.3 +/-11.1 years. In Senegal, Diao et al [18] in a study of a cohort of 426 cases, the average age was 45.5 years. Smoking, urogenital schistomiasis, occupational exposures (aromatic amines, arsenic, etc.) are the main risk factors [18-20].

In our series, 38% of patients with a bladder tumor were known to smoke, 30% had a history of schistomiasisand 2% were previously exposed to painting professionally. Hematuria was the commonnest clinical symptom. In sub-Saharan Africa, squamous cell carcinoma is the commonnesthistological type followed by urothelial carcinoma and bladder adenocarcinoma, contrary to European series [18,20]. The mortality rate attributed to this cancer is high due to a delay in diagnostic and therapeutic care.

7. Renal Carcinoma Cell (RCC)

Kidney cancer is the third urological cancer in our study and in the majority of publications in Africa and Europe[21]. In France there were 15,323 new cases of kidney cancer in 2018 and it was responsible for 5,589 deaths [21]. The risk of developing this cancer is twice as high in smokers and passive smokers [21]. High blood pressure and obesity have also been identified as being able to promote the occurrence of kidney cancer [21-23]. In our study, smoking exposure was noted in 8.7% of patients with a renal tumor and hypertension treated in 17.4% of patients. Chronic renal failure is also a risk factor for kidney cancer. Hematuria and lower back pain were the main clinical presentation reported in our study. Clear cell renal cell carcinoma (%) was the majority histological type of kidney cancer in our study. Which is comparable with the data in the literature [22,23].

8. Testicular Cancer

Testicular cancer is rare in blacks [7,24-26]. Its incidence, worldwide, varies between 0.2 and 9.2 cases/100,000/year [7]. With approximately 8,850 new cases in the United States, this cancer is most common among men ages 15 to 35 [8]. We reported 20 cases in 5 years, i.e. an annual frequency of 2.6 cases. It is a cancer of the young male.

The average age of our testicular cancer patients was 27 ± 9.5 years. In the literature, the main risk factors are testicular dystopias, ethnic origin, infertility, and family history of testicular cancer [25]. The main reason for consultation in our series was enlarged scrotum. This corroborates with all African studies[26].

In adolescents, mixed (seminomatous and non-seminomatous) and non-seminomatous tumors are still the most common, while seminomas predominate after the age of 20 [25]. In France, testicular cancer is responsible for 0.9 deaths per 100,000 inhabitants [25]. With an average follow-up of 6 months, 5 patients had died.

9. Penile Cancer

Malignant tumors of the penis are rare. In Senegal Gueye et al. estimated their frequency at 0.35% [28]. The average age of patients in our series was 42.9 years. In France, its incidence increases significantly after age 75 years [29]. HPV-16 and HPV-18 are HPV subtypes play a role in 50% of cases of penile cancer [27]. Circumcision in the neonatal period would reduce the risk of penile cancer, but not PeIN [28]. On the other hand, circumcision in adulthood is not preventive. Squamous cell carcinoma is the main histological type [13].

10. Other Urogenital Cancers

Tumors of the upper excretory tract are rare [30]. With a M/F sex ratio which varies from 1.5 to 2.5 to 1, these tumors are urothelial carcinoma in 95% of cases […]. Urethral cancer is also rare. Sow et al [12], in Cameroon, had recorded three cases of malignant tumor of the female urethra in 18 years. [4,11]. Darré et al [3], in their publication, recorded 2 cases of scrotal cancer.

11. Conclusion

The epidemiological profile of urogenital cancers in the Thies region is not different from that of other regions in sub-Saharan Africa. It is important to set up a cancer registry for exhaustive recording of urological tumors for the entireThies region.

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