Journal of Community Medicine & Health Care

Open Access

Austin Publishing Group

Rapid Communication

Hyperthyroidism and Thyroid Cancer in the Congolese Hospital Setting

Kakamba JB[1,7]*, Bangolo AI[2]*, Sabbah N[3], Waykole T[2], Nkodila A[5], Mbunga B[5], Atoot A[6], Ahmed M[2], Atoot A[2], Bayauli P[1] and M'buyamba JR[1]

[1]Department of Endocrinology, Metabolism and Nuclear Medicine, Kinshasa University Clinics, Kinshasa, DR Congo

[2]Department of Internal Medicine, Hackensack University Medical Center/Palisades Medical Center, North Bergen, NJ, USA

[3]Department of Endocrinology, Metabolism and Nutrition, Cayenne Hospital Centers, Cayenne, French Guaina

[4]Department of Pathology, Kinshasa University Clinics, Kinshasa, DR Congo

[5]School of Public Health, University of Kinshasa, Kinshasa, DR Congo

[6]Department of Anesthesia, Hackensack University Medical Center, Hackensack, NJ, USA

[7]Department of Endocrinology, University of Liege, Liege, Belgium

***Corresponding author:** John Bukasa Kakamba, Department of Endocrinology, Metabolism and Nuclear Medicine, Kinshasa University Clinics, Kinshasa, DR Congo; Department of Endocrinology, University of Liege, Liege, Belgium

Ayrton I Bangolo, Department of Internal Medicine, Hackensack University Medical Center/Palisades Medical Center, North Bergen, NJ, USA

Received: January 18, 2022; **Accepted:** February 10, 2022; **Published:** February 17, 2022

Abstract

Background: Hyperthyroidism was long considered a protective factor for the development of thyroid cancer. The association between hyperactive thyroid and cancer was rare. More recent studies have highlighted an association between hyperthyroidism and development of cancers, especially thyroid cancer. Given the lack of publication on the association of hyperthyroidism and thyroid cancer in the Democratic Republic of Congo (DRC), the present study was carried out to confirm the existence of this association in Congolese hospitals.

Methods: This is a retrospective and descriptive study, which involved 106 cases of thyroid cancer recorded in the anatomopathology registers of four laboratories in the city of Kinshasa between 2005 and 2019. The p-value <0.05 was considered as the threshold of statistical significance.

Results: Out of 106 cases of thyroid cancer, the association of hyperthyroidism and thyroid cancer was found in 5 cases (4.7%) (3.6% for women *vs*. 9% for men). The mean age of patients with this association was 51 ± 11 years. Papillary carcinoma (two cases), follicular carcinoma (two cases) and lymphoma (one case) were the types of cancer encountered. Etiologically, toxic multinodular goiter (four cases: 80%) and toxic adenoma (one case: 2%) were found.

Conclusion: There is an association between hyperthyroidism and thyroid cancer in the Congolese hospital setting. There is a predominance of the female gender. There were an equal number of papillary and follicular carcinomas. With this study, we hope to encourage clinicians to thoroughly evaluate any suspicious nodule associated with hyperthyroidism.

Keywords: Thyroid cancer; Hyperthyroidism; Democratic Republic of Congo; Goiter

List of Abbreviations

DRC: Democratic Republic of the Congo; SPSS: Statistical Package for the Social Sciences; M: Male; F: Female; MNG: Multinodular Goiter; TA: Toxic Adenoma; LAD: Lymphadenopathy

Introduction

Thyroid cancer accounts for 1% of cancers worldwide [1]. Hyperthyroidism was long considered a protective factor against thyroid cancer. This association was rare in the literature and raised a lot of controversy in the scientific world [2,3]. In recent times, several researchers have noted this association through their observations. Thyroid cancer has been associated with graves' disease, toxic nodule, and toxic multinodular goiter [4]. But the prevalence of this association varies according to the studies and the geographic location, between 2.6-13.6% [4].

A Chinese study by Yeh et al., had found a high incidence of cancer in hyperthyroid patients and in particular thyroid cancer. According to the same author, the longer the hyperthyroidism persists, the greater the risk of developing thyroid cancer [5].

There are currently no studies carried out in the Congolese hospital setting to establish the association between hyperthyroidism and thyroid cancer. We hypothesize that there is an association between thyroid cancer and hyperthyroidism in the Congolese hospital setting.

Methods

This is a descriptive and retrospective study, which involved 106 cases of thyroid cancer who underwent partial or total thyroidectomy and pathological examination in four laboratories in the city of Kinshasa between 2005 and 2019. These laboratories receive samples from all the medical centers in Kinshasa. The study included patients with medical records containing clinical data such as sex, age and province of origin, the diagnosis of the attending physician, the results of the thyroid ultrasound and the pathological examination.

Statistical analyses

Statistical analyses of the data were performed using Statistical Package for the social sciences (SPSS) for Windows version 22 software. Data were expressed as mean +/- standard deviation for metric parameters, and as absolute or relative frequencies in

Citation: Kakamba JB, Bangolo AI, Sabbah N, Waykole T, Nkodila A, Mbunga B, et al. Hyperthyroidism and Thyroid Cancer in the Congolese Hospital Setting. J Community Med Health Care. 2022; 7(1): 1054.

percentages for categorical parameters. For all tests used the p-value <0.05 was considered as the threshold of statistical significance.

Results

In the anatomopathology records of four laboratories in the city of Kinshasa between 2005 and 2019, 106 cases of thyroid cancer were reported, including 84 women (79.2%) and 22 men (20.8%). Of all thyroid cancer cases, five (4.7%) also had hyperthyroidism.

Table 1 shows the characteristics of patients with hyperthyroidism and thyroid cancer. The association of hyperthyroidism and thyroid cancer involved three female patients (3/88 = 3.6%) and two male patients (2/22 = 9%). The mean age of patients with this association was 51 ± 11 years (range: 37 and 67 years). Papillary carcinoma (two cases), follicular carcinoma (two cases) and lymphoma (one case) were the types of cancer observed. Etiologically, toxic multinodular goiter (four cases: 80%) and toxic adenoma (one case: 20%) were the main causes of hyperthyroidism. All the nodules found were greater than 10 mm in size and were solid and hypoechoic. One case of microcalcification and two cases of satellite cervical lymphadenopathy associated with papillary carcinoma have been reported.

Discussion

Our study aimed to establish the association between thyroid cancer and hyperthyroidism, and establish the clinical, ultrasound and pathological features of these cancers. This association has been found in several series around the world [1-14] but no such study has been carried out in the Democratic Republic of Congo (DRC).

The average age of patients with cancer is 51.2 ± 11.4 in our study, this age average deviates from that found in the Haraj et al. series and the Touati series who had an average age of 44.8 years [2] and 45.76 [1] respectively. This difference can be explained by the smaller size of our study. Thyroid cancer is twice as common in women as men [15], a female predominance was also noted in our study. Similar results were found in two African studies as well [1,2].

The etiological diagnosis of hyperthyroidism associated with cancer in our study is 100% toxic nodules, 80% of which are multinodular and 20% are single nodules. Similar results were found in the Aksoy et al. study, where the most common etiology of hyperthyroidism associated with cancer was multinodular goiter with a frequency of 63.7% [7]. Many studies also found a multinodular predominance [4,6,7,14]. However, in most series, Grave's disease was predominant regardless of the number of nodules found [2,4,6,7,12,13]. Our study did not find a single patient with Grave's disease in the cancer population. This could be considered a particularity of our study.

All the malignant nodules in our study are macronodules. Those results contrast with those found in the Aksoy and Berker series, where most cancers were microcarcinomas [7,13].

80% of cancers in our study are differentiated, of which 50% are papillary and 50% are follicular carcinomas. The equal frequency in follicular and papillary carcinomas was not found in many studies. In many series, there was a predominance of the papillary carcinoma [1,2,7,10] similar to findings in the literature [15].

Limitations and Strengths of the Study

Certain limitations must be considered when interpreting the results of this study. The study is based on data collected from the records of 4 Anatomopathology laboratories in the city of Kinshasa. The paucity of clinical data is part of the weaknesses of this retrospective study in which investigators are unable to administer a questionnaire to patients. Given the non-representativeness of our sample, we do not see to what extent our results can be extrapolated to all Congolese cancer patients in hospitals. Data on the classification of thyroid cancers according to the size of the tumor and the presence of lymph nodes and distant metastases were not found. Data on the treatment options adopted for each cancer case was not found. However, this study has the merit of collecting data in the main pathology laboratories which examine all the biopsies in the city of Kinshasa. Our results support the possible existence of hyperthyroidism and thyroid cancer.

Conclusion

The association of hyperthyroidism and thyroid cancer exists in Congolese hospitals. Women in their fifties are most affected. The differentiated thyroid cancer (with equal frequency between papillary and follicular carcinoma) is the most implicated in this association (Supplementary Table 1).

Declarations

Ethics approval and consent to participate: This research protocol was approved by the National Health Ethics Committee of the DRC No. 197/CNES/BN/PMMF/2020.

Consent for publication: Written informed consent was obtained from the patients for publication of this study.

Availability of data and materials: All data generated or analyzed during this study are available from the corresponding authors upon request.

Authors' contributions: John Bukasa and Ayrton Bangolo searched the literature, wrote, and revised the manuscript. Nadia Sabbah, Branly Mbuya, Trupti Waykole, Aliocha Nkodila and Ali Atoot revised and edited the manuscript. Adam Atoot, Pascal Bayauli and Jean René M'buyamba revised and approved the final version and are the article's guarantors. All authors certify that they contributed sufficiently to the intellectual content and data analysis. Each author has reviewed the final version of the manuscript and approves it for publication.

References

1. Touati MM, Aljalil A, Darouassi Y, Chihani M, Lahkim M, Fihri JAF, et al. Thyroid carcinomas: epidemiological, clinical and therapeutic profiles, about 102 cases. Pan Afr Med J. 2015; 21.

2. Haraj NE, Ahandar H, El Aziz S, Chadli A. Association hyperthyroidism and differentiated thyroid cancers. Pan Afr Med J. 2016; 24.

3. Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, et al. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer: The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer. Thyroid Off J Am Thyroid Assoc. 2016; 26: 1-133.

4. Pazaitou-Panayiotou K, Michalakis K, Paschke R. Thyroid cancer in patients with hyperthyroidism. Horm Metab Res Horm Stoffwechselforschung Horm

Metab. 2012; 44: 255-262.

5. Yeh NC, Chou CW, Weng SF, Yang CY, Yen FC, Lee SY, et al. Hyperthyroidism and thyroid cancer risk: a population-based cohort study. Exp Clin Endocrinol Diabetes. 2013; 121: 402-406.

6. Edmonds CJ, Tellez M. Hyperthyroidism and thyroid cancer. Clin Endocrinol (Oxf). 1988; 28: 253-259.

7. Aksoy S, Sevinç A, Durak MG. Hyperthyroidism with thyroid cancer: more common than expected? Ann Ital Chir. 2020; 91: 16-22.

8. Petranović Ovčariček P, Verburg FA, Hoffmann M, Iakovou I, Mihailovic J, Vrachimis A, et al. Higher thyroid hormone levels and cancer. Eur J Nucl Med Mol Imaging. 2021; 48: 808-821.

9. Ryödi E, Metso S, Jaatinen P, Huhtala H, Saaristo R, Välimäki M, et al. Cancer Incidence and Mortality in Patients Treated Either With RAI or Thyroidectomy for Hyperthyroidism. J Clin Endocrinol Metab. 2015; 100: 3710-3717.

10. Kadia BM, Dimala CA, Bechem NN, Aroke D. Concurrent hyperthyroidism and papillary thyroid cancer: a fortuitous and ambiguous case report from a resource-poor setting. BMC Res Notes. 2016; 9: 369.

11. Vázquez-Quintana E, Vázquez-Torres DE. Hyperthyroidism and Thyroid Carcinoma. Am Surg. 2016; 82: e257-258.

12. More Y, Khalil AB, Mustafa H, Gupte M, Al-Abbadi M, Elamin D, et al. Incidental Thyroid cancer in patients undergoing surgery for hyperthyroidism. Am J Otolaryngol. 2020; 41: 102187.

13. Berker D, Isik S, Ozuguz U, Tutuncu YA, Kucukler K, Akbaba G, et al. Prevalence of incidental thyroid cancer and its ultrasonographic features in subcentimeter thyroid nodules of patients with hyperthyroidism. Endocrine. 2011; 39: 13-20.

14. Cerci C, Cerci SS, Eroglu E, Dede M, Kapucuoglu N, Yildiz M, et al. Thyroid cancer in toxic and non-toxic multinodular goiter. J Postgrad Med. 2007; 53: 157-160.

15. Jameson J. Larry, et al. "Thyroid Nodular Disease and Thyroid Cancer." Harrison's Principles of Internal Medicine, 20e Eds. J Larry Jameson, et al. McGraw Hill. 2018.