

## Original article

# Prevalence of hypothyroidism in major psychiatric disorders in hospitalised patients in Montserrat Hospital during the period March to October 2010<sup>☆</sup>



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## ABSTRACT

**Introduction:** Hypothyroidism results from inadequate production of thyroid hormone. It is known that there is a relationship between the major psychiatric disorders and hypothyroidism.

**Objective:** To determine the prevalence of hypothyroidism in patients admitted due to major psychiatric disorders in Montserrat Hospital during the period from March to October 2010. **Material and methods:** A descriptive cross-sectional study was conducted on 105 patients admitted to Montserrat Hospital with a primary diagnosis of major psychiatric disorder (major depression, bipolar affective disorder, generalised panic disorder, panic disorder, mixed anxiety-depressive disorder, and schizophrenia) in the aforementioned period. Thyroid stimulating hormone (TSH) was performed to assess the evidence of hypothyroidism.

**Results:** The overall prevalence of hypothyroidism was found to be 10.5% (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.

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## Prevalencia de hipotiroidismo en trastorno psiquiátrico mayor de pacientes hospitalizados en la Clínica Montserrat en el periodo de marzo a octubre de 2010

### R E S U M E N

#### Palabras clave:

Hipotiroidismo  
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Esquizofrenia

**Introducción:** El hipotiroidismo resulta de una inadecuada producción de hormonas tiroideas. Es conocido que existe una relación entre los trastornos psiquiátricos mayores y el hipotiroidismo.

**Objetivo:** Determinar la prevalencia de hipotiroidismo en los pacientes hospitalizados por trastorno psiquiátrico mayor en la Clínica Montserrat en el periodo de marzo a octubre de 2010.

**Material y métodos:** Se realizó un estudio descriptivo transversal, para el que se seleccionó una muestra de 105 pacientes que ingresaron a la Clínica Montserrat con diagnóstico de trastorno psiquiátrico mayor (depresión mayor, trastorno afectivo bipolar, trastorno de ansiedad generalizada, trastornos de ansiedad, trastorno mixto ansioso-depresivo y esquizofrenia) en el periodo mencionado. Para evaluar el hipotiroidismo se realizó una prueba de Hormona Estimulante del Tiroides (TSH).

**Resultados:** La prevalencia general del hipotiroidismo fue del 10,5% (intervalo de confianza del 95%, 5%-16%). Al determinar el hipotiroidismo por diagnóstico, se encontró que había mayor prevalencia en los trastorno de pánico (12,5%) y depresivo (11,1%) y menor en el trastorno bipolar (10,3%) y la esquizofrenia (9,9%).

**Conclusiones:** La prevalencia general del hipotiroidismo fue menor que en la población general (18,5-4,6%) y se encontró hipotiroidismo en otros trastornos diferentes de la depresión.

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## Introduction

Hypothyroidism results from an inadequate production of thyroid hormones<sup>1</sup> and is classified into primary, secondary and tertiary forms; in the primary, the alteration is located in the thyroid gland; in the secondary it is caused by a deficit of thyroid stimulating hormone (TSH) production in the pituitary, and the tertiary, which in turn is divided into three grades, is characterised by a deficit in thyrotropin releasing hormone (TRH) production.<sup>2</sup> Hypothyroidism and hyperthyroidism have long been associated with neuropsychiatric disorders, either as a cause or as a consequence of the same.<sup>3</sup> Thyroid hormone production is governed by the integrity of the hypothalamic-pituitary-thyroid (HPT) axis, in addition to adequate iodine intake. In the thyroid gland, most hormone production involves thyroxine (T4) (80%) and the rest, triiodothyronine (T3). T4 in the periphery is converted into T3 by the action of enzymes that remove iodine molecules (deiodinases). T3 is metabolically more powerful. The measurement of T3 in patients with hypothyroidism is not routinely required but could be useful in patients with thyrotoxicosis and T4 within the "normal" range. The synthesis of thyroid hormones and their secretion is eventually regulated by the HPT axis. Thyroid function control is mediated by TSH and, in turn, TSH is regulated by TRH (synthesised in the paraventricular nucleus of the hypothalamus); TRH binds to its receptors on pituitary thyrotrophic cells (a subpopulation of pituitary cells that secrete TSH).<sup>4</sup>

A relationship between major psychiatric disorders and hypothyroidism has been described.<sup>1,5</sup> 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. Hypothyroidism is a direct and indirect factor in major psychiatric disorders. 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.<sup>6,7</sup> Comorbidity has been found between schizophrenia and, in particular, schizoaffective disorder and other medical conditions, including acquired hypothyroidism.<sup>8</sup> With regard to BAD and hypothyroidism, a study found no significant association between the two, although there was a significant association between a family history of mood disorders in first-degree relatives and patients with hypothyroidism.<sup>9</sup> In another 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.<sup>10</sup> Elevated TSH concentrations have been found in rapid-cycling bipolar patients,<sup>11</sup> and this has been more common in mixed states than in manic conditions, in addition to low levels of T4.<sup>12</sup> 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.<sup>13</sup>

The studies conducted have aimed to determine the frequency of hypothyroidism in major psychiatric disorders or the frequency of major psychiatric disorders in patients

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