Chapter 25
Hashimoto Encephalopathy

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Case

A 60-year-old man was admitted to the intensive care unit for a grand mal seizure, confusion, somnolence, tremors, and myoclonus.

- PMH: Hypothyroidism, type 1 diabetes, hypertension, hyperlipidemia.
- Meds: Levothyroxine 88 mcg/day, insulin, ACE inhibitor, statin.
- PE: Ht 5′11″ Wt 193 lb. BP 124/70 P 88 T 99.0.
  - Thyroid: Mildly enlarged, firm.
  - Mental status: Significantly altered.
  - Neurological: Tremors, myoclonus, weakness.
- Lab: TSH 4.4 mU/L, Free T4 0.9 ng/dl, Na 136, K 4.6.
  - TPO antibodies: 1322 (nl < 60), Cortisol 18 ug/dl.
  - LP: High CSF protein MRI: Diffuse white matter changes.

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A consult was sent to the Endocrinology Inpatient Consult Service to evaluate and treat this patient for Hashimoto encephalopathy.

Diagnosis Steroid-responsive encephalopathy associated with autoimmune thyroid disease (not Hashimoto encephalopathy).

Recommendation High-dose glucocorticoid therapy. No change in thyroid hormone dose.

Discussion

The term "Hashimoto encephalopathy" was first coined in 1966 when a 58-year-old man with treated hypothyroidism due to Hashimoto's thyroiditis presented with a grand mal seizure, impaired mental status, weakness, somnolence, and an unsteady gait [1]. A lumbar puncture showed high protein levels in the cerebrospinal fluid (CSF). Hashimoto's disease was postulated to be the etiology, but the authors wisely cautioned that, "Antibody studies in future cases of unexplained encephalopathy should show whether we have described a syndrome or co-incidence." "Steroid-responsive encephalopathy associated with autoimmune thyroid disease" later emerged as the favored nomenclature for the reasons discussed below.

Steroid-responsive encephalopathy associated with autoimmune thyroid disease (SREAAT) is now characterized as an acute encephalopathy of unknown cause that typically presents with symptoms of impaired mental status, tremors, myoclonus, somnolence, multiple stroke-like episodes, stupor, and seizures [2, 3]. It has further been sub-divided into a vasculitis subtype, characterized by multiple stroke-like episodes, and a diffuse progressive subtype, featuring prominent psychiatric symptoms and dementia. Following the initial case report in 1966 (described above), many affected patients were found to have positive antithyroid antibodies in the serum and the CSF; it was initially believed that these

antibodies caused the encephalopathy, possibly by promoting an antibody-mediated cerebritis, and the condition was therefore termed "Hashimoto encephalopathy." However, it was not clear then and remains in doubt now that the antithyroid antibodies play a pathogenic role in this condition. Nor does the disorder appear to be related to thyroid function since reported cases have been hypothyroid, euthyroid, or even hyperthyroid and treatment of hypothyroid patients with thyroid hormone replacement has produced no beneficial effects on the encephalopathy [2, 3].

Importantly, a substantial number of patients experience significant improvement following a course of intravenous or oral glucocorticoid therapy. Treatment typically consists of methylprednisolone 1000 mg intravenously for 5 days or prednisone 60–120 mg orally for 1 week or more. Most patients respond within 1 week and nearly all respond by 4 weeks. Steroid-intolerant or steroid-resistant patients are typically treated with cyclophosphamide, IVIG, or plasma exchange [2, 3].

Because the encephalopathy does not appear to be related to thyroid antibodies or to thyroid dysfunction but does respond well to glucocorticoid therapy and not to any type of thyroid therapy, the term "Hashimoto encephalopathy" fell out of favor, and the condition has become more accurately referred to as steroid-responsive encephalopathy associated with autoimmune thyroid disease (SREAAT) [2, 3].

References

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