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Prevalence of Hypothyroidism in Major Psychiatric Disorders in Patients Attending Outpatient Department

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Abstract
Background: *Defecieny of thyroid hormone leads to hypothyroidism. There is relationship between the major psychiatric disorders and hypothyroidism.*
Objective: *To determine the prevalence of hypothyroidism in patients attending outpatient department for major psychiatric disorders.*
Material and Methods: *A descriptive cross-sectional study was conducted on 75 patients attending outpatient department with primary diagnosis of major psychiatric disorders (major depression, bipolar affective disorder, generalised panic disorder, panic disorder, mixed anxiety-depressive disorder, and schizophrenia). Thyroid stimulating hormone (TSH) was performed to assess the evidence of hypothyroidism.*
Results: *The overall prevalence of hypothyroidism was found to be 10.3% (95%CI, 5–16%). It was 12.5% in anxiety disorder, 11.1% in depressive disorder, with a lower prevalence of 10.3% for bipolar disorder, and 9.9% for schizophrenia.*
Conclusions: *The overall prevalence of hypothyroidism was found to be less than in the general population, which is between 4.64% and 18.5%, and hypothyroidism was found in disorders other than depression.*

Introduction

Hypothyroidism results from an inadequate production of thyroid hormones.[1]

Hypothyroidism and hyperthyroidism have been associated with neuropsychiatric disorders, either as a cause or as a consequence of the same.[2] Thyroid hormone production is governed by the integrity of the hypothalamic-pituitary-thyroid (HPT) axis, in addition to adequate iodine intake.

It is believed that these psychiatric entities – major depression, bipolar affective disorder (BAD), anxiety and schizophrenia – are disorders that may be related to thyroid dysfunction. In depression, the catecholamines in the brain decrease and hypothyroidism reduces cerebral alpha- and beta-adrenergic receptors, thus partially explaining the neuronal hyporeactivity and depressive symptoms.[3,4] In a study it was

reported that patients hospitalised with hypothyroidism had a high risk of being readmitted with depression or BAD compared to a control group.[5] Elevated TSH concentrations have been found in rapid-cycling bipolar patients,[6] and this has been more common in mixed states than in manic conditions, in addition to low levels of T4.[7] Hyperthyroidism and hypothyroidism cause anxiety, which is a common symptom that is frequent in both cases and can occur even before the symptoms of the conditions themselves.[8] The objective of this study is to determine the prevalence of hypothyroidism in patients attending outpatient department for major psychiatric disorders.

Material and Methods

The study is descriptive and cross-sectional and was conducted on a population of patients with a major psychiatric disorder attending outpatient department for major psychiatric disorders. The inclusion criteria were male and female patients over 18 years of age (Table 1) who had a major psychiatric disorder (major depression, BAD, generalised anxiety disorder, panic disorder, mixed anxiety-depressive disorder and schizophrenia) as their main diagnosis. The exclusion criteria were: having depression associated with an organic disorder; other psychotic disorders besides schizophrenia; comorbidity with substance dependence or abuse; concomitant use of lithium, potassium iodine, amiodarone, dopamine, prednisone, somatostatin and bexarotene analogues. A sample of TSH was taken from the selected patients. The type of sampling was non-probability for convenience, with a sample size of 75 patients who met the selection criteria. The study variables were hypothyroidism, gender, age, and type of psychiatric disorder. Only TSH was requested because in clinical practice it is considered sufficient for screening, which is what was intended.[2] A form with the diagnostic criteria of each disorder was used to verify the diagnosis. The ICD-10 criteria were used at the time of the study. A standardised procedure manual was employed for obtaining the informed consent of both the patient. Hypothyroidism was diagnosed by means of TSH measurement (normal TSH values were 0.4–4.0 Ul/ml).[9] The TSH results were reported to the patient. The study did not include follow-up. The data were tabulated in Microsoft Excel; the statistical analyses were performed using the STSS Program, version 15.5. For the qualitative variables, absolute frequencies and percentages were used and, for the quantitative variables, averages and standard deviations; the confidence intervals were found to be 95%. To determine association, the Pearson 2 test was used, with a significance level of 0.05. For the calculation of the sample size, an expected prevalence of 22% was used, with a 95% confidence level (95%CI), an absolute precision of 6% and a relative precision of 27%, using the EPIDAT 3.1 Program. The ethical committee approved the project.

Results

General characteristics: The sample was composed of 75 patients. The average age was 47.71 ± 17.2 (18–85) years; the most frequent age group was 41–60 years, followed by 21–40 years. The patients were mostly women (Table 1). The predominant disorder was depressive disorder (n = 51.4), followed by BAD (n = 27.6) and schizophrenia (n = 11.4), panic disorder (7.6%) and mixed anxiety and depression disorder (2%) (Figure. 1).

Prevalence of hypothyroidism: The mean TSH was 2.66 ± 3.76 (0.01–36.4), with heterogeneous variability (coefficient of variation [CV], 141%). The TSH values obtained are shown in (Table 2). Most patients, 60 (80%), had TSH levels of between 0.2 and 4.0; 7 patients (9.5%) had it below 0.2, another 7 between 4.0 and 10.0 (9.5%), and one patient was greater than 10 (1%). The overall prevalence was 10.3% (n = 8), with a 95%CI of 5–16%; the sampling error was 28.67%. It was 12.5% in anxiety disorder, 11.1% in depressive disorder, with a lower prevalence of

10.3% for bipolar disorder, and 9.9% for schizophrenia. When determining hypothyroidism by diagnosis, a higher prevalence was found in anxiety and depressive disorders (Table 3).

Table 1: Distribution of socio demographic characteristics

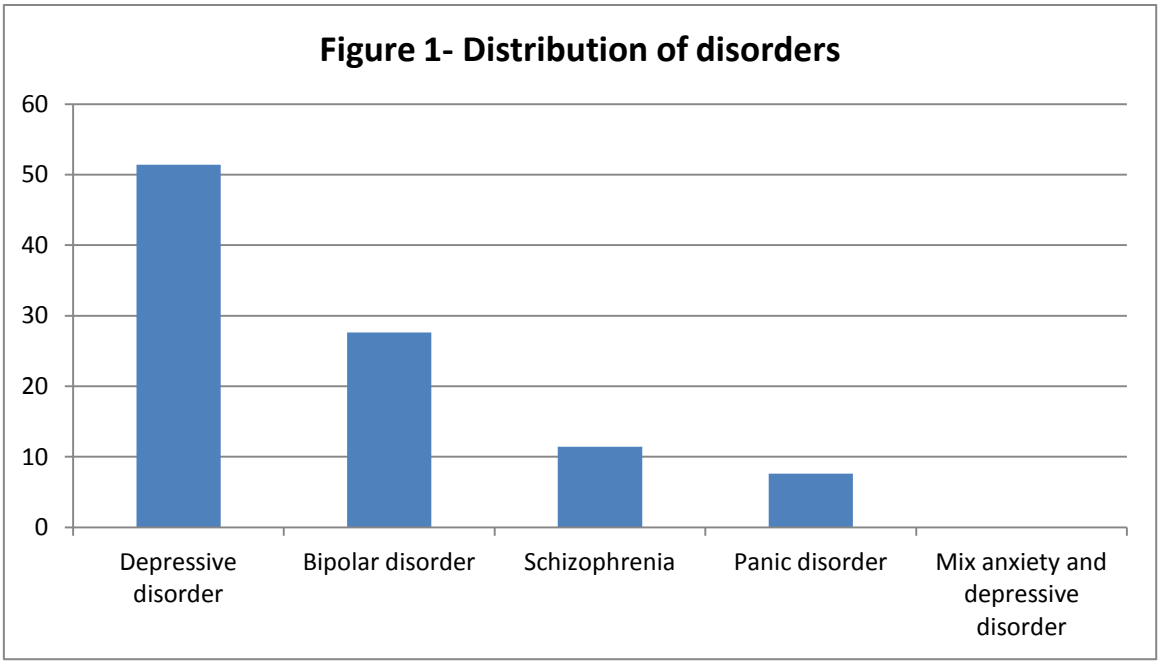
GENDER	
Characteristic	n (%)
Women	47 (62.9)
Men	28 (37.1)
AGE	
<20 years	4(4.8)
21-40 years	23(30.5)
41-60 years	29(39.0)
61-80 years	17(22.9)
>80 years	2(2.9)

Table 2: TSH range

Classification	**Patients n (%)**
<0.2	7 (9.5)
>0.2-2.0	30 (40)
>2-4.0	30 (40)
>4-10	7 (9.5)
>10	1 (1)
Total	75 (100)

Table 3: Prevalence of hypothyroidism by diagnosis

Disorder	**Hypothyroidism**
	n (%)
Schizophrenia	9.9
Depressive disorder	11.1
Mixed anxiety –depression disorder	12.5
Bipolar disorders	10.3



Discussion

In this cross-sectional study, which included a sample of 75 patients with an average age of 47.71 ± 17.2 years (62.9% women), it was found that the overall prevalence of hypothyroidism of 10.3% is lower than in the general population (4.64–18.5%),[10,11] The lower prevalence found in our study may be related to the fact that the study population with a prevalence of 18% included a larger number of women (62.9–99.0%) and the majority of the sample came from socio-economic strata 1 and 2 (45.7%) and 3 and 4 (58.6%).[10] In addition to taking the patient's symptoms into account, it is necessary to evaluate them with the TSH test, since patients with these psychiatric disorders may be related to hormonal dysfunction. Other measures such as stimulation with TRH and antithyroid antibodies, among others, or ultrasound studies can undoubtedly contribute to a greater diagnostic approach. In clinical practice, it is common to find TSH values above the normal range with normal T4 and T3 values. An aggressive management of these alterations would be indicated in the case of a pregnant woman, in people over 60 years of age or in case of an increased risk due to thyroid dysfunction.[12]

Subclinical hypothyroidism (early thyroid dysfunction or compensated primary hypothyroidism) has been defined as elevated TSH with normal concentrations of T4 and T3 in an asymptomatic patient. However, before making a decision on the need for definitive treatment, a diagnosis should be made to distinguish between transient thyroiditis in the recovery phase and non-thyroid disease with changes in the hormonal profile,[13] or even laboratory interference (heterophile antibodies).[14] In these circumstances, an additional TSH test is recommended after 6–8 weeks in order to assess whether the TSH elevation persists, thereby supporting the diagnosis of primary hypothyroidism. The study limitations are related to the fact that only one TSH measurement was performed and no other parameters were investigated; neither a history of thyroid function was taken nor a follow-up scheduled, since this was a crosssectional investigation.

Conclusions

There are differences in the prevalence of hypothyroidism among the patients attending outpatient department for major psychiatric disorders and the general population. Anxiety disorders presented the highest prevalence of hypothyroidism. The question therefore arises as to whether a TSH test should be requested in order to assess the thyroid function of patients with the abovementioned psychiatric disorders. Alternatively, they could determine what approach to follow when a psychiatric patient has a report with elevated TSH values.

Ethical disclosures Protection of human and animal subjects.

The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of Data

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

Right to privacy and informed consent

The authors have obtained the written informed consent of the patients or subjects mentioned in the article.

Conflicts of interest

The authors have no conflicts of interest to declare.

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