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PATHOLOGISTS LANCET Kenya

Newsletter

TSH RECEPTORS ANTIBODY TEST IN CLINICAL PRACTICE

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INTRODUCTION

Autoimmune thyroid disease is characterised by the presence of autoantibodies against various thyroid components, namely the thyrotropin receptor(TSH-R), thyroid peroxidase (TPO) and thyroglobulin Tg). Antibodies to the TSH-R may cause disease by binding to the TSH-R and either stimulating or blocking the thyroid cells. Patients may have both stimulating and blocking TSH-R antibodies presenting the circulation and the relative potency of these antibodies determines the clinical presentation. In most instances the antibody acts as a stimulant when bound to the TSH-R, thus mimicking the effect of TSH as seen in Graves 'disease.

CLINICAL UTILITY

Measurements of TSH-R antibodies may be helpful in the differential diagnosis of hyperthyroidism when the diagnosis is not clinically obvious, e.g. in patients with early Graves' disease or with symptoms of Graves' disease who have normal thyroid function tests. In patients with Graves' disease, TSH-R antibodies may be positive before the onset of clinical symptoms. With the use of sensitive TSH-R antibody assays, increased TSH-R antibody levels may be found in more than 90% of patients with Graves' disease. It is useful to establish baseline TSH-R antibody level prior to the initiation of anti thyroid drug therapy in Graves' disease. The average relapse rate after completion of treatment is approximately 50%.

A recent study showed that high TSH-R antibody levels measured 6 months after the start of treatment are associated with high failure rates and a very low chance of remission (<3%).
Monitoring TSH-R antibody levels will assist in implementing early alternative treatment regimes in these patients.
TSH-R antibodies are implicated in the pathogenesis of Graves' Ophthalmopathy. There is evidence that high antibody levels trigger and then maintain the autoimmune process in the orbit. Although about 10% of patients with Graves' Ophthalmopathy do not have hyperthyroidism, the majority will have increased thyroid antibodies. (either TPO or TSH-R antibodies)
Studies show that the severity of eye and thyroid disease in Graves' disease is closely associated with TSH-R antibody levels. Patients with severe Graves' ophthalmopathy and high levels of TSH-R antibodies have a much higher risk for disease relapse than patients with mild Graves' ophthalmopathy and low levels of TSH-R antibodies.

USE IN PREGNANCY

The detection of TSH-R antibodies during early pregnancy can predict a higher risk for developing Graves' thyrotoxicosis in the postpartum period. TSH-R antibodies can also be used to distinguish post-partum thyroiditis from Graves' disease in patients presenting with postpartum thyrotoxicosis. TSH–R antibodies cross the placental barrier. This may affect neonatal thyroid function in babies born to women with Graves' disease. Guidelines recommend that antibodies should be checked in the last trimester, and if raised, a formal evaluation of the developing Fetus should be performed.

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OTHER AUTOIMMUNE DISEASES

Autoimmune thyroid disease is associated with many other organ specific and systemic Autoimmune diseases. These include: Systemic Lupus Erythematosus, recurrent Abortions, Pernicious Anemia and Coeliac disease.
The presence of increased levels of Thyroid Antibodies(including TSH-R antibodies) may alert the Clinician to other Autoimmune pathology in absence of Overt Thyroid disease.

SUMMARY

TSH-R antibodies are useful in the following clinical settings:
Differential diagnosis of the Aetiologia of thyrotoxicosis in patients with ambiguous clinical findings and/or patients in whom Thyroid Radioisotope scans are contraindicated. (E.g. pregnant or breastfeeding) or non-diagnostic.

DIAGNOSIS OF CLINICALLY SUSPECTED GRAVES DISEASE WHEN THYROID FUNCTION TESTS ARE NORMAL

- Assessing the risk of Graves' disease relapse after anti-thyroid drug treatment.
- For management of patients with Graves' Ophthalmopathy.
- To predict risk for developing Graves' disease postpartum in susceptible pregnant women.
- To determine the cause of postpartum thyrotoxicosis.
- To determine the risk of neonatal thyrotoxicosis in the foetus of a pregnant female with active or previously active.

References:

1. Hutfess, S et al. Significance of pre diagnostic thyroid antibodies in women with autoimmune thyroid disease. J Clin Endocrinol Metab, 2011:96(9): E1466-E1477
2. Sinclair, D. Clinical and laboratory aspects of thyroid antibodies. Ann Clin Bio chem
3. Negro, R et al. Thyroid disease in pregnancy. Best practice and Research Clinical Endocrinology and Metabolism,
4. Bauer, A. Approach to the pediatric patient with Graves' disease, J Clin Endocrinol Metab,
5. Eckstein, A et al. Patients with severe Graves' ophthalmopathy have a higher risk of relapsing hyperthyroidism and are unlikely to remain in remission. Clinical Endocrinology,
6. Bellaur S et al. Current perspectives on the pathogenesis of Graves' disease and ophthalmopathy. Endocrine reviews,

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