

HYPERTHYROIDISM AND PSEUDODEMENCE – LITERATURE REVIEW

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Abstract: Introduction: Thyroid hormones are essential for brain development. Disabilities due to lack of these often result in mental retardation (PRZYBYLAK M, et al., 2021). **Goal:** To review the relationship between hyperthyroidism and pseudodementia. **Result:** The dysfunctions in this scenario mainly refer to cognitive ones, but with less intensity when compared to hypothyroidism. Disorders frequently observed in studies include reduced performance on attention and memory tests, as well as disturbances in the synchronization of visual stimuli with motor activities, anxiety and mood disorders, including manic and depressive episodes. Thyroid overactivity can even lead to delusional states (PRZYBYLAK M, et al., 2021). These situations, which are sometimes reversible, are known as “pseudodementia” and highlight the importance of a thorough evaluation before diagnosing dementia. (Bégin ME, et al., 2008). **Conclusion:** Hyperthyroidism is more prevalent in the elderly and is often associated with pre-existing cognitive impairment and, for this reason, organic causes must always be sought when there is a decline in mental functions.

Keywords: Hyperthyroidism; Pseudodementia; Cognitive impairment.

INTRODUCTION

Thyroid hormones are essential for brain development, affecting processes such as neuronal growth, myelination, synaptogenesis and neurotransmitter metabolism. Deficiencies due to lack or excess of thyroid hormones due to problems with the gland during pregnancy or at any time in life can lead to serious neurological and mental problems, often resulting in mental disability. These hormones also play a crucial role in regulating mood and cognitive function (PRZYBYLAK M, et al., 2021).

Thyroid hormones do not end their role

after the formation of the brain, as they are crucial for the lifelong functioning of the central nervous system, being essential for several brain processes. This role is especially notable in maintaining plasticity, that is, the ability to create new synaptic connections and learn new tasks. Furthermore, the adequate secretion of these hormones is vital for the functioning of virtually all neurotransmission systems in the brain (Jurado-Flores M, et al., 2022).

Due to the relevance of thyroid hormones to brain development and proper functioning, it is understandable that mental disorders may arise in diseases of the thyroid gland. In hyperthyroidism, there are often anxiety and mood disorders, including manic and depressive episodes. Thyroid overactivity can even lead to delusional states. On the other hand, hypothyroidism is linked to psychomotor retardation, increased drowsiness and varying degrees of cognitive impairment. This last aspect is particularly relevant in terms of scope, intensity and future impact (Lekurwale V, et al., 2023).

Hyperthyroidism is rare in childhood and adolescence, and affects up to 2% of the adult population, more frequently in women, mainly in the 4th decade of life (PRZYBYLAK M, et al., 2021).

Cognitive dysfunctions in this scenario mainly refer to memory, spatial organization skills, attention and reaction time. The impact on cognitive functions due to hyperthyroidism can reach a point where it is difficult to distinguish from dementia caused by degeneration of the central nervous system. These situations, which are sometimes reversible, are known as “pseudodementia” and highlight the importance of a thorough evaluation before diagnosing dementia (Bégin ME, et al., 2008).

Hyperthyroidism can lead to cognitive dysfunction, but with less intensity compared

to hypothyroidism. Disorders frequently observed in studies include reduced performance in attention and memory tests, as well as disturbances in the synchronization of visual stimuli with motor activities (PRZYBYLAK M, et al., 2021).

A very controversial issue, but at the same time of great clinical significance, is the possibility of recovery from the above disorders after leveling thyroid hormone levels (PRZYBYLAK M, et al., 2021).

Especially in more severe cases of hyperthyroidism, there is only a partial recovery of cognitive functions (Tan ZS, et al., 2008).

From a clinical point of view, the key question is to determine whether the therapeutic intervention, based on treatment, results in the resolution of already evident cognitive disorders (PRZYBYLAK M, et al., 2021).

A similar relationship can also be applied to subclinical forms of hyperthyroidism, which by some authors are also recognized as risk factors for Alzheimer’s disease. The relationship appears to be, to some extent, conditioned by sex and is more pronounced in women (PRZYBYLAK M, et al., 2021).

MATERIAL AND METHODS

The search was carried out in the PubMed database and was limited to articles between 1989 and 2023 that met the criteria of being literature reviews and case reports.

Next, the keywords in the article titles were analyzed and those whose themes best fit our objective were selected.

A total of 6 articles were selected for full reading.

DISCUSSION

A rather controversial issue, but at the same time of great clinical significance, is the possibility of recovery from the above disorders after leveling thyroid hormone levels. From a clinical point of view, the key question is to determine whether the therapeutic intervention, based on treatment, results in the resolution of already evident cognitive disorders (PRZYBYLAK M, et al., 2021).

CONCLUSION

Cognitive dysfunctions in this scenario mainly refer to memory, spatial organization skills, attention and reaction time. These situations, which are sometimes reversible, are known as “pseudodementia” and highlight the importance of a thorough evaluation before diagnosing dementia. Hyperthyroidism is often associated with pre-existing cognitive impairment and, for this reason, organic causes must always be sought when there is a significant decline in mental functions (Bégin ME, et al., 2008).

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