

PATTERN OF THYROID DISORDERS IN THE SOUTHWESTERN REGION OF NIGERIA

Objective: Thyroid disorders were thought to be rare in Africans in the early 1960s. However the 1970s witnessed an upsurge in reported cases of thyroid disorders in Africans. In endocrinology clinics in Nigeria, thyroid disorders are the second most common endocrine disorders seen. This study attempts to describe the patterns of thyroid disorders, clinical features, and complications as seen in Nigerians.

Design/Subjects: This is a descriptive study that took place from June 2004 to August 2005 in the Department of Medicine of the Lagos State University Teaching Hospital, Ikeja, Nigeria. The demographic data, anthropometric indices, clinical features and associated complications of thyroid disorders were documented. Patients were categorized into three broad groups according to symptoms and biochemical profile as being euthyroid, thyrotoxic and hypothyroid.

Results: The total number of patients with thyroid disorders seen in a 15-month period was 78. The female:male ratio was 5:1. The mean (standard deviation) age of all the subjects studied was 40 (12.4) years. The female:male ratio of those with thyrotoxicosis was 5.6:1. Cardiovascular complications of thyrotoxicosis, namely heart failure and atrial fibrillation, were the most common reasons for prolonged morbidity and hospitalizations. Hypothyroidism was present in five (7%), Graves disease/hyperthyroidism in 63 (84%), and euthyroid in 10 (9%). Obstructive symptoms were documented in eight (13%) of the subjects with palpable goiters.

Conclusion: Thyroid disorders in Nigerians are a significant cause of cardiovascular morbidity. Public awareness of thyroid disorders and their potential complications could lead to improved diagnostic and therapeutic facilities. (*Ethn Dis.* 2007;17:327–330)

Key Words: Grave's Disease, Hypothyroidism, Non-Toxic Goiters, Thyroid Disorders

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INTRODUCTION

Thyroid disorders are the second most common endocrine disorders in Nigeria. People with thyroid disorders may present with thyroid enlargement, which may be diffuse or nodular; symptoms of thyroid deficiency, or hypothyroidism; symptoms of thyroid hormone excess, or hyperthyroidism; or complications of a specific form of hyperthyroidism—Graves disease—which may present with striking prominence of the eyes (exophthalmos) and, rarely, thickening of the skin over the lower legs (thyroid dermopathy).¹

The underlying pathology of thyroid disorders range from that of autoimmune inflammation of the thyroid gland, as in Graves disease; other forms of inflammation, as in acute/subacute thyroiditis; and malignancies of the thyroid gland. Thyroid disorders may be associated with cardiovascular complications^{2–3} and other co-morbidities, which increase morbidity and mortality in affected patients.

Thyroid disorders were once thought to be uncommon in Africans.⁴ Gross underreporting may have accounted for this scenario. In terms of underreporting of thyroid disorders, the situation has not changed much in Nigeria. Diagnostic and therapeutic facilities for thyroid disorders are lacking in Nigeria, and these disorders are not commonly reported. The few Nigerian studies on endocrine disorders tended to focus on

thyrotoxicosis and its complications.^{4–8} This report attempts to document the pattern and associated clinical features of thyroid disorders in an urban hospital in Nigeria.

SUBJECTS AND METHODS

This study was conducted during a 15-month period (April 2004–June 2005) at the medical outpatient department of the Lagos State University Teaching Hospital, a government-run tertiary referral center in southwest Nigeria. The Endocrine and Metabolism Unit runs two clinics weekly; one is for general medical cases, while the other is specifically for endocrine and metabolic disorders. Usually, ≈80 medical cases (new and old inclusive) are seen each week in these clinics, and for the period of study, 4800 cases were seen. All patients presenting with thyroid disorders were recruited into this study, including patients with previously diagnosed thyroid disorders and those in whom the diagnosis was made only at presentation to the clinic.

Data collected from these patients included demographic, anthropometric indices, duration of symptoms, clinical features, complications of thyroid disorders, and other medical co-morbidities. The patients were categorized into three broad groups according to symptoms and biochemical profile: euthyroid, thyrotoxic, and hypothyroid.

Graves ophthalmopathy was graded by using the American Thyroid Association grading system,⁹ while goiter size was estimated using World Health Organization grading.¹⁰ Obstructive/compression features were also documented. The diagnosis of heart failure was made according to Framingham criteria.¹¹

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Graves disease is said to be present if one or more of the following are present¹:

1. Clinical and biochemical features of thyrotoxicosis
2. Goiter
3. Ophthalmopathy
4. Dermopathy (pretibial myxedema)

Available investigative results were noted, including thyroid function tests, plain radiographs, ultrasound scan, and histology results.

Data were analyzed by using the Statistical Package for Social Sciences (SPSS) version 9. Results are presented as means and standard deviation (SD). The test statistic used is Student's *t* test for quantitative data.

RESULTS

A total of 78 patients with thyroid disorders was seen within a 15-month period. The prevalence rate of thyroid disorders in this study was 1.6%. The female:male ratio was 5:1. The mean (SD) age of all the subjects studied was 40 years \pm 12.4. The mean age of the females was 41 years and that of the males was 34 years. This difference was not statistically significant ($P > .05$). The mean (SD) body mass index (BMI) of the subjects was 26.5 \pm 5 years. Once again, no statistically significant difference in the BMI of both sexes was seen. Hypothyroidism was present in 5, Graves disease/hyperthyroidism in 63, and euthyroidism was noted in 10 of the subjects with thyroid disorders.

The female:male ratio of those with thyrotoxicosis was 5.6:1. The mean (SD) age of the subjects with thyrotoxicosis was 39.9 \pm 12.6 years and that of the duration of symptoms was 26.5 years \pm 31 months. No statistically significant difference between the duration of symptoms was noted in males and females. Two (3%) of the subjects with thyrotoxicosis had no palpable thyroid glands. The most common

Table 1. Frequency thyrotoxicosis symptoms

Symptoms	Frequency
Palpitations	37 (58.7%)
Tiredness	40 (63.4%)
Heat intolerance	43 (68%)
Dyspnea on effort	27 (43%)
Personality changes	23 (37%)
Sweaty palms	28 (44%)
Excessive sweating	36 (57%)
Weight loss	40 (63.4%)
Increased appetite	34 (53%)
Oligomenorrhea	11 (22%)
Menorrhagia	4 (6%)
Nervousness	26 (41%)

symptoms of thyrotoxicosis were those of heat intolerance and tiredness and the most common sign was that of a palpable thyroid gland, which was present in 97% of the subjects. Menstrual irregularities (oligomenorrhea and menorrhagia) were some of the features of thyrotoxicosis seen in 15 (23%) of the females. Infertility was also one of the presenting clinical features of 3 (6%) female subjects. Of the twenty-four subjects with eye features of thyrotoxicosis, 19 (79%) had infiltrative disease that involved orbital muscles and orbital tissues.

Cardiovascular complications, ie, atrial fibrillation and heart failure, were documented in 10 (13%) of the subjects with thyrotoxicosis, and this was the main reason for hospitalization. The frequency of clinical features (signs and symptoms) of patients with thyrotoxicosis are shown in Tables 1 and 2.

Type 2 diabetes mellitus was seen in three (5%) of the subjects with thyrotoxicosis. The female:male ratio of the subjects with hypothyroidism was 3:2, and their mean age was 40 years. Of those with goiters not attributable to toxicosis, two males had underlying subacute thyroiditis and two females had thyroidal cysts.

Hypertension was noted in 25 (30%) of all the subjects studied. However five of the subjects were hypertensive before the onset of thyroid disorder. Essentially, systolic hyperten-

Table 2. Frequency thyrotoxicosis signs

Signs	Frequency
Palpable thyroid	61 (97%)
Hypertension	26 (41.2%)
Alopecia	20 (31%)
Hyperpigmentation	26 (41%)
Heart failure	10 (17%)
Atrial fibrillation	9 (14%)
Eye signs	24 (38%)

sion was seen in subjects with thyrotoxicosis, except for in those who had hypertension prior to the development of the thyroid disease. The mean age of the subjects with hypertension and thyrotoxicosis was 39 years. No statistically significant difference was noted between the ages of those with hypertension and those without hypertension.

The management of patients with thyrotoxicosis was mainly pharmacologic, with anti-thyroid drugs such as carbimazole. Only a few of the subjects had thyroidectomy, and these were often lost to followup, and two of the subjects had radio-iodine therapy. Of the five cases of hypothyroidism, two were post-thyroidectomy and three were congenital. The subjects with hypothyroidism had thyroxine replacement.

Fifteen (20%) of all the subjects with palpable thyroid gland had grade 1, 36 (48%) had grade 2 and 24 (32%) had grade 3 goiters. Obstructive symptoms were seen in 8 (13%) of the subjects with palpable goiters.

DISCUSSION

The prevalence of thyroid disorders seen in this study was 1.6%. Of the three broad groups of thyroid disorders noted in this report, Graves disease was seen in 80% of subjects. Graves disease, an autoimmune disorder, is the most common form of thyrotoxicosis, and the cause is unknown.¹ The world prevalence of Graves disease is not known, but a prevalence rate of .4% was reported in a United Kingdom

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population.¹² In this report, the estimated prevalences of hyperthyroidism or Graves disease and that of hypothyroidism were 1.3% and .1%, respectively. In their report, Olurin et al noted that thyrotoxicosis occurred in 53% of cases of thyroid disorders in 874 Nigerians.⁸ Famuyiwa et al reported that in Nigerians, the annual incidence of thyrotoxicosis was 8%.⁶

Although hyperthyroidism is a common endocrine disorder, frequency and severity of symptoms vary from one patient to another. Symptoms and signs reflect the numerous organ systems regulated by thyroid hormones. No single clinical manifestation specifically indicates thyrotoxicosis. Nonetheless, the clinical features of thyrotoxicosis include weight loss, sometimes with preserved or increased appetite, heat intolerance, nervousness, anxiety, insomnia, fatigue, tremor, palpitations, hyperdefecation, menstrual irregularities, and eye complications.^{1,13}

In this study, the most common symptoms were those of heat intolerance, tiredness and excessive sweating. Personality changes were documented in a third of all the subjects with thyrotoxicosis. Of menstrual irregularities, oligomenorrhea occurred more frequently than menorrhagia. A palpably enlarged thyroid gland was the most common elicited sign. Skin changes were noted in well over half of the subjects. The cardiac manifestations of this disorder have been mentioned as far back as the original description of thyrotoxicosis by DeGroot and Leonard.¹⁴ Thyroid hormones affect the

cardiovascular system both directly and indirectly¹⁵⁻¹⁷ and result in increased cardiac contractility, increased cardiac output, and reduced systemic vascular resistance. The cardiac manifestations of thyrotoxicosis are those of heart failure and sometimes arrhythmia. Olurin⁸ noted the presence of atrial fibrillation and heart failure in 8% of subjects with thyrotoxicosis seen over a 14-year period. In this study, atrial fibrillation and heart failure were present in 17% of the subjects with thyrotoxicosis. This figure was comparable to that reported by Famuyiwa⁶ et al, who noted heart failure and atrial fibrillation in 17% of patients with this disorder. Although a third of the subjects with thyrotoxicosis had chronically elevated blood pressure, a subset had documented hypertension long before the onset of thyrotoxicosis. The mean age of people with hypertension in this series was ≈ 40 years. Thyrotoxicosis as the underlying cause of hypertension should be suspected, especially when hypertension occurs in Africans < 40 years of age.

Type 2 diabetes mellitus was seen in 3 (5%) of the patients with thyrotoxicosis, and all were females. Glucose intolerance has been frequently reported in thyrotoxic patients. Some researchers noted the occurrence of glucose intolerance in 72.3% of patients with thyrotoxicosis and overt diabetes mellitus in 11% of such patients.¹⁸

Hypothyroidism is a disorder of diverse origins, in which most cases are due to primary thyroid gland failure arising from chronic autoimmune thyroiditis, radioactive iodine therapy, or surgery.¹⁹ In this report, post-thyroidectomy, and underlying congenital pathology accounted for the causes of hypothyroidism. Hypothyroid features are usually nonspecific, and as in hyperthyroidism, there may be cardiovascular complications.²⁰⁻²¹ Cold intolerance, mental sluggishness, and constipation were prominent features in the subjects seen with hypothyroidism in

this study. Hypertension, hypercholesterolemia, and heart failure were documented in one of the female subjects with hypothyroidism. However, reduced academic performance was a notable feature in the younger subjects with hypothyroidism. In this report, goiters were palpable in all subjects with hypothyroidism save one with congenital hypothyroidism.

Patients with chronic medical ailments frequently delay seeking treatment in this part of the world because of ignorance, deep-seated erroneous cultural beliefs about certain ailments, and financial limitations. In Nigeria, where the health insurance system is not optimally functioning, healthcare is paid out of pocket, and patients frequently lack the financial resources to seek care. Consequently, we were not surprised to find that approximately half of the subjects with palpable thyroid glands presented with grade 2 goiters. Some studies have shown that as many as 16% of patients with an enlarged thyroid gland have some form of obstruction.¹⁰ The frequency of occurrence of obstructive features in subjects with palpable thyroid glands in this study was 12%. These features included dysphonia, hoarseness, and difficulty swallowing.

LIMITATIONS

For logistic and financial reasons, histology was not done in all the subjects for whom it was required, thus the results of the prevalence of thyroid malignancies should be interpreted with caution.

CONCLUSION

Graves disease is the most common type of thyroid disorder and occurs approximately six times more often in women than in men. Cardiovascular and skin changes are fairly common in

Nigerians with thyrotoxicosis, and cardiovascular disease is a feature of this disorder. Ablation of the thyroid gland causes hypothyroidism, and patients who have undergone ablative thyroid procedures should be properly followed-up.

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