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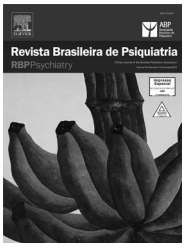

Letter to the Editors

Hypothyroidism and severe neuropsychiatric symptoms: a rapid response to levothyroxine

Hypothyroidism is often associated with altered cognitive function and depression, although patients may also present with disorientation, memory impairment, dementia, auditory distortions, psychomotor retardation and psychosis. Although most patients achieve symptom resolution with levothyroxine replacement therapy, a minority have persistent symptoms.

This report presents a case of rapid improvement of neuropsychiatric symptoms with levothyroxine replacement. To prepare this case report, we reviewed studies published in PubMed up to February 2012. The following mesh terms were used as keywords in our search: "hypothyroidism", "dementia" and "cognition disorders".

An 81-year-old man presented to the hospital with behavioral disturbance, memory impairment, agnosia, apraxia and paranoid delusions but demonstrated no sensory disturbance. His symptoms had started 4 years previously but had worsened over the past year. His daughter reported that he had hypertension, seizures and inguinal hernia, all of which had remained untreated, and stated that he was not taking any medications. He had no personal history of mood or psychotic disorders; however, one brother had committed suicide, and two of his daughters had mental retardation. He had dry skin, no tendon reflexes, an abnormal tandem gait and suffered from fatigue and intolerance to cold. His Mini-Mental score was 15 (one year of studies). His TSH was 222.28, free thyroxine < 0.10, and anti-TPO > 1,000. An EEG revealed diffuse slowing, and an MRI showed possible ischemic sequelae and posterior-parietal encephalomalacia, most likely due to an old trauma.

We administered up to 100 µg levothyroxine, haloperidol, and valproate. After ten days, he felt no fatigue and had no delusions, his memory and orientation had improved, and his Mini-Mental score had increased to 19. After 40 days, his Mini-Mental score had increased to 21, his free thyroxine was 0.7 and his TSH was 23. He was sent home with a planned outpatient follow-up.

The main diagnosis was reversible dementia due to hypothyroidism, but mental retardation and vascular or Alzheimer dementia cannot be excluded. Hashimoto's encephalopathy (HE) was also considered due to his high anti-TPO levels.

Regarding overt hypothyroidism, we identified one study that documented a deficit in verbal memory that improved with levothyroxine therapy, suggesting that this deficit is reversible.[1] Another study found a decrease in memory retrieval in individuals with hypothyroidism. Long-term treated hypothyroidism was not associated with impaired cognitive function or depressed mood in old age.[2]

Concerning subclinical hypothyroidism, numerous studies have failed to find any decrease in cognitive domains.[3] However, some limitations of these studies were the use of insensitive cognitive tests, small sample sizes, and heterogeneous participants. Some studies reported increased anxiety or depression.[4,5] Positive studies tended to show deficits in executive function or memory (see table), with improvement following treatment with levothyroxine.

Hashimoto's encephalopathy, which is related to Hashimoto's thyroiditis and is most often characterized by a sub-acute onset of confusion, altered levels of consciousness and seizures, was considered. However, the patient's lack of sensory disturbance and the insidious evolution suggested against HE. Furthermore, patients with HE generally have normal thyroid function and improve with corticoids. As this patient improved with levothyroxine, we decided against administering corticoids.

We could not rule out epilepsy, a disorder that could have been related to the encephalomalacia and could have explained the seizures and some of the psychiatric symptoms.

In conclusion, we wish to emphasize the importance of diagnosing reversible dementia syndrome.

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Table 1 Subclinical Hypothyroidism

Study	Design	Participants	Patients (SH)	Controls (euthyroid)	Tests	Results
Gussekloo et al.[3]	Population-based cohort	599	30	472	GARS[a], GDS[b], MMSE[c], Stroop test, LDCT[d], and WLTe	SH was not associated with disability in daily life or depressive or cognitive symptoms.
Jorde et al.[6]	Cross-sectional	243	89	154	Fourteen tests of cognitive function and Beck Depression Inventory	No difference was found between groups.
Zhu et al.[7]	Cross-sectional	23	11	12	Digit n-back working memory task and fMRI	Patients with SH had impaired working memory and abnormal fMRI in frontal brain areas.
Yamamoto et al.[8]	Follow-up study	239	15	224	MMSE[c], HDSR[f]	No difference was found between groups.

[a]Groningen Activity Restriction Scale; [b]Geriatric Depression Scale; [c]Mini-Mental State; Examination; [d]Letter Digit Coding Test; [e]Word Learning Test; [f]Revised Hasegawa Dementia Scale.

Disclosures

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