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Adult Urological Cancers at Zinder National Hospital

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Abstract

The aim of this study was to present the epidemiological, clinical and therapeutic aspects of adult urological cancers in the department of urology at Zinder National Hospital. **Patients and Methods:** This was a cross-sectional study of adult primary urologic cancers during the period of January 2019 to December 2023. Data were obtained from the record of patients admitted to urology, and the medical oncology department. The parameters studied were; frequency, age, sex, urogenital distribution, anatomopathological type, and therapeutic aspects. Data were recorded on Excel 2013 and analyzed with Epi-info version 7.2.5. **Results:** Epidemiology: About 289 cancers were diagnosed through 6017 consultations during the period, corresponding to 4.80% of urological pathologies: prostate cancer (n = 221; 76.47%), bladder cancer (n = 46; 15.92%), kidney cancer (n = 13; 04.5%), testis cancer (n = 09; 03.11%). Median age of patients was 50.42 years. Prostate cancer: was Adenocarcinoma in 100% (n = 221) with Gleason scores > 7 (77.83%) and prostatique specific antigen (PSA) > 20 ng/ml in 90.04%. Extension evaluation 134 cases (60.63%). Treatment was chirurgical castration in (62.44%) and resistance to castration appeared between 8 and 11 months. Hospital mortality for prostate cancer was 16.29%. Bladder cancer was found in 46 cases with Sex ratio 7/1. Cystoscopy was performed for all. Histology revealed squamous cell carcinoma (n = 41; 89.13%), and (n = 5; 10.87%) urothelial. Endoscopic resection performed (n = 14; 30.43%). Kidney cancers were 13 cases (10 men, 03 women). Nephrectomy was performed in (n = 8; 61.54%) cases and Histology revealed renal cell cancer in 76.92%. Testicular cancers were diag 09 cases. History of cryptorchidism was found in 4 cases, 4-year infertility in 3 cases. Orchidectomy was done in all cases. Chemotherapy in 3 cases. **Conclusion:** urological cancers are frequent, dominated by prostate cancer. The endemicity

of bilharziasis has increased squamous cell carcinoma. The majority of patients have advanced form of the disease, which poses management problems.

Keywords

Urologic Cancers, Epidemiology, Histology, Zinder

1. Introduction

Cancer has become a global public health problem, with more than 19.3 million cases diagnosed and almost 10 million deaths in 2020. GLOBOCAN estimates that in 2040, the number of cancer cases will have risen to 28.4 million worldwide.

The most frequent urological cancers are those of the prostate, kidney, bladder and testicles.

In the 2018 WHO report, among the 10 most frequent cancers are present prostate and bladder cancers [1] [2].

In Niger, the epidemiology of cancer is not yet well understood, due to the lack of a structure responsible for collecting national data. A previous study reported an incidence of 391 cases per year [3]. Data on urological cancers in particular are scarcely available.

The aim of this study was to present the epidemiological, clinical and therapeutic aspects of adult urological cancers at the Zinder National Hospital.

2. Patients and Methods

This was a cross-sectional study of primary urologic cancers in adults during the period January 2019 to December 2023.

This period corresponded to the beginning of the availability of diagnostic means, including prostate biopsy, Computed Tomography, and anatomopathological examination. In addition, a medical oncology department with regular multidisciplinary meetings was opened at Zinder hospital, thus improving care. This study enabled us to collect more precise data on urological cancers.

Data were obtained from the records of patients admitted to the urology and medical oncology departments of Zinder National Hospital. All cases of primary urological cancer in adults were included in the study. Cases of gynecological or anorectal cancers extending to the urogenital sphere, or pediatric cases, were not included in the study.

The parameters studied were frequency, age, sex, urogenital distribution, anatomopathological type and therapeutic aspects.

Data were recorded on Excel 2013 and analyzed with Epi-info version 7.2.5.

3. Results

3.1. Epidemiology

A total of 6017 patients were examined, 289 of whom had urological cancer,

correspondence to 4.80% of urological pathologies.

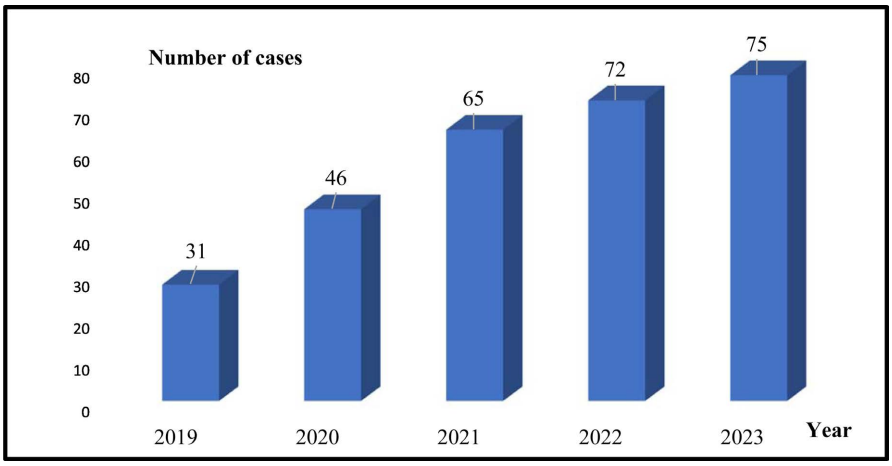

Figure 1. Number of cancer diagnosed by year

Table 1. Cancer distribution by organ.

Location of cancer	Number of cases	Percentage (%)
Prostate	221	76.47
Bladder	46	15.92
Kidney	13	04.50
Testis	09	03.11
Total	**289**	**100.00**

Table 2. Median age of patients by cancer location.

Cancer-Site	Médian Age (Year)	Extremes (Year)
Prostate	70.16	50 - 89
Bladder	57.35	39 - 77
Kidney	52.11	48 - 69
Testis	22.04	17 - 31

The median age of patients was 50.42 years for all urological cancers.

3.2. Prostate: Reasons for Consultation or Referral

Lower urinary tract disorders (n = 78; 35.29%), complete retention of urine (n = 40; 18.09%), altered general condition (n = 41; 18.56%), elevated PSA (n = 35; 15.84%), renal failure (n = 17; 07.70%), paraplegia (n = 4; 1.81%), pelvic limb edema (n = 6; 2.71%).

Histology Adenocarcinoma in 100% (n = 221) of cases.

PSA rate > 20 ng/ml was 90.04%.

3.3. Extension Report

134 cases (60.63%) of which Computed Tomography (n = 43; 19.46%), abdo-

minopelvic ultrasound (n = 16; 7.24%) and standard radiography (n = 75; 33.93%).

Table 3. Histological Gleason grading groups and ISUP correspondence.

Gleason Score	Number of cases	%
6 (3 + 3) = [ISUP1]	08	03.62
7 (3 + 4) = [ISUP2]	41	18.55
7 (4 + 3) = [ISUP3]	49	22.17
8 (4 + 4) = [ISUP4]	73	33.03
9 et 10 (4 + 5) et (5 + 5) = [ISUP5]	50	22.63

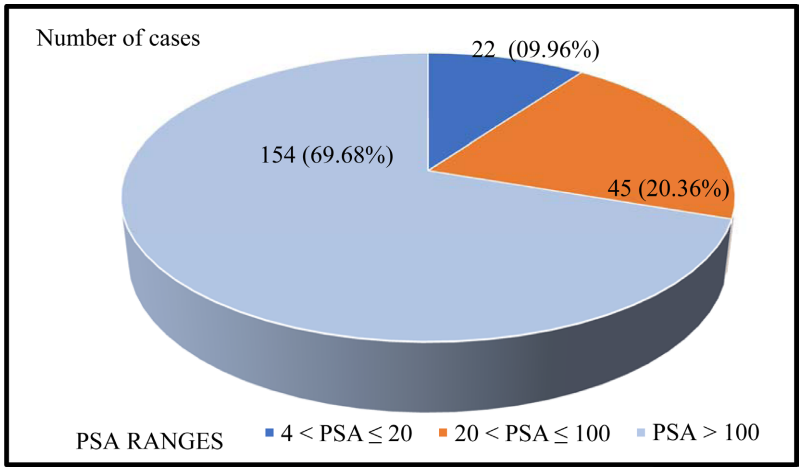

Figure 2. PSA RANGES. (Prostatic Specific Antigen).

Table 4. Treatment modalities.

Treatment	Number of cases	(%)
Monitoring	29	13.12
Medical castration	04	01.81
Cervico-prostatic tumor removing + castration	22	9.95
Cervico-prostatic tumor removing + A. A	47	21.27
Surgical castration + A. A	116	52.49
Chemotherapy +A. A of 2nd génération	03	01.36

Surgical castration was performed in 62.44%, chosen for its low cost.

Cervico-prostatic tumor removing (CPTR) 31.22%, Antiandrogen (A.A).

Castration resistance appeared between 8 and 11 months of age.

Only 3 (1.36%) could afford to continue chemotherapy with second line anti-androgens (Abiraterone Acetate + prednisolone). The hospital mortality of prostate cancer was 16.29%.

Bladder cancer 46 cases, Sex ratio 7/1.

3.4. Discovery Circumstances

Total hematuria (80.43% = 37), hypogastric mass (26.08% = 12), pyuria lumbar pain (11 = 23.91%). Cystoscopy was performed in all cases. Histology revealed squamous cell carcinoma (n = 41; 89.13%), and (n = 5; 10.87%) urothelial.

Endoscopic resection performed in (n = 14; 30.43%) cases.

3.5. Kidney Cancer: 13 Cases (10 Men, 03 Women)

Lumbar mass 76.92%, deterioration of general condition 46.15%.

Histology: renal cell carcinoma in 87.13% of cases. Nephrectomy was performed for 8 patients, 3 had tumor-reducing chemotherapy and two others were evacuated in another country for better management.

3.6. Cancer of the Testis

Chronic wound in 6 cases, large solid bursa in 2 cases and one case of recurrence on the contralateral testicle. A history of cryptorchidism in 4 cases, primary infertility in 3 cases Abdominal and pelvic ultrasound were used to assess the extent of the disease.

Orchiectomy was performed in all cases. Three patients had received chemotherapy.

4. Discussion

This study began with the introduction of diagnostic facilities and the opening of a medical oncology department to improve cancer assessment at Zinder National Hospital.

which has facilitated the diagnosis of a greater number of cases each year as shown on **Figure 1** Epidemiologically, 289 cases of urological cancers distributed on various organs were collected (**Table 1**), representing an annual incidence of 57.8 new cases.

It is higher than those of Ouédraogo in Burkina Faso, Ouattara in Cotonou and Igbokwe in Nigeria, which had 16; 17.38, and 42 cases per year respectively [4] [5] [6]. Our rate can be explained by the many referrals of urological cases by other hospitals from the north and east of Niger [4] [5]. Despite being a second-age pathology, cancers do not appear uniformly, the age of apparition varies by organ, in this serie as classified in **Table 2**. Overall the mean age of the patients was 50.42 years, close to that of Igbokwe in Nigeria and Ouédraogo in Burkina Faso (53.5; 58.9), [4] [6] but far from that of Ouattara and Darré (62.89; 65.53) [5] [7]. This proves that urological cancers are increasingly being discovered in young, active adults, thus constituting a real public health problem. As found in Niamey, by Salamatou in Niger [3].

4.1. Analysis by Organ

Prostate cancer epidemiologicaly is the most common urological cancer. In Africa, a metanalysis by Adeloye estimates its incidence at 21.95/100,000 persons

[8]. In a previous study in Zinder, the incidence was 37 new cases per year [9]. Diagnosis of prostate cancer has been facilitated in Zinder since the availability of biopsy and histology. These enabled us to record 221 cases of prostate cancer, representing 76.47% of urological cancers diagnosed during the period (**Table 1**). According to Sharma et al., prostate cancer is the leading men cancer in Africa, with 97,173 cases in 2020 [10]. Although Prostatic Specific Antigen (PSA) measurement paired with digital rectal examination (DRE) remains reliable for screening, prostate cancer is discovered with advanced forms in Africa: the long clinical latency of prostate cancer, the insufficiency of public awareness, and the lack of mass screening could be reasons. This is corroborated by Ondo in Senegal (46.9%), Botcho in Togo (64.39%) and Cissé in Conakry (83.3%), where the majority of patients had consulted a specialist late with metastatic forms [11] [12] [13]. In our series, 44% have metastatic complications. In a meta-analysis by Cassell lower urinary tract symptoms were the main reason for consultation, and the rectal examination was abnormal in 66.67% of cases, while Diallo recorded 68.3% of consultations for urinary disorders [14] [15].

All these studies confirm the delay in consultation linked to the long latency of this cancer. In the same meta-analysis by Cassell, the Gleason score above 7 was 62.5% [14]. In our serie the proportion of Gleason score superior or seven (7) was supérior to 78% as reported in **Table 3.** PSA is an important element in screening, and its value above 50 may suggest metastatic cancer. Approximately 70 % had a PSA greater than 50 (**Figure 2**) and 60.63% of metastases were detected proving the benefits of PSA. Our rate is close to Konan's in Abidjan (68.23%) [16].

Treatment modalities were exposed in **Table 4**. According to guidelines, androgen deprivation is the treatment of metastatic cancer [17]. In most cases in Africa, androgen deprivation is achieved by surgical castration, due to its low cost. Depending on the patient's means, it may be combined with an anti-androgen. Surgical castration combined with an anti-androgen (Bicalutamide 50 mg; 3 tablets daily) was our main procedure. It was performed in 62.44% of cases for complete androgen deprivation. This rate is close to Diallo's 68.3%, but far from Ondo's 100% castration rate in Senegal [11] [15]. Mortality was 16.29%, in line with the assessment of specific mortality for this cancer in the sub-region by Ouattara, Modou, Cissé, Konan and Ouédraogo (19.3%; 34.4%; 28.33%; 16.19%; 15%) respectively [4] [5] [13] [16] [18].

4.2. Bladder Cancer 46 Cases

According to Globocan 2020, bladder cancer is the second most common urological cancer after prostate cancer, with 573,278 new cases and 212,536 deaths. In Africa, a meta-analysis by Adeloye of 22 bladder cancer reports from 15 countries found an overall incidence of 7/100,000 for men and 1.8/100,000 for women. It is more common in North Africa, with an incidence of 10.1/100,000 men, compared with 5/100,000 men in sub-Saharan Africa [1] [19]. The urothelial type is more frequent in the north, while the squamous cell carcinoma is

abondant in south of the Sahara, due to the endemic bilharziasis, as discovered by Diao, Younoussa [20] [21]. In this study, bladder cancer accounted for 15.92% of cancers recorded. Our rate is close to Diallo's in Senegal, Darré's in Togo and Tela's in Nigeria with 17.9%, 14.16% and 19.8% respectively [7] [15] [22]. But much lower than that of Ouattara's in Benin with 33.1%, and Salah's in Algeria with 60.3% [5] [23]. The main manifestation of bladder cancer was total hematuria (n = 37; 80.43%) in our serie, which was 63% for Diallo, 65.71% for Avakoudjo in Benin and 100% for Zakhama [15] [24] [25]. Cystoscopy was performed and enabled biopsy in all cases. Squamous cell carcinoma accounted for 89.13% (n = 41); this histological type is considered to have a poor prognosis. Endoscopic resection in 14 cases (30.43%), which confirms the processing difficulties in our context

4.3. Kidney Cancer

Kidney cancer is an uncommon cancer; we recorded 13 cases in 5 years, representing 4.5% of urological cancers. It represented 13.46% in Diallo's series, 8.11% in Darre's, and 8.7% in Salah's in Algeria [7] [15] [23]. The circumstances of discovery in the majority of cases is evidence of an advanced form often out of reach in our study it was lumbar mass in 76.92%, 65.6% for Tengue in Togo, 54% for Diallo in Senegal [15] [26]. All these studies show that kidney cancer is far from being an incidental finding in Africa, and therefore offers little chance of cure and conservative treatment such as partial nephrectomy, which is widely practised in developed countries. Histological analysis revealed renal cell carcinoma in 87.13% of cases, in line with the findings of Ouédraogo, Darre, Salah and Diallo [4] [7] [15] [23].

4.4. Testicular Cancer

Testicular cancer is an uncommon cancer, as reported in several studies in the sub-region. Ouattara (3 cases/3 years), Ouédraogo (11 cases/10 years), Salah (7 cases/12 years) and Darre (13 cases/20 years). We recorded 9 cases in 5 years [5] [4] [7] [23]. It is mainly diagnosed in young people aged between 17 and 34. In this series, all cases have an advanced stage of the disease. Orchiectomy was performed for all patients, and all were germ cell tumors, whereas Ouédraogo found 72.72% germ cell tumors [4].

5. Conclusion

Urological cancers are frequent, dominated by prostate cancer. the endemicity of bilharziasis has increased squamous cell carcinoma. The majority of patients were found with an advanced form of the disease, which poses a problem for management in our context.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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