

RESEARCH ARTICLE

Descriptive Epidemiology of Thyroid Cancers in Togo

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Abstract

Background: The purpose of this study was to provide epidemiological and histological data of thyroid cancers in Togo. **Materials and Methods:** This was a retrospective cross-sectional study of cases of thyroid cancers diagnosed from 2000 to 2014 (15 years) at the pathology laboratory of the Sylvanus Olympio Teaching Hospital of Lomé. All cases of review of a thyroid sample (biopsies, surgical specimens) were collected from the data records of that laboratory. **Results:** Thyroid cancers represented 1.1% (7930cases) of all cancers registered during the study period. Mean age was 45.4±0.3 years and the proportion of females was 78.3%. We identified 92.4% carcinomas and 7.6% lymphomas. Carcinomas were well differentiated in 80 cases and were dominated by the papillary type (47 cases). Metastasis was observed in 13% of patients. The pTNM classification evaluated in 18 cases showed a predominance of grade I (13 cases). Lymphomas were dominated by lymphoma diffuse large B-cell (5 cases). **Conclusions:** This study is the first global standard for thyroid cancer pathology in Togo. The high frequency of follicular form suggests an unrecognized iodine deficiency. The improvement of the technical platform of the LAP (immunohistochemistry) will increase the diagnosis of rare forms of thyroid cancer.

Keywords: Thyroid - cancer - epidemiology - histology - pathology - Togo

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Introduction

Thyroid cancers are rare and represent 1% of malignant tumors (Dalmassol et al., 2009; Kilfoy et al., 2009). The prevalence of thyroid cancers appears slightly higher in goiter endemic areas, and is about three times more common in women than in men (Belot et al., 2008). Today, epidemiological data on these thyroid cancers are available in developed countries, dominated by the papillary cancer, is on the 5th and 21th rank respectively for incidence and cancer mortality in women and the 19th rank for both indicators in humans (Kilfoy et al., 2009; Sassolas et al., 2009). In Africa in general and Togo in particular, data on thyroid cancers are rare; this is due primarily to the non-availability of efficient tools for collecting, including the cancer registry. The objectives of our study were to describe the epidemiological and histological aspects of thyroid cancers diagnosed in the Pathology Laboratory (LAP) of Lomé, while advocating for the establishment of a cancer registry in Togo, .

Materials and Methods

This was a retrospective, cross-sectional and descriptive study on all issues relating to thyroid cancers diagnosed histologically at the pathology laboratory of the Sylvanus Olympio Teaching Hospital of Lomé, from

January 2000 to December 2014, over a period of 15 years. All cases of thyroid samples were collected from registries, and cases of thyroid cancers, evidenced by the existence of a pathological report were included in this study. The samples examination techniques were essentially of paraffin embedded (56° - 60° C) and then stained with hematoxylin and eosin. The variables studied were the epidemiological data (sex, age, and provenance) and histological aspects (histological type concept of metastasis, stage pTNM).

Statistical analysis

Categorical variables are expressed as counts and percentages and continuous variables are expressed as means and standard deviations (SDs). The data were analysed using the SPSS software.

Ethical

The confidentiality of data banks has been respected according to the ethical rules in force in Togo.

Results

Epidemiology

A total of 92 cases of thyroid cancers have been identified, representing 1.1% (7930cases) of all cancers registered during the study period. The frequency was

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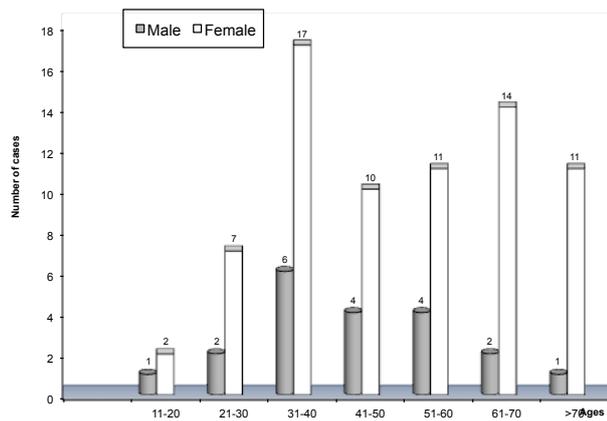


Figure 1. Gender Distribution of Thyroid Cancers According to the Age

Table 1. Distribution of Thyroid Cancer According to Histological Types

Histological type	Number of cases (n)	Percentage (%)	Mean age (years)
Papillary carcinoma	44	47.8	43.8±1.6
Follicular carcinoma	36	39.1	41.6±0.4
Anaplastic carcinoma	3	3.3	47.4±1.8
Medullar carcinoma	2	2.2	48.3±0.2
Non-Hodgkin lymphoma	5	5.4	56.6±2.2
Hodgkin lymphoma	2	2.2	59.5±0.5
Total	92	100%	45.4±0.3

6.1 cases. The mean age was 45.4±0.3 years (range: 19-83years). It was 47.2±1.8 years in male and 43.7±2.6 years in women, $p = 0.4$. The most affected age group was that of 31-40 years (23 cases, 25%) (Figure1). There were 20 (21.7%) men and 72 (78.3%) women; the sex-ratio (F/M) was 3.6. The samples came from hospitals sized in the capital in 81 cases (88%), and from hospitals sized in the interior of the country in 7 cases (7.6%). The provenance of the sample was not precised in 4 cases (3.3%).

Histology

The samples tested were made up of thyroid nodules (62 cases; 67.4%) of total thyroidectomy with neck dissection in 17 cases (18.5%) and total thyroidectomy without neck dissection in 13 cases (14.1%). Macroscopic examination of the surgical specimen showed a nodular appearance of polychrome tumor whose boundaries were clear in 29 cases and in 63 cases badly limited. Two histological types were listed: carcinoma (n=85 cases; 92.4%); lymphoma (n=7; 7.6%). Carcinomas were well differentiated in 80 cases consist of papillary carcinoma (n=44 cases) and follicular carcinoma (n=36 cases) (Table I). Metastasis was mentioned in 12 patientFs (13%). It was papillary carcinoma in 8 cases and follicular carcinoma in 4 cases. The pTNM classification was evaluated in 18 cases, and showed a predominance of grade I (n=13 cases), followed by grade II (n=4 cases) and grade III (n=2 cases). Non-Hodgkin lymphomas were diagnosed in 5 cases and Hodgkin lymphoma in 2 cases. Non-Hodgkin lymphomas were all classical form, diffuse large B-cell. The two cases of Hodgkin lymphoma consisted of nodular sclerosis

observed in one case in a man and mixed cellularity type observed in a woman.

Discussion

This study on thyroid cancers in Togo assembled all histological confirmed cases across the country, since the pathology laboratory of the University Hospital Lome Sylvanus Olympio is the only center for all request for histopathological examinations; it does not have the techniques immunohistochemistry. This study is not exhaustive of these thyroid cancers in Togo because of lack of a registry of cancer, but it especially provides extensive data on epidemiological and histological aspects of these cancers. The prevalence of thyroid cancers is weak in the world, according to studies ranging from 0.1 to 3.7 per 100.000 in men and 0.4 to 9.6 per 100.000 in women (Kilfoy et al., 2009; Sawka et al., 2014). Two to thirty percent of thyroid cancers go unnoticed and are discovered at autopsy (Davies et al., 2006). In our study, the thyroid cancers accounted for 1.1% of all cancers; this finding is consistent with the literature data where the prevalence is usually around 1% (Davies et al., 2006). The evolution of the incidence of thyroid cancers can vary within a country, due to the occurrence of a particular epidemiological context or a change in diagnostic performance (Cotterill et al., 2001; Zhu et al., 2009). In the first case, it's necessary to highlight the influence of nuclear radiation. The prevalence of thyroid cancers in Europe has increased after the Chernobyl accident in 1986, especially in children, while it remained stable in adults (Cotterill et al., 2001). It appears a clear female predominance with a sex ratio of 3.6. This result is similar to data from several authors who reported a proportion of female between 75% and 85% of thyroid cancers (Carling et al., 2014). All age groups were affected by thyroid cancers; however, we observed an increase in frequency with age, a finding consistent with that is reported in the literature (Colonna et al., 2010). Mean age was 45.4 years (range: 19 - 83 years). This result is similar to that of Rakotoarisoa et al. in Madagascar who reported a mean age of 43.9 years, with range of 23 - 71 years (Rakotoarisoa et al., 2010). Most of the samples came from hospitals sized in the city of Lome; this could be explained by the fact that the implantation site of the only pathology laboratory Togo is Lome. Papillary carcinoma remains the main histological type of thyroid cancers; this is the case in this study with 47.8% of cases. They have been observed in 50% of cases in the study of Rakotoarisoa et al., and in 71% according to Kalk et al. (Kalk et al., 1997; Rakotoarisoa et al., 2010). Contrary, the follicular carcinoma was more frequent in our study (39.1%) compared to that observed in most studies which reported a frequency comprised between 8-15% (Colonna et al., 2007). The high frequency of this form of thyroid cancers in our study, confirms the known relationship between thyroid cancers and endemic goiter, the point of considering the impact of thyroid cancers as a regional indicator of endemic goiter (Hahn et al., 2001; Colonna et al., 2007). We did not find any study which clearly identifies regions of iodine deficiency in Togo. An aggressive course with lymph node and lung metastases

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was observed in most cases with papillary carcinoma (Rego-Iraeta et al., 2009). Indeed, cervical lymph node metastases found in this study were mostly related to papillary type. The medullar and anaplastic carcinomas were rare, with respectively 3.3% and 2.2% of thyroid cancers. Rakotoarisoa et al. reported a frequency of 2.5% of anaplastic and medullar type (Rakotoarisoa et al., 2010). These results are explained by their rarity, as described in the literature; but by the lack of current measurement of blood calcitonin level and the lack of immunohistochemical examination which are necessary for the diagnosis in our laboratory. Primary thyroid lymphoma is a rare disease that continues to pose diagnostic problems in laboratories in developing countries, with no new diagnostic techniques. In laboratories equipped in the Western countries with techniques of immunohistochemistry and cytogenetics, it is easier to distinguish lymphoma anaplastic carcinoma (Montury et al., 1998; Stein 2013). Most of primary lymphomas develop from an autoimmune Hashimoto's thyroiditis in the elderly (often 70 years) with a 3/1 female prevalence (Stein et al., 2013). The most common type of primary thyroid lymphoma with up to 70% of cases is diffuse large B-cell lymphoma (Michels et al., 2002). In our study, of the seven cases, five were diffuse lymphoma B.

Thyroid cancers are relatively common in Togo, occur in the adults persons with a female prevalence. Further cancer registry will be required in order to precise the real prevalence of this type of cancer in our country. The most common histological type was papillary carcinoma; however the high frequency of follicular carcinoma suggests a major role of iodine deficiency in the occurrence of these cancers. The improvement of the technical platform of the LAP (immunohistochemistry) should increase the diagnosis of rare forms such as medullar and anaplastic carcinoma.

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