

## RESEARCH ARTICLE

# Evolution of the Histo-Epidemiological Profile of Urological Cancers in Togo

Tchin Darré<sup>1\*</sup>, Koué Folligan<sup>2</sup>, Tchilabalo Matchonna Kpatcha<sup>3</sup>, Kokou Kanassoua<sup>4</sup>, Edoe Sewa<sup>3</sup>, Sassil Daré<sup>4</sup>, Kodjo Tengue<sup>3</sup>, Koffi Amégbor<sup>1</sup>, Gado Napo Koura<sup>1</sup>

### Abstract

**Background:** Urological cancers are an important public health issue and pose problems with diagnosis and adequate management in developing countries. Our aim was to determine and report epidemiological and histological features of urological cancers in Togo. **Materials and methods:** A retrospective descriptive study was conducted of cases of urological cancers observed in the laboratory of pathological anatomy of the CHU Tokoin over the last 4 years (2012-2016). The parameters studied were frequency, age, sex, sites of development and histological type. **Results:** Epidemiological data were collected for 182 cases, representing 16.4% of all cancers (1108 cases). The annual frequency was  $45.5 \pm 1.1$  cases on average. The male:female sex ratio was 8.6 with a mean age of 60.2 years. Regarding location, in decreasing order of frequency, the tumors were found in the prostate (n=121 cases; 66.5%), bladder (n=28; 15.4%), kidney (n=19; 10.4%), testis (n=10; 5%), penis (n=3; 1.7%) and scrotum (n=1; 0.5%). Histologically, prostate cancers were predominantly adenocarcinomas (n=116 cases; 95.8%) with a Gleason score of 6 (n=46; 39.7%) predominant. Bladder cancers were mainly squamous cell carcinomas (n=11; 39.3%) followed by transitional carcinomas (n=9 cases; 32.1%) and adenocarcinomas (n=7; 25%). Kidney cancers were predominantly nephroblastomas (n=10, 52.6%) in children and clear cell carcinomas (n=8 cases; 42.1%) in adults. Testicular cancers were Burkitt lymphomas in 5 cases. The cases of penis and scrotum cancers were all squamous cell carcinomas. **Conclusion:** Urological cancers are experiencing an upsurge in frequency in Togo, dominated by prostate cancer, with a high frequency of squamous cell carcinoma of the bladder due to endemic bilharziasis.

**Keywords:** Cancer- urology- epidemiology- histology- Togo

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### Introduction

Urological cancers occupy an important place in urological pathology and constitute a real public health because of their increasing frequency (Bellot et al., 2008; Yee et al., 2015). They include cancers of the kidney, ureter, bladder, urethra, and in men, cancer of the testis, prostate, scrotum and penis (Yee et al., 2015). Epidemiological and histological data on these urological cancers are available in developed countries with cancer registries dominated by prostate cancers, which ranks 4th in the world after lung, stomach and colon cancer (Colonna et al., 2008). In most African countries, data on urological cancers are scarce due to the unavailability of effective collection tools, including the cancer registry (Darré et al., 2014; Parkin et al., 2014). A study carried out in Togo reported a frequency of 14.7% of urological cancers of all the cancers diagnosed (Darré et al., 2014).

The aim was to study the epidemiological and histological features of urological cancers in Togo.

### Material and methods

This was a retrospective descriptive of all cases of urological cancers diagnosed from January 2013 to December 2016 (4 years) in the only pathological anatomy department of the Tokoin Hospital in Lomé, Togo. These cases were collected from the registers of the laboratory.

The study material consisted of biopsies and surgical specimens fixed in 10% formalin and treated according to conventional histology techniques. The variables studied were epidemiological data (frequency, sex, age) and histological data (the site, the nature of the sample and the histological type).

#### Statistical analysis

Statistical processing and analysis of data was performed using SPSS software.

#### Ethical consideration

This study received approval from the Head of the

<sup>1</sup>Department of Pathology, <sup>2</sup>Department of Histology-Embryology, <sup>3</sup>Department of Urology, <sup>4</sup>Department of Surgery, The University Teaching Hospital of Lomé, Togo. \*For correspondence: paolodarre@yahoo.fr

laboratory department to be conducted. Since it was counting records, patient consent was not required. However during the counting and data collection patient names were not collected in order to preserve confidentiality.

## Results

### Epidemiology

During the study period, we collected 182 cases of urological cancers representing 16.4% (1108 cases) of all cancers diagnosed in the laboratory. The annual frequency was  $45.5 \pm 1.1$  cases on average. The sex distribution of these cancers was: 163 cases (89.6%) of male and 19 cases (10.4%) of female, a sex ratio of 8.6. Patients ranged in age from 14 to 93 years, with an average age of 60.2 years. Depending on the location of the cancer: prostate (n=121 cases; 66.5%), bladder (n=28 cases; 15.4%), kidney (n=19 cases; 10.4%), testis (n=10 cases; 5%), penis (n=3 cases; 1.7%) and scrotum (n=1 case; 0.5%) (Table 1).

### Histopathology

The investigated samples consisted of 71 cases (39%) biopsies and 111 cases (61%) surgical specimens. Prostate cancer ranked first among urological cancers with 66.5% of cases. The annual frequency was 30.3 cases on average. The mean age of the patients was 64.3 years, with extremes of 42 and 93 years; 22 cases (18%) were recorded in subjects younger than 50 years.

These histological prostate cancers consisted of 116 cases (95.8%) of adenocarcinoma, 2 cases (1.7%) of squamous cell carcinoma, 2 cases (1.7%) of leiomyosarcoma and 1 case (0.8%) of mucinous carcinoma. The evaluation of Gleason's prognostic score is shown in Table 2 and showed a predominance of the Gleason score 6 (n=46 cases; 39.7%).

Bladder cancer was the second most common urological cancer (15.4%), with an average age of 43.6 years. By sex, 18 cases (64.3%) were male and 10 cases (35.7%) were female.

The histological types of these bladder cancers were squamous cell carcinomas (n=11 cases; 39.3%), transitional carcinomas (n=9 cases; 32.1%), adenocarcinoma (n=7 cases; 25%) and leiomyosarcoma (n=1 case; 3.6%).

Cancer of the kidney occupied the third rank of the urological cancers with 10.4% of the cases. It was observed at an average age of 32.4 years with the extremes of 10 and 87 years, and there was a predominance of

Table 1. Distribution of Urological Cancers by Cancer Site

Seat	Number of cases (n)	Percentage (%)
Prostate	121	66.5
Bladder	28	15.4
Kidney	19	10.4
Testicle	10	5.5
Penis	3	1.7
Scrotum	1	0.5
Total	182	100%

Table 2. Distribution of Adenocarcinomas of Prostate by Score of Gleason

Gleason Score	Number of cases (n)	Percentage(%)
4	5	4.3
5	9	7.8
6	46	39.7
7	12	10.3
8	15	12.9
9	13	11.2
10	16	13.8
Total	116	100%

females (n=11 cases, 57.9%). Histologically, 10 cases (52.6%) were nephroblastoma, 8 cases (42.1%) clear cell carcinoma and 1 case (5.3%) non-Hodgkin's lymphoma with large B cells were noted.

Testicular cancer was the fourth urological cancer with 5.5% of cases, consisting of 5 cases of Burkitt's lymphomas, 4 cases of seminomas and 1 case of sexual cord tumors.

Penis cancer was mainly represented by squamous cell carcinomas and was observed in subjects over 50 years of age. A case of squamous cell carcinoma of the scrotum was observed in a 61-year-old patient. No cases of epididymis and urethral cancer were found.

## Discussion

### Epidemiological

Our study of urological cancers collected all cases histologically confirmed throughout the territory. Indeed, the laboratory of pathological anatomy of the CHU of Lomé is the only one of its kind in Togo for all the requests of histopathological examinations. However, many cases are missing for lack of a cancer registry in the country.

Urological cancers, because of their frequency throughout the world, represent a real public health problem (Yee et al., 2015). Their frequency shows significant variations in the world. In fact, data from northern countries with a high technical plateau and cancer registries are very difficult to compare with those of countries in the South that do not have a cancer registry (Darré et al., 2014; Parkin et al., 2014). Continuous and comprehensive recording of all cancer cases (cancer registry) is a guarantee of the quality of the data and allows an approach to estimate the incidences as well as the various epidemiological parameters (Kookc et al., 2015). In this study the annual frequency of urological cancers was 30.3 cases; this frequency is higher than that reported in a previous study (25.3 cases) highlighting the increase of cases of urological cancers in Togo (Darré et al., 2014).

In our series, 62% of urological cancers occurred after 50 years, whereas in the previous series, 75.5% of cases after 50 years coincided with data from the literature highlighting the trend of younger and younger cases Urological studies (Ouattara et al., 2015). The male predominance observed in this study was already reported in the contending study and by numerous authors throughout the world (Darré et al., 2014; Kirakoya et al.,

2014; Ouattara et al., 2015). This predominance is often due to human anatomy and differences in exposure to carcinogens (Belot et al., 2008; Yee et al., 2015).

### *Histopathological*

#### *Prostate cancer*

Prostate cancer is a regularly diagnosed disease in Togo, with an average of 30.3 cases per year. This rate is higher than the rate reported in a previous study, which was an average of 25 cases of prostate cancer, confirming the tendency for the population of the cancer pathology to increase in general and that of the prostate specifically (Darré et al., 2014). Prostate cancer is a condition of the elderly, in our series the average age (64.3 years) is comparable to those reported in the literature (Attard et al., 2016; Kirakoya et al., 2014).

Histologically, the high frequency of the adenocarcinomas of our series was already reported in the previous study, and in agreement with the data of the literature (Attard et al., 2016; Filippou et al., 2016; Parkin et al., 2014). On the other hand, sarcomas are less common in the prostate, less than 1% of prostatic tumors and occur in subjects younger than 50 years (Filippou et al., 2016). Squamous cell carcinomas are exceptional diagnoses, and their histogenesis is poorly understood (Eggerer et al., 2015). The grading system of Gleason is an indispensable communication tool between pathologists and urologists which allows to give a score allowing to prejudge the aggressiveness and the evolution of the prostatic adenocarcinomas. In our study, two thirds of cases had high-grade adenocarcinoma, as is often the case in African series, contrasting with low-grade Western countries (Eggerer et al., 2015; Kirakoya et al., 2014; Parkin et al., 2014).

#### *Cancer of the bladder*

Bladder cancer is the seventh male cancer in the world and is not ranked among the top 15 in women (Bellot et al., 2008; Colonna et al., 2008). In our series, bladder cancer accounts for 14.16% of urological cancers; this frequency is close to that observed in the Cotonou and Dakar series where Ouattara et al. and Dial et al. reported respectively 19.62 and 23% (Dial et al., 2008; Ouattara et al., 2015). The average age of our series, 47.3 years, is comparable to that reported by other African series; Ouattara et al. in Benin: 49.7 years (Ouattara et al., 2015). This young age of the African series contrasts with western authors who report more advanced middle ages, as in France where Irani reports an average age of 69 years for men and 71 years for women (Irani, 2003).

Bladder cancer mainly affects men (sex ratio: 3/1), but remains the first urological cancer of women in our country, comparable to the results reported in Benin by Ouattara (Ouattara et al., 2015). In our series, as in Senegal, we have squamous cell carcinoma, adenocarcinomas and transitional carcinomas. Squamous cell carcinomas are seen in patients from bilharzian endemic areas as the northern part of the country (Darré et al., 2015).

#### *Cancer of the kidney*

Worldwide, kidney cancer is the twelfth th male cancer

and the fifteenth female cancer; 189,000 new cases are reported each year (Yee et al., 2015). There are significant geographical variations. The incidence is high in North America, Western Europe, the Scandinavian countries and Australia. On the other hand, it is low in Asia and Africa, although some authors report a high incidence of clear cell carcinomas among black American men (Belot et al., 2008; Colonna et al., 2008; Darre et al., 2014).

In Togo, kidney cancer is the third most common form of urogenital cancers after the prostate and bladder, far ahead of the testicle. Cancer of the kidney of the child is more frequent than that of the adult, it is mainly nephroblastomas. They are also the second cancer of the Togolese child from 0 to 15 years (Darré et al., 2016). Nephroblastomas have been rare in adults, two cases have been observed, as reported in the literature (Darre et al., 2016; Ouattara et al., 2015). One case of primary renal non-Hodgkin's lymphoma was recorded, rare localization according to the literature (Chen et al., 2016).

#### *Cancer of the testicle*

In developed countries, testicular cancer is most commonly diagnosed in men between the ages of 15 and 44 (Raman et al., 2005). It is quite rare in our country, we have reported only 13 cases in 20 years of study, a frequency of 1.92%. These cancers occurred in relatively young subjects dominated by seminomas, as the literature attests (Akaza et al., 2016).

#### *Cancer of the penis and scrotum*

Penis and scrotum cancers are reported to be rare in the literature, and published series are sporadic (Parkin et al., 2014; Rigaud et al., 2013). Sow et al. in Cameroon reported eight cases of penis cancers in 18 years of study, all of which were squamous cell carcinomas, as in our series (Sow et al., 2006).

This retrospective descriptive and transverse study presents the epidemiological and histopathological features of urological cancers in Togo. It was noted that their frequency is increasing in Togo. These cancers occur mainly in the elderly, with a large male predominance. They are dominated by prostate cancer with cases of localizations of Burkitt's lymphoma in its endemic variant.

#### *Conflicts of interest*

The authors report no conflict of interest.

#### *Authors Contributions*

TD: was responsible for the design of the study, undertook the field study, performed data collection, analysis and interpretation, and wrote the manuscript.

KF, TMK, KK, ES, SD, BA and KA: participated in the design of the study, supervised the data collection and participated in the data analysis.

NGK is responsible for the overall scientific management of the study, the analysis and interpretation, and preparation of the final manuscript. All authors have read and approved the final manuscript to be submitted for publication.

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