

EPIDEMIOLOGICAL PROFILE OF THE CANCER AT THE REGIONAL HOSPITAL OF NGAOUNDERE (CAMEROON)

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ABSTRACT: *Objective:* To determine the epidemiologic profile of tumours at the regional hospital of Ngaoundéré. *Materials and methods:* It was a descriptive retrospective design study carried out over a period of five years (2011-2015), on benign and malignant tumours diagnosed clinically and histologically with confirmed results from the laboratories of anatomic pathology of the university hospital of Yaoundé (CHU) and Centre Pasteur of Garoua. The studied parameters were age, sex, type of tumour, site of localisation, histopathological diagnoses, surgical resection. *Results:* A total of 215 cases of tumours was registered amongst which 86.97% was benign and 13.03% malignant with a predominance sex ratio of 3:1 in favour of females. Ages varied in women between 31- 40 years with a mean age of 36.8 years for benign cases and 48.8 years for cancers. Leiomyoma with 50% was the most frequent of all benign tumours followed by fibro adenomas of the breast. Concerning malignant tumours, breast cancer recorded the highest frequency followed by the cancer of the cervix. In males, 24% of benign and 54% of malignant tumours were recorded within the age range of 51- 60 years for benign and 61-70 years for malignant. Benign prostate hypertrophy was the main tumours affecting men with a percentage of 68.88%, whereas, the most prevalent male cancer was still that of the prostate gland followed by the colorectal cancer. *Conclusion:* Though the number of populations in this study was not representative of the Adamawa region, the incidence was similar to those observed in other countries as such, risk factors of tumours were the same therefore this study will better equip health leaders so as to develop and reinforces strategies put in place to better manage, mobilize resources and take preventive measures so as to reduce their incidence.

KEYWORDS: cancer, epidemiology, benign, malignant, tumour, incidence.

1 INTRODUCTION

In Africa, the tumoural pathology has long time remained behind great tropical endemics. The African oncology was hardly known at the beginning century, before the first descriptions of malignant tumours carried out in Uganda. In Cameroon, the first cases were described in 1934 by Ledentu (Mamadou *et al.*, 1994). With time, studies have being carried out which showed the incidence of tumours but much more on cancers which is a public health issue in Africa. Cancer is the second among fatal diseases, next to cardiovascular diseases, in the industrialized countries (Colin, 2001). Nowadays, tumours call for attention by their frequency, their late discovery, difficulties in their care management and their serious prognostic (Diallo *et al.*, 1996).

According to the international research for cancer, the most common cancer diagnosed in the world are the lungs, breast and colorectal. Breast cancer in women and prostate cancer in men have now become the most commonly diagnosed cancers in many Sub-Saharan African countries, replacing cervical and liver cancer (Ahmedin *et al* 2012., WHO 2012). This burden is more than that in the past because of changes in lifestyle factors and detection practices associated with urbanization and economic development. Cancer control programs and the provision of early detection and treatment services are limited

despite this increasing burden (Ahmedin *et al.*, 2012). Cameroon, like many other sub-Saharan countries, is facing many challenges. The majority of cancer patients go for consultation only at an advanced stage of the disease. Ignorance, local beliefs and poverty influence the behaviour of patients. Lungs, female breasts, colorectal and stomach cancers accounted for more than 40% of all cases diagnosed worldwide (Ferlay *et al.*, 2012). In Africa, 715000 cases of cancer registered out of which 542000 died in 2008 (Ferlay *et al.*, 2012). A five years study on cancer incidence in Yaounde, Cameroon reported a total of 4,689 new malignant cases, of which 2,901 (68%) were in females and 1,788 (32%) were males.

It would be of great importance to know the epidemiological profile of tumours in different regions of the country so as to know their incidence, prevalence which would be useful to prevent and take in charge the population which are vulnerable.

General objective: Determine the epidemiological profile of tumours at the Regional Hospital of Ngaoundéré so as to know their incidence and later study their etiologies

Specific objectives:

- Define the incidence, prevalence of the tumours;
- Determine the different types of tumours diagnosed;
- Determine the histo-pathological aspect of the diagnosed tumours;

2 MATERIALS AND METHODS

Choice of study place: Is based on unknown statistics of the epidemiology of tumours at the Regional Hospital of Ngaoundéré.

Type and period of study: descriptive retrospective study within a period of 5 years going from 2011 to 2015.

Data collection: Data were collected from the registers of: Consultation, Hospitalization and Surgical reports.

Inclusion criterion

All clinically and histopathologically diagnosed tumour cases confirmed by the laboratories of anatomic pathology of the university hospital of Yaoundé, central hospital of Yaoundé and centre Pasteur of Garoua and Yaoundé;

Non-inclusion Criterion

Clinically and histopathologically diagnosed tumour cases without any confirmation of the nature of the anatomic pathology from the given laboratories.

Sampling and variables: A non-probabilistic random sampling method was used by the means of the registers present in the hospital with complete files. The studied variables were: age, sex, type of tumour, site of localization, histopathological diagnoses. Recorded data were processed using Excel 2013 and transferred to the software SPSS 17.0 for analysis. The variables were described in tables and some were represented in charts.

3 RESULTS

3.1 EPIDEMIOLOGICAL ASPECTS

FREQUENCY OF BENIGN TUMOUR WITH SEX

From 2011 to 2015, 187 cases of benign tumors were observed. Women were more representative (142 cases; 76%), and men counted for (45 cases; 24%) with a sex ratio of M/F of 1:3 as shown in the figure below.

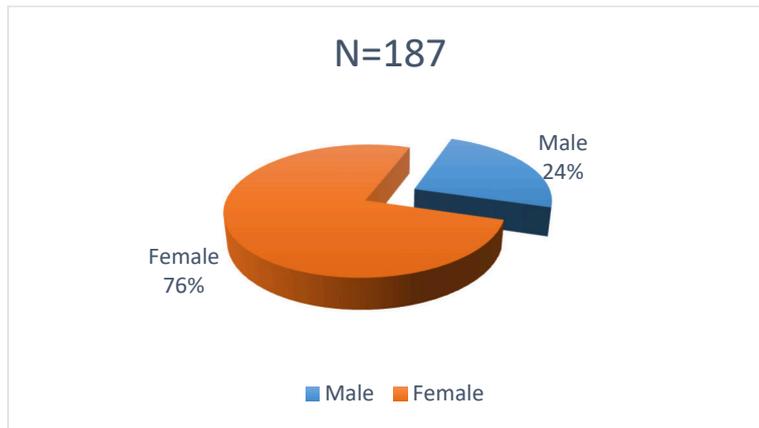


Fig. 1. Distribution of benign tumor according to sex

AGE

The most represented age group in females was that of [31- 40] years with a percentage of 51.74% and a mean age of 36.8 years. In male, the most represented age group was that of [51-60] years with a percentage of 28.88%. Their mean age was 58.3 years.

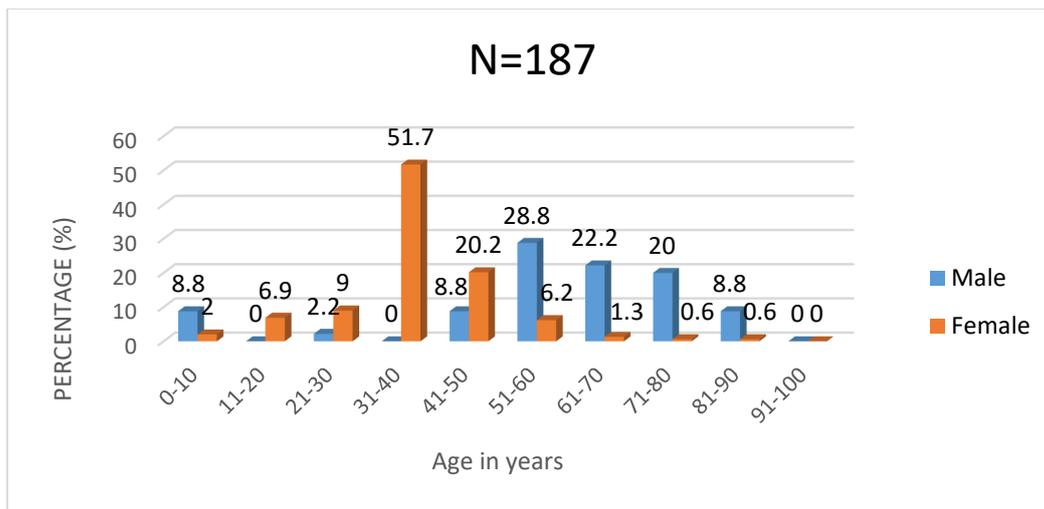


Fig. 2. Distribution of benign tumor according to age in males and females

FREQUENCY OF MALIGNANT TUMOURS

We recorded during this study period concerning malignant tumours in males (15 cases; 54%) and in females, (13 cases; 46%) as shown in the figure below.

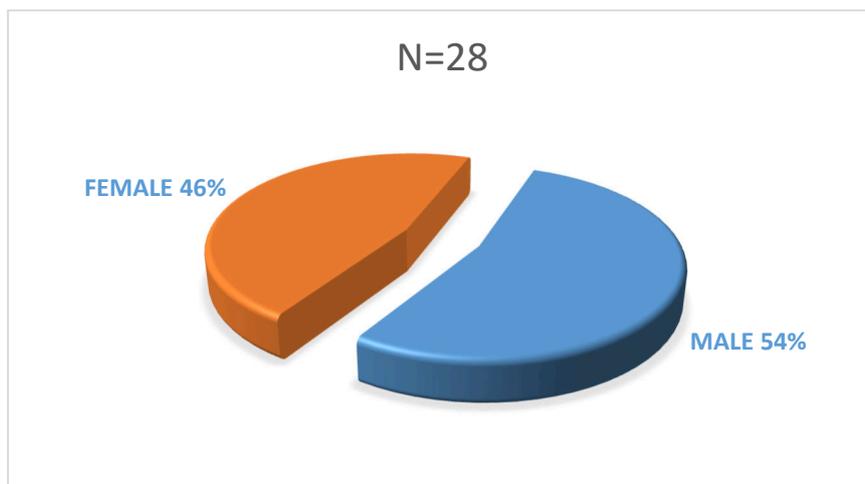


Fig. 3. Distribution of malignant tumors with sex

AGE (MALIGNANT TUMOURS)

The average age of female patients was 48.8 years with extremes ranging from 18 to 74 years. The peak incidence was noted with patients from the age group of [31-40] years. In the male category, the average age was 49.5 years with extremes ranging from 14 to 87 years. The peak incidence was noted with patients of [51-60] years.

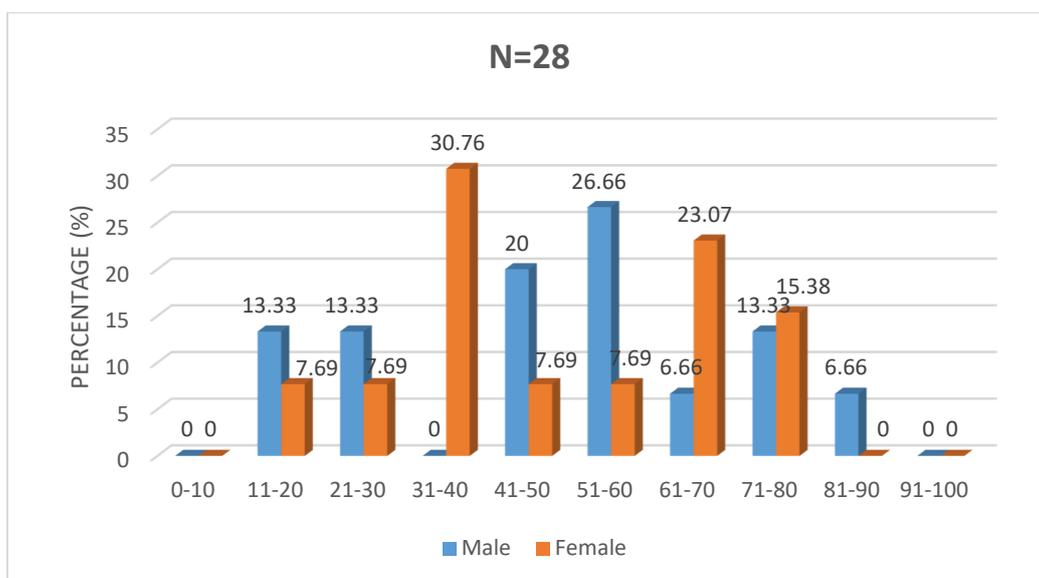


Fig. 4. Distribution of malignant tumours according to age

3.2 HISTOPATHOLOGICAL ASPECTS

BENIGN TUMOUR

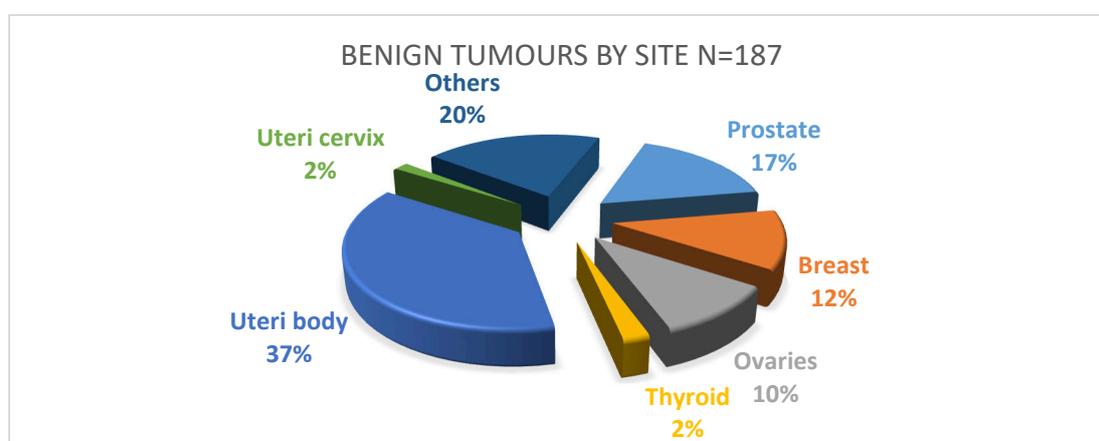
Out of the specimens sent to a pathology laboratory, 20 were benign cases whereby fibro adenomas of the breast recorded the highest percentage with 55% and angiofibrolipoma the least percentage with 5%.

Table 1. Histological type of benign tumors

Diagnosis	Number	Frequency (%)
Fibro adenoma	11	55
Angiofibrolipoma	1	5
Fibrolipoma	2	10
Mammary tuberculosis	2	10
Inflammation	4	20
Total	20	100

BENIGN TUMOURS DISTRIBUTION FOLLOWING SITE

The prevalence of benign tumours according to the different sites of lesion is represented as follows: the uteri body, 37%; prostate, 17%; breast, 12%; ovaries, 10%; uteri cervix 2% and the thyroid gland 2%. (Figure 5)

**Fig. 5. Distribution of benign tumors in both gender****DISTRIBUTION OF BENIGN TUMOURS ACCORDING TO YEARS**

The prevalence of tumours increased from 10.69% in 2010 to 36.89% in 2015. We notice a slight drop in 2013 and 2011 with respectively 11.22% and 12.29%

Table 2. Frequency of benign tumours according to years

Years	2010	2011	2012	2013	2014	2015
Number	20	23	27	21	27	69
Frequency	10.69%	12.29%	14.43%	11.22%	14.42	36.89%

MALIGNANT TUMOURS

In males: 15 cases of cancers were registered in males. The most frequent site of cancer in male was the prostate with 33.33% followed by colorectal cancer with 13.33%. 66% as shown in the figure below.

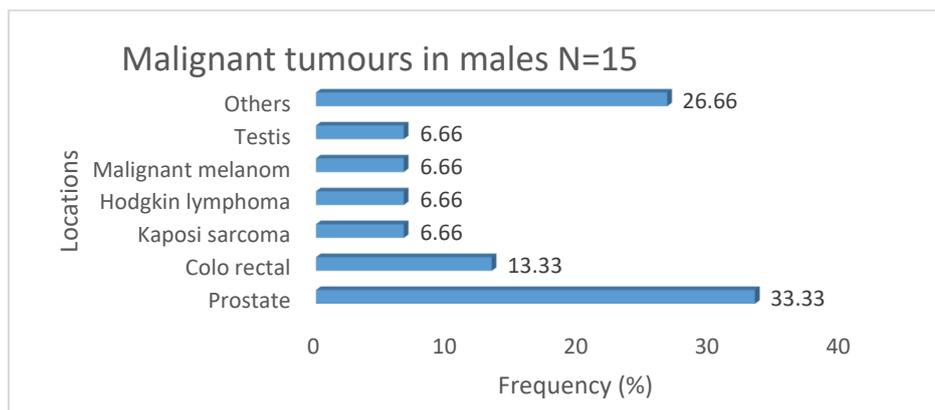


Fig. 6. Distribution of malignant tumors by site in male

In females: We had 13 cases of cancers found in females. Cancer of the breast was predominant with 46.15%. Cancer of the cervix followed with a percentage of 15.38%.

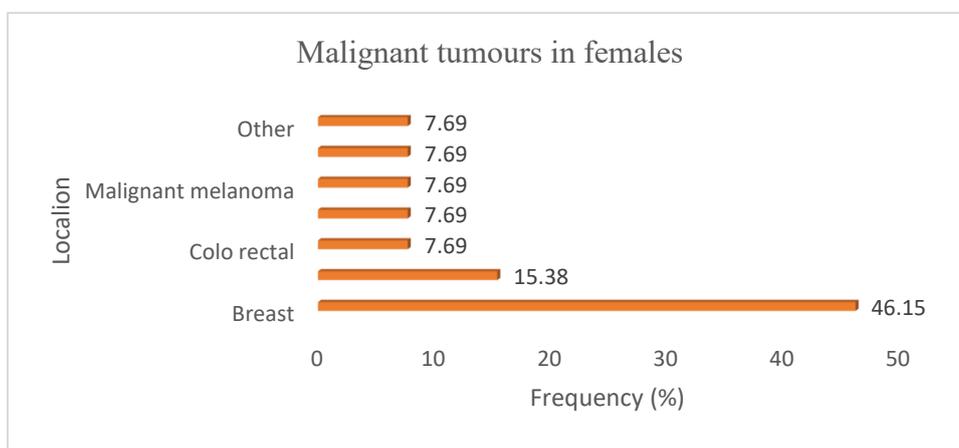


Fig. 7. Distribution of cancers by site in females

DISTRIBUTION OF TUMOURS ACCORDING TO YEARS

We recorded the highest peak of malignant tumour in 2015 with 50% appearance cases for just 3.57% in 2011. Records of the frequencies of the other years is shown in the table below.

Table 3. Frequency of malignant tumor according to years

Years	2010	2011	2012	2013	2014	2015
Number	2	1	2	5	4	14
Frequency	7.14%	3.57%	7.14%	17.86%	14.29%	50%

4 DISCUSSION

Sex: Our population census reported 215 cases of tumours, 72.09% in female and 27.91% in males. Benign tumour counted for 76% in female and 27.90% in males whereas malignant tumour recorded 54% in male and 46% in female. This difference in cancer prevalence in the Ngaoundéré population may be explained by the fact that women in this population are not thoroughly screen due to lack of laboratories and pathologist in the region and samples are rarely sent or those that are sent return lately thus bias the results. A cancer census carried out at the Yaoundé population reported 68% of cancers in females and 32% in males which is different from our study (Enow et al., 2015).

Age: This study reveals that the incidence of cancer increased with increase in age. Age limits went from 2 years to 87 years with a predominance of benign tumour within the age group of [31-50] years. In females, reports on benign tumours found that uterine fibroids are common, appearing in 70% of women by the age of 50 years. A random sampling of women aged 35 to 49 years who were screened by self-report, medical record review, and sonography found that by the age of 35 years, the incidence of myomas was 60% among African-American women; the incidence increased to over 80% by age 50. This age range is similar to that of our study whereby benign tumours in female were mostly found in the age group of [30-50] years. Concerning malignant tumours in females, the most common age range was that of [31-70] years. The incidence of malignant tumours were highest in the age groups of [31-40] years and [61-70]. Besides, one of the largest studies by Erlandsson *et al.*, (2003) reported to have found the most favourable prognosis in the [35-49] age group and poorest in patient older than 75 years and younger than 34 years. In a study done by Giridhara, *et al.* (2013), the incidence of breast cancer was the highest in the age group of 51-60 years with 61% of patients. The risk increased in women having menopause after 49 years.

In males, the age extremes of benign tumours appearance was 41 years and 80 years. A study of Berry *et al.* (1984) summarizing data from prior studies showed that no man younger than 30 had evidence of BPH and the prevalence of BPH was 8% in the fourth decade while 50% of men had evidence of pathologic BPH when they were between (50-60) years old (Kevin, 2015). This incidence reported on BPH shows similarity in our range of benign tumours. A study carried out at Maroua on prostate disease on 44 patients found 81.1% of BPH out of the overall disease for which the age range 60-70 years was predominant (Noumi K, 2013). This age range falls in the most common age range in our study. Malignant tumours were common in the age range 51-80 and predominant at the age range of 51-60. Most cancers were in patients aged 51-60 and 71-80 similar to those of Enugu and Kenya.

Histopathological type: The numbers of tumours diagnosed histologically by the pathology laboratory were 42. The most common benign tumour diagnosed was fibro adenomas of the breast. A study on benign tumours of the breast in the red sea, found that fibro adenoma was the second common benign breast disease (30.2%) after fibrocystic changes (39.9%) (Ageep, 2011). Ihekwa *et al.* (1994) reported high incidence of fibro adenoma in Western Nigeria, where it was shown to constitute 55.6% of all benign breast lesions. Perhaps, the social habits, diet and environmental differences may account for this disparity (Ihekwa *et al.* 1994). Another study by Chaithanya *et al.*, (2016) had 41.06% of fibro adenomas out of 55.84% of benign tumours of the breast which is similar to the results of our study with fibro adenomas at a high prevalence. Concerning malignant tumours, the most predominant histopathological type diagnosed was carcinomas which is of the breast. A study of breast cancer by (Eshwar *et al.*, 2016) found that most breast cancers were mostly carcinomas. The same study by Chaithanya *et al.* (2016), concerning breast cancers found 44.16% of carcinomas. The high incidence of adenocarcinomas in cancer of the prostate is reported by Akang *et al.* (2013). Another report found that most cancers of the prostate were adenocarcinomas (Dusyant *et al.*, 2014).

The study has some limits given that this was a hospital based study and cannot be said to be a reflection of the wider community. Also, because of the fact that it is a retrospective study, results of missing documents and hospital booklets limited the study. Data were collected by a single observer, with risk of subjective bias.

5 CONCLUSION

The present study provides valuable informations to clinicians and pathologists regarding frequency, clinical presentation and histopathological types of tumours at the regional hospital of Ngaoundéré. Cancer of the breast and cervix were the most common malignant tumours concerning females and cancer of the prostate, the most frequent in males. Because majority of cancers are prevented by screening, this study can thus be further used to formulate strategies for better management and care of these tumours.

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