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Raised TSH- a diagnostic conundrum!

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Background

Elevated TSH with raised free T4 (fT4) presents a diagnostic challenge. Symptomatically they vary across the spectrum of thyroid status. We report cases with these dilemmas.

Case 1

74 year old was referred with 5 years of TSH ranging between 4.9 - 7.9 miu/L (0.2 -4.0), fT4 18.5- 27 pmol/L (9.0-19) and free T3 (fT3) 4.5 to 12 pmol/L (2.5-5.7). Thyroid peroxidase antibodies (TPOA) were negative.
He reported tremor, weight loss and exertional shortness of breath. He had small goitre, no thyroid ophthalmopathy, normal visual fields, BMI (Kg/m2) 22 and atrial fibrillation.

Results were confirmed with a different assay. FSH was 17.4 IU/L (2 -12), Prolactin 516 miu/L (0-500), SHBG 104 nmol/L (4-71) and alpha subunit 0.95 iu/L (0 -1). Thyrotropinoma was suspected and thyroid axis was assessed. Partial suppression of TSH to 4.1 with Liothyronine and blunted response to TRH (Baseline TSH 7.4 peaking at 7.67) was seen. MRI pituitary confirmed right sided microadenoma. TSH fell progressively by 42.8% from 8.4 to 4.8 on Octreotide day curve confirming somatostatin analogue sensitivity.

Case 2

59 year old was incidentally found to have deranged TFT in 2008. Though asymptomatic Levothyroxine was commenced. Subsequently TSH was consistently elevated (16.8 to 32.6) despite normal or raised fT4 (13.2 to 23.3) and Thyroxine was steadily increased to 150mcg until referral in 2012.

She was euthyroid, no goitre, BMI 28.8, pulse rate 106 and reported compliance. Pituitary profile and TPOA were unremarkable. Dilution and blocking studies for heterophile antibodies demonstrated interfering antibodies. After removing these, TSH was <0.02. Thyroid replacements were discontinued.

Conclusion:

These two cases show contrasting outcomes. Tests need to be interpreted in conjunction with patients' symptoms. High index of suspicion is necessary to investigate normal or raised Thyroid hormones with elevated TSH.