Dr. Vinay Chopra
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NAME	**: Mrs. KIRTI NARANG**		
AGE/ GENDER	: 44 YRS/FEMALE	**PATIENT ID**	: 1732941
COLLECTED BY	: SURJESH	**REG. NO./LAB NO.**	**: 012501230052**
REFERRED BY	:	**REGISTRATION DATE**	: 23/Jan/2025 05:02 PM
BARCODE NO.	: 01524319	**COLLECTION DATE**	: 23/Jan/2025 05:05PM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 24/Jan/2025 11:03AM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

TSH RECEPTOR ANTIBODY (TRAB)

TSH RECEPTOR ANTIBODY *by CMIA (CHEMILUMINESCENCE MICROPARTICLE IMMUNOASSAY)*	**2.78^{H}**	IU/L	<= 2.58

INTERPRETATION:

TSH RECEPTOR ANTIBODY LEVEL (IU/L)	REMARKS
< 1.00 (97.5th percentile)	Upper limit in healthy individual
< 1.58 (97.5th percentile)	Thyroid Disease without diagnosis of Grave's disease
> 1.75 (96 % Senstivity & 99 % Specificity)	Suggestive of Graves disease

NOTE:
1. In patients receiving high dose Biotin therapy (>5 mg/day), the specimen should not be collected for at least 8 hours after the last biotin administration.
2. Sodium heparin therapy interferes with this assay hence sampling from these patients is not recommended.
3. Rarely high titers of antibodies to Streptavidin and Ruthenium may also interfere with the assay.

COMMENTS
TSH Receptor stimulating antibodies are most closely associated with disease pathogenesis in all forms of Autoimmune thyrotoxicosis (Graves disease), Hashitoxicosis & Neonatal Thyrotoxicosis. These antibodies may be detected before Autoimmune thyrotoxicosis becomes biochemically or clinically manifest. Since treatments for Graves disease are not aimed at underlying disease process but deal with ablation of thyroid tissue, these antibodies may persist even after apparent clinical cure. This is specially relevant in pregnant women with Graves disease treated with thyroid ablative therapy who continue to produce thyroid receptor antibodies which can cross the placental barrier and cause Neonatal thyrotoxicosis.

USES:
1. Differential diagnosis of etiology of Thyrotoxicosis in patients with ambiguous clinical findings, non diagnostic thyroid radio-isotope scans & in pregnant or breast feeding females where thyroid radio-isotope scans are contraindicated
2. Diagnosis of clinically suspected Graves disease (Extra thyroidal manifestation of Graves disease, Endocrine Exophthalmus, Pretibial Myxedama, Thyroid acropachy) in patients with normal thyroid function tests
3. Determining risk of Neonatal thyrotoxicosis in a pregnant female with active or past history of Graves disease
4. Differential diagnosis of Gestational Thyrotoxicosis versus First trimester manifestation or recurrence of Graves disease
5. Assessing the risk of Graves disease relapse after antithyroid therapy

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Test Name	Value	Unit	Biological Reference interval

THYROID FUNCTION TEST: FREE

FREE TRIIODOTHYRONINE (FT3): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	2.38	pg/mL	1.60 - 3.90
FREE THYROXINE (FT4): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	1.08	ng/dL	0.70 - 1.50
THYROID STIMULATING HORMONE (TSH): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	3.597	µIU/mL	0.35 - 5.50

3rd GENERATION, ULTRASENSITIVE

INTERPREATION:

1. FT3 & FT4 are metabolic active form of thyroid harmones and correlate much better with clinical condition of the patient as compared to Total T4 levels. High FT3 & FT4 with normal TSH Levels and abnormal thyroid function (Total Thyroid) can occasionally be seen in cases of PERIPHERAL THYROID HARMONE RESISTANCE
2. TSH levels are subjected to circardian variation,reaching peak levels between 2-4 a.m and at a minimum between 6-10 pm. The variation is of the order of 50 %. Hence time of the day has influence on the measured serum TSH concentration.

INCREASED TSH LEVELS:

1. Primary hypothyroidism is accompanied by depressed serum FT3 & FT4 values and elevated serum TSH levels. Primary or untreated hypothyroidism may vary from 3 times to more than 100 times normal depending upon degree of hypofunction.
2. Hypothyroid patients receiving insufficient thyroid replacement therapy.
3. Hashimotos thyroiditis
4. DRUGS: Amphetamines, idonie containing agents & dopamine antagonist.
5. Neonatal period, increase in 1st 2-3 days of life due to post-natal surge

DECREASED TSH LEVELS:

1. Primary hyperthyroidism is accompanied by elevated serum FT3 & FT4 values along with depressed TSH levels.
1. Toxic multi-nodular goitre & Thyroiditis.
2. Over replacement of thyroid hormone in treatment of hypothyroidism.
3. Autonomously functioning Thyroid adenoma
4. Secondary pituatary or hypothalmic hypothyroidism
5. Acute psychiatric illness
6. Severe dehydration.
7. DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.
8. Pregnancy: 1st Trimester

NOTE:

1. High FT3 levels accompanied by normal FT4 levels and depressed TSH levels may be seen T3 thyrotoxicosis, central hypothyroidism occurs due to pituitary or thalamic malfunction

2. Secondary & Tertiary hypothyroidism, this relatively rare but important condition is indicated by presence of low serum FT3 and FT4 levels, in conjugation with TSH levels that are paradoxically either low/normal or are not elevated to levels that are expected.

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Test Name	Value	Unit	Biological Reference interval

IMMUNOPATHOLOGY/SEROLOGY

ANTI THYROID PEROXIDASE (TPO/AMA) ANTIBODIES

ANTI TPO/AMA ANTIBODIES: SERUM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	**555.67^{H}**	IU/mL	0.00 - 10.0 DIABETES (II): < 25.0

INTERPRETATION:

1. Thyroperoxidase (TPO) is an enzyme involved inthyroid hormone synthesis, catalyzing the oxidation of iodide on tyrosine residues in thyroglobulin for the synthesis of triiodothyronine and thyroxine (tetraiodothyronine).
2. TPO is a membrane-associated hemo glycoprotein expressed only in thyrocytes and is one of the most important thyroid gland antigens.
3. Anti-TPO is technically superior and a more specific method for measuring thyroid auto-antibodies , It is especially useful in patients presenting with subclinical hypothyroidism where TSH is elevated but Free T4 levels are normal.

INCREASED LEVELS (Autoimmune thyroid disease):

1. Hashimoto thyroiditis.
2. Idiopathic myxedema.
3. Graves disease
4. Post-partum thyroiditis.
5. Primary hypothyroidism due to Hashimoto thyroiditis.

NOTE:

1. The highest TPO antibody levels are observed in patients suffering from Hashimoto thyroiditis. In this disease, the prevalence of TPO antibodies is about 90% of cases, confirming the autoimmune origin of the disease.
2. These auto-antibodies also frequently occur (60%-80%) in the course of Graves disease.
3. In patients with subclinical hypothyroidism, the presence of TPO antibodies is associated with an increased risk of developing overt hypothyroidism.

*** End Of Report ***

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