

Original Research Article

Histopathological pattern of urologic malignancies in Irrua Specialist Teaching Hospital: a retrospective review

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Abstract

Introduction: Cancers constitute a major health challenge globally with urologic malignancies accounting for a major proportion of malignancies. The pattern and distribution of urologic cancers varies between regions of the world and even in countries there is variation amongst ethnic nationalities, this is influenced by genetic and environmental factors. The aim of this study was to assess the pattern and frequency of distribution of urologic malignancies in Irrua Specialist Teaching Hospital, Irrua, Edo State.

Methods: This was a 10 year retrospective descriptive study from January, 2011 to December, 2020 of all histologically diagnosed urologic cancers in Irrua Specialist Teaching Hospital. Data were retrieved from the surgical unit of anatomic pathology. Patients demographics, organ site of tumor and histologic diagnoses were analysed.

Results: A total of 450 urologic malignancies were included over the 10 year period, comprising 440 males (98.9%) and 5 females (1.1%). The peak age of urologic malignancies in the study was in the 7th decade of life. Prostate cancer constituted the commonest urologic malignancy, 419 cases (94.2%), kidneys 14 (3.1%), testis 6 (1.3%), scrotum 4 (0.9%), bladder and penis 1 each (0.2%).

Conclusion: Urologic malignancies are common with predominance of cancers affecting males. Prostate cancers are the commonest urologic malignancies in Irrua Specialist Teaching Hospital. Histologically diagnosed bladder tumors are rare in Irrua Specialist Teaching Hospital, this trend may change in future studies with availability of diagnostic tool.

Keywords: Bladder tumors, Cancer of the prostate, Histopathology, Renal cell carcinoma, Urologic malignancy

Introduction

Cancers constitute a major health burden globally with urologic malignancies accounting for 14% of worldwide cancer prevalence [1,2]. Cancer of the prostate, bladder, kidney, testis and penis are documented to be the most common group of non-cutaneous cancers in the UK [3]. They account for 16% of all new cases and 11.7% of cancer deaths in England and Wales [4,5]. A study conducted in Zambia had reported that urologic malignancy constituted 12% of histologically confirmed cancers [6,7].

There is absence of national cancer registry in Nigeria, therefore there is paucity of National data regarding prevalence of cancers in Nigeria, even though institution-based studies have revealed increased incidence of cancers [8,9]. This parallels an

increase in urologic malignancies with prostate cancer being more prevalent [8,10,11]. The incidence of cancers varies between regions of the world and even in country there is variation amongst ethnic nationalities [12]. Pattern of urologic cancer distribution is protean, this is dependent on racial and socioeconomic strata as with other cancers, this is influenced by genetic and environmental factors [13,14].

The paucity of data and or underreporting of the burden of urologic malignancies and cancers in general coupled with the weak response to cancer burden in Nigeria informed the need for this institutional based study, to make vital data available needed for informed decision and policy formulation. The aim of this study therefore is to assess the pattern and frequency of distribution of urologic cancers in Irrua Specialist Teaching Hospital (ISTH).

Methods

In a retrospective descriptive cross-sectional study, relevant urologic histopathological records and biopsy/surgical specimen of malignant lesions were retrieved at the Department of Anatomic Pathology, Irrua Specialist Teaching Hospital, Irrua, Edo State. Period covered from 2011 to 2020. Cancer cases with incomplete data and cytology specimen were excluded.

A proforma developed by the researcher was used to collect relevant histopathological data from surgical unit of anatomic pathology. This included patients demographics (age, sex, and level of education), clinical histopathological records which included organ site of tumor and histological diagnosis were generated using the proforma. To ensure confidentiality and privacy patients name, address and case note number were excluded from the data generated.

Approval for this study was obtained from the Hospital Ethics and Research Committee of Irrua Specialist Teaching Hospital (protocol number: NHREC/29/03/2017).

Data collected were analysed using the Statistical Package for Social Science (SPSS) version 25. Results were presented using frequencies and percentages.

Results

The age distribution of urologic cancers is shown in Table 1. Majority of the patients (98.9%) were males. The peak age of urologic malignancies is in the 7th decade of life (61-70) years.

Cancer of the prostate (CaP) was the commonest urologic malignancy with peak age of incidence in the 7th decade of life (61-70) years. Adenocarcinoma of the prostate was the only histologic type of prostate cancer, while renal cell carcinoma and nephroblastoma were the histologic variant of renal tumors, as shown in Table 2.

Table 1: Socio-demographic characteristics

Variables	Frequency (n = 445)	Percentage
Sex		
Male	440	98.9
Female	5	1.1
Age (years)		
1-10	8	1.8
11-20	3	0.7
21-30	2	0.4
31-40	6	1.3
41-50	10	2.2
51-60	39	8.8
61-70	154	34.6
71-80	153	34.4
81-90	64	14.4
91-100	6	1.3
Organs		
Prostate	419	94.2
Bladder	1	.2
Kidney	14	3.1
Scrotum	4	.9
Penis	1	.2
Testis	6	1.3

Discussion

Urologic malignancies represented about 30.1% of all malignancies when this study is juxtaposed with a study conducted in the same centre over the same period on all malignancies [15]. This finding is at variance with similar studies carried out in Jos by Madong et al, in Kano by Abdukadir et al and Ile-Ife by Igbokwe et al respectively [12,116,17], which reported less than half the prevalence reported in this study. Similar studies in Lusaka, Zambia and Korle Bu, Ghana reported a prevalence of 12.8% and 8.5% respectively [18,19]. This is attributed to the varying pattern and prevalence reported in the literature [20].

In this study, males accounted for 98.9% of all urologic malignancies. Most studies across Nigeria and Africa region depict this pattern. A study carried out in Jos revealed male preponderance in a ratio of 1:5.5. Female constituted 15.35% of all urological malignancies [12]. Similar trend was noted in a study carried out in Kano, North-Western Nigeria which also revealed male preponderance in a ratio of 1:16 with

Table 2: Sex distribution of urological tumours

Organ	Histological Type	Freq.(%)	Sex		Peak years
			Male	Female	
Prostate	Adenocarcinoma	419(100.0)	419(100)	-	61-70
Bladder	Urothelial Carcinoma of the Bladder	1(100.0)	1(100.0)	-	71-80
Kidney	Renal Cell Carcinoma	9(64.3)	5(55.6)	4(44.4)	41-50
	Nephroblastoma	5(35.7)	4(80.0)	1 (20)	1-10
Scrotum	Squamous cell Carcinoma	4(100.0)	4(100.0)	-	71-80
Penis	Squamous Cell carcinoma	1(100.0)	1(100.0)	-	71-80
Testis	Embryonal carcinoma of the testis	2(33.3)	2(100.0)	-	41-60
	Seminoma	4(66.7)	4(100.0)	-	31-40

females accounting for 6% of urological malignancies [16]. This finding was also corroborated by studies carried out in South-South Nigeria, in Calabar [21] and Port Harcourt [22] which also revealed that urological cancers were commoner in the male population in a ratio of 1:31.5 and 1:25.5 respectively. Findings in Ile-Ife South West Nigeria by Igbokwe et al [17] also revealed that female urological malignancies accounted for 11.2% of all urological cases in a ratio of 1:9. Studies in Korle bu, Ghana [19] and Zambia [18] were also characteristic in a ratio of 1:11 (with females malignancies accounting for 8.5%) and 1:7 (female urological malignancies accounting for 12.6% of all urological malignancies) respectively.

Findings from this study has demonstrated that cancer of the prostate (CaP) was the commonest urologic malignancy in Irrua Specialist Teaching Hospital, Irrua, Edo state, South- south, Nigeria, with 419 patients (94.2%). This is further corroborated by findings in previous studies [12,16-19,21,22]. A retrospective study carried at Irrua Specialist Teaching Hospital over the same period documented that prostate cancer was the commonest malignancy in both sex with a prevalence of 24.8% [15]. This finding maybe related to an increased incidence, improved awareness about prostate health, improvement in urology services and better diagnostic tools, such as prostate specific antigen (PSA) testing and prostate biopsy [22], this has disputed the assertion that prostate cancer is relatively rare among indigenous Black Africans [23]. In this study all lesions were adenocarcinoma. Other studies similarly demonstrated predominance of adenocarcinoma [12,16,17,19,21,22].

Renal malignancies were the second most common malignancies encountered in this study, accounting for 3.1% of all urologic malignancies. Renal cell carcinoma was commonest histologic variant in this study, accounting for 64.2% of cases with a male female ratio 1.25: 1. The male preponderance noted in this review is in keeping with report of several studies globally [25-28], which in some cases report as high as two-fold greater risk in males. Peak age incidence in this study was in the 5th decade of life corresponding with results of several studies carried out in Nigeria [29-34], this is about 2 decades less than reports in western countries [29,36]. Nephroblastoma was the second histologic variant of renal malignancies seen in this study, it is the commonest childhood renal tumor [37]. In this study the peak age of incidence was in the 1st decade of life notably 3-4yrs of age, similar findings were noted in a retrospective study by Mandong et al and Abdukadir et al [12,16].

Testicular cancers accounted for 1.3% of urologic malignancies in our review which is in line with the trend observed in a study by Abdukadir et al [16]. Testicular tumors account for 5% of urologic malignancies in western world where it is known to be commoner [37]. All cases of testicular tumors in this study were germ cell tumors, with seminoma

accounting for majority of cases (66.7%),this is consonance with the study by Mandong et al in Jos and Isiwele et al in Calabar respectively [12,21]. The peak age of incidence was noted to be 31-40 years (4th decade of life) for seminoma in this study, embryonal carcinoma of the testis was the other histologic variant seen and had its peak age of incidence in the 3rd decade of life, this finding is corroborated by Albers et al [38].

Scrotal cancers had a prevalence of 0.9% of urologic malignancies in this study, this is in keeping with the study by Isiwele et al [21], who reported that scrotal malignancies constituted 0.8% of urologic malignancies. Rarity of scrotal malignancies was reported by Sarkar et al [39]. In this study all cases (4) were squamous cell carcinoma which was in keeping with global findings [39].

Bladder tumors were reported as the second commonest urologic malignancy in most reviews conducted in Nigeria and West Africa sub-region [12,19,22,40], however in this study only one case of bladder tumor was identified during the period under review, it was reported as urothelial carcinoma. It was a rare finding due to absence of facility for biopsy, making a histologic diagnosis a mirage. All suspected cases of bladder tumors were referred to centres with facility for biopsy and transurethral resection of bladder tumor and consequent histologic diagnosis.

Conclusion

Urologic malignancies are very common, with a predominance of cancers affecting males. Prostate malignancies being the commonest urologic malignancy has demonstrated that it is commoner than it used to be reported in the literature amongst blacks. The second most common malignancy is renal malignancies in this study, with the availability of facilities for biopsy of suspected bladder tumors, the trend may change in future studies.

Establishing cancer registries across the country will reflect the true burden of urologic cancers and malignancies generally.

List of abbreviations

CaP – Cancer of the prostate
ISTH – Irrua Specialist Teaching Hospital

Declarations

Ethical approval

This study was approved by the Hospital Ethics and Research Committee of Irrua Specialist Teaching Hospital (protocol number: NHREC/ 29/03/2017).

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.'

Competing interests

No conflict of interest associated with this work.

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Contribution of Authors

We declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by the authors.

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