

Low Serum Cortisol After Surgery for Cushing's Syndrome Causes Hyperthyroidism Due to Inappropriate Secretion of TSH.

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ANALYSIS AND COMMENTARY ● ● ● ● ●

The authors have made a unique observation, probably catalyzed by the symptoms of hyperthyroidism in case 1. The degree of hyperthyroidism, based on free T₄ and T₃ levels, is very mild, but TSH is clearly inappropriately normal in this situation. This paper should stimulate evaluation of patients for this post-Cushing's SITSH.

What is the pathogenesis of this condition? Cortisol is known to attenuate TSH secretion (1). Elevated

serum TSH has been reported in Addison's disease; it has been attributed to autoimmune thyroid disease and has not been associated with increased levels of thyroid hormones. Cortisol increases type 2 deiodinase (D2), which could result in increased T₃ in the hypothalamus and pituitary, in turn suppressing serum TSH (2). A lack of cortisol could attenuate D2, thereby increasing the secretion of TSH. This mechanism could explain the syndrome of SITSH when glucocorticoid deficiency is present, especially after the persistent stimulation of D2 is withdrawn.

References

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