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EXPLORING THE CLINICAL IMPLICATIONS OF HYPOTHYROIDISM IN CONTEMPORARY MEDICAL PRACTICE

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Abstract

Background: Primary hypothyroidism is rarely described in Aisan medical publications except, of course, a few allusions made in the study of endemic goitre.

Patients and methods: A prospective study was conducted among patients coming to the consultation or hospitalized in internal medicine service, the Point Baqai Institute of Diabetology and Endocrinology in Karachi from September 2021 to September 2022. The inclusion criteria were clinical signs of hypothyroidism and thyroid-stimulating hormone dosage. The parameters taken into account were sociodemographic, clinic (hypometabolism, Mucocutaneous and neuromuscular syndrome) and etiological (supply: after capture of ATS, thyroidectomy; Hashimoto's Thyroiditis of postpartum; congenital; disorders of the hormonogenese).

Results: The 71 cases are divided into ten men (average age: 40.8) and 61 women (average age: 41.5), the majority of the Sarakolé. Clinical signs associated the hypometabolism (constipation: 9.85%, bradycardia: 23.94%, physical asthenia: 4.22%), Mucocutaneous syndrome (hoarseness: 48%, puffiness of the face: 1.4%, weight gain: 15.49%, dry skin: 5,63% and neuromuscular syndrome (cramps of the lower limbs: 5.63%, headache: 7.15%).) In biology, analyses have included the TSH (us), the FT4, ant-thyroid antibodies of synthesis, blood glucose, cholesterol, and, in some cases, the PUA. The etiologies consisted of supply: 68.4% (after taking ATS, thyroidectomy), congenital hypothyroidism: 10%, Hashimoto's Thyroiditis: 11.4%, postpartum Thyroiditis: 4.3%, disorders of the hormonogenese: 5.7%.

Conclusion.
Primary hypothyroidism is a reality in Karachi. This affection, traditionally reported in studies of the health public but confined to the homes of endemic goitre, now appeared in African cosmopolitan circles, where it keeps an even overt clinical form.

INRODUCTION

Hypothyroidism is defined by a decrease in the production of thyroid hormones linked to a hypofunction of the thyroid gland, unable to meet the body's needs [1]. In south Asia, thyroid pathology is dominated by disorders due to iodine deficiency (Mahomed et al., 2023). Generally posing a real public health problem, these disorders have always attracted the attention of international health organizations and have, therefore, been the subject of numerous studies. Iodine deficiency is a well-known cause of hypothyroidism, patent clinical manifestations are rarely at the forefront in this deficiency pathology; the main manifestation remains endemic goitre. Apart from iodine deficiency, hypothyroidism syndrome, the result of an insufficiency or absence of thyroid hormone production, is a frequent condition but not often diagnosed enough. Indeed, suppose in the late phase, the clinical picture associating a syndrome of cutaneous-mucous infiltration and a syndrome of hypometabolism is often evocative and makes it possible to lead to the diagnosis. In that case, the signs at the beginning are rough, not very specific, and often trivialized, first by the patient himself and then by those around him (Bagayoko, 2023).

Sometimes, all these signs are put down to age or even the onset of depression. These symptoms are not only linked to a thyroid problem but this possibility should not be ruled out, especially after menopause. It follows that, at first, the diagnosis of hypothyroidism can easily go unnoticed in developing countries where socio-economic conditions do not allow the development of a systematic screening strategy (Konate et al.). Indeed, the dosage of thyroid-stimulating hormone (TSH), the preferred screening for primary hypothyroidism, has only recently been available in many countries and remains financially difficult to access. Thus, apart from the context of iodine deficiency, epidemiological data, even hospital ones, on hypothyroidism are rare in black Africa, as Sidibé recently pointed out (Dao et al., 2023).

PATIENTS AND METHODS

This is a prospective cross-sectional study over one (1) year, which extended from August 2021 to August 2022 in the internal medicine department, the surgery department of the CHU du Point G and the medical practice " DIDI NI TATA", specialized in endocrinology in Torokorobougou, in Bamako in commune V (Dembélé, 2023). Were included in this study all the patients seen in external consultation or hospitalized in the said services, presenting the clinical signs of hypothyroidism, confirmed by the dosage of thyroid hormone (ultra-sensitive TSH (us)> 4,7Mu/ L). The data from the interrogation, the physical examination, the complementary examinations, the etiological diagnosis, the treatment undertaken and the evolution were mentioned on a standardized survey sheet. We had recourse to the verbal or written consent of the patients concerned by the study. The data collected was kept confidential and intended solely for study purposes. They were entered and analyzed using Word Office 12 and SPSS version 16 software (Keïta & Kaya, 2023).

RESULTS

Epidemiological aspects

A total of 71 patients with hypothyroidism were included in this study. According to sex, they were divided into 61 women for ten men, i.e. one *sex ratio* of 1/6. All patients' average age was 45.7 years, with extremes of 2 and 71 years. The average age of women was 40.4 years, and men 45.8 years.

Clinical aspects

The most common reason for consultation was "Antero-cervical swelling", with a rate of 53.51%. The most common clinical signs of hypothyroidism were bradycardia, weight gain, constipation,

headaches and lower limb cramps, with respective rates of 23.94%, 15.49%, 9.85%, 7.15% and 5.63% . According to the diagnosis retained, iatrogenic was the most dominant, with a rate of 68.96%.

Paraclinical aspects

TSH (us) was high in all patients, i.e. 100%, FT4 lowered in some (90%) and normal in others (10%) Blood sugar was low in 13 patients, or 18.30%, and hypercholesterolemia was observed in 15 patients or 21.12%. On the other hand, hyperuricemia was observed in only eight patients, i.e. 11.26% (Sylla, 2023).

Etiological aspects

The etiologies found were, in order of frequency, iatrogenesis: 68.4% (after taking ATS or thyroidectomy), followed by Hashimoto's thyroiditis (11.4%), congenital hypothyroidism (10%), hormone-genesis (5.7%) and thyroiditis of postpartum (4,3%). (***Cf. Tableau I) (Touré et al.)***.

Therapeutic aspects

Levothyroxine was the most used in 70.4% of cases, followed by the reduction in the dose of ATS in 18.3% of cases and the temporary discontinuation of the synthetic antithyroid drug (ATS) in 9.9% of cases. The Carbimazole + Levothyrox association was noted in 1.4% of cases (Yalcouye, 2023).

DISCUSSION

Methodological aspects and limitations of the study

The study focused on patients followed in consultation or hospitalization in the University Hospital Center (CHU) internal medicine and surgery department of Point G and a medical practice specializing in endocrinology. This prospective study took place from September 2021 to September 2022. The diagnosis of hypothyroidism was retained in the presence of suggestive symptoms when present, confirmed by determining the plasma level of the TSH. The delay in hormonal assays in laboratories and the high cost of examinations (hormones, imaging) could explain the absence of certain results. On the other hand, the ignorance of the disease by the population and "traditional therapy" have delayed treatment (Bagayoko, 2023).

Sociodemographic aspects

Seventy-one patients with hypothyroidism were included in this study, which extended over one year. According to sex, they were divided into 61 women for ten men, i.e. one *sex ratio of* 1/6. These results seem slightly overestimated compared to those found in Cotonou in 2001 (1 man for four women)**[** and in Senegal in 1997 (1 man for four women)**.** Mahamane Sani M et al. find an even higher frequency (1 man for ten women). This female predominance in thyroid disease is The preferred age is between 40 and 50 years old with an average of 39.74 years, a mode of [40-49] and extremes of 2 and 71 years. These data are fully consistent with data from the international literature. In his series of 37 cases of primary hypothyroidism reported in Dakar, Sidibé also finds average ages comparable to ours (41.5 years for women and 40.8 years for men); Djrolo in Cotonou (mean age of women is 40.4 years and that of men is 45.8 years) and Mahamane Sani M et al [7] in Niamey 40.1±9.1 years (Dembélé, 2023).

The comparison with the age groups of other authors could not be possible because of the inequality of the age groups chosen. In the general population, the average prevalence is 1 to 2% in women and 0.1% in men. This rate is higher in goitre-endemic areas of Central Africa. In a study in Mali by Sissoko, endemic goitre occupied five regions (Kayes, Koulikoro, Sikasso, Ségou, Mopti) and the District of Bamako. These data agree with ours because, among the patients seen in consultation, 62.3% came from Bamako and were mostly Sarakolés from the Kayes region. This could be explained by patients' ease of access to healthcare structures (Keïta & Kaya, 2023).

Clinical aspects

Our study found the most common clinical signs of hypothyroidism were bradycardia, weight gain, constipation, headaches and lower limb cramps, with respective rates of 23.94%, 15.49%, 9.85%, 7.15% and 5.63%. For Mahamane Sani M et al. [7], these were asthenia (61.1%), weight gain (51.9%), constipation (48.1%) and intellectual slowness (35.2 %). Hypothyroidism is more common than it seems, especially in women and the elderly , but the diagnosis is less frequently made due to the insidious nature of the condition . The easily recognizable characteristic signs only appear late during the disease. Early signs are often crude and non-specific [2]. Therefore, the frequency of clinical manifestations varies from one author to another and sometimes from one period to another with the same author (Konate et al.).

Depending on the authors, this variation in the frequency of clinical manifestations of hypothyroidism is probably linked to the fact that diagnoses are made at very different stages of the disease. Many clinical signs found in the literature at high frequencies were found less in our study and at fairly low frequencies. The short duration of our study could explain this compared to those of European and African authors whose studies spanned many years (Mahomed et al., 2023).

Etiological aspects: (Cf. Table III).

According to Utiger**[9]**, primary hypothyroidism is the most common form and accounts for more than 95% of cases. Our study confirms this observation. We did not have any cases of central hypothyroidism, contrary to certain authors.**[2].** In addition, the analysis of cases of primary hypothyroidism finds, as reported in the literature**[8, 9]**, a high proportion of autoimmune aetiology which was observed eight times out of 71 (12.5%), comparable to that of Mahamane Sani M et al. [**7**] 9 times out of 54 (16.6%). Faced with such a finding, one could conclude that autoimmune thyroiditis is frequent in Bamako, detected by the regular dosage of antithyroid antibodies feasible in Bamako in this 2022 study. Frequency of thyroiditis (Nomoko et al., 2023).

On the other hand, no case was reported by Sidibé**[5]** for Djrolo**[2]** 2 cases, but according to him, these patients would have benefited from the dosage of antithyroid antibodies elsewhere. Thyroidectomy only appeared in our series in **7 out of 71 cases**. This is a well-known cause of hypothyroidism, but on the other hand, the frequency observed in our work is significantly lower compared to that reported by other African countries (11 cases out of 37)**[5]**, 23 cases out of 33**[2], more than half or 51.9% of cases for Mahamane Sani M et al. [7].**In Benin, no case of hypothyroidism by taking ATS has been reported**[2]. O**n the other hand, it appeared to be the most frequent aetiology in our series. Some situations can explain this (Sylla, 2023):

- The non-feasibility of the dosage of thyroid hormones in regions favouring poor adaptation of the antithyroid treatment to the evolution of hyperthyroid disease;
- The lack of respect for the appointment by patients under ATS followed up for Graves' disease once clinically improved;
- Financial difficulties in accessing healthcare structures, especially for those coming from the regions.

Paraclinical aspects

Thyroid hormones were characterized by their lower-than-normal concentrations. Total T4 concentrations ranged from 3.05 to 60.63nmol/l with an average concentration of 16.70 (normal: 64-141nmol/l). The ultra-sensitive thyroid stimulating hormone TSH (us) can be high or low depending on whether the origin of hypothyroidism is peripheral (primarily thyroid) or central (secondary to hypothalamic-pituitary involvement). It was measured in all patients. It varied from 6.6 to 305 mIU/l, its average value was 85.9 (normal: 0.20 to 3.50305 mIU/l). Those of African authors and Europeans confirm these data. Antithyroid autoantibodies (anti-thyroperoxidase and anti-thyroglobulin) enabled us to diagnose autoimmune thyroiditis in 8 of our patients out of 71, i.e. 12.5%, unlike Djrolo, who noted only 2 cases out of 27. that is 7.4%, [2] Moreover, according to him, these two patients would have benefited from these assays in another country (Touré et al.).

While hormonal assays are diagnostic confirmation tests, hypothyroidism is accompanied by other biological abnormalities such as hypercholesterolemia, hypoglycemia, and hyperuricemia. Metabolic abnormalities such as hypoglycemia, hypercholesterolemia and hyperuricemia are common in hypothyroidism. Our study noted 21.12% hypercholesterolemia, 18.30% hypoglycemia, and 11.26% hyperuricemia. However, African authors did not report hyperuricemia or hypoglycemia (Yalcouye, 2023).

Therapeutic and evolutionary aspects:

Levothyroxine LT4 represents the treatment of choice for thyroid insufficiency because of its long duration of action, which guarantees a constant concentration even if the patient occasionally forgets to take medication. In our study, Levothyroxine LT4 was the most used in 70.4% of cases, confirming the literature data. Synthetic antithyroid drugs were stopped or reduced in dose with the addition of Levothyroxine until the hypothyroidism was corrected in 28.2% of cases. In our study, in all hypercholesterolemic patients (n=15), treatment started gradually at 12.5 µg or 25 µg every 3 to 4 weeks until the total 125 µg/day dose was obtained. In our study, cases of myxoedematous coma or transition to hyperthyroidism after treatment were not (Yalcouye, 2023).

CONCLUSION

Except for those linked to iodine deficiency, hypothyroidism appears to be a pathology little studied in black Africa. In the few studies that have looked at it, their frequency is probably underestimated due, on the one hand, to the non-specific character of the symptoms at the start and, on the other hand, to the non-routine availability of specific hormonal assays (Bagayoko, 2023).

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