Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

NAME	**: Mrs. RENU SHARMA**		
AGE/ GENDER	: 51 YRS/FEMALE	**PATIENT ID**	: 1655032
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410280009**
REFERRED BY	:	**REGISTRATION DATE**	: 28/Oct/2024 08:14 AM
BARCODE NO.	: 01519672	**COLLECTION DATE**	: 28/Oct/2024 08:40AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 28/Oct/2024 09:05AM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

HAEMATOLOGY

HAEMOGLOBIN (HB)

HAEMOGLOBIN (HB) *by CALORIMETRIC*	13.2	gm/dL	12.0 - 16.0

INTERPRETATION:-

Hemoglobin is the protein molecule in red blood cells that carries oxygen from the lungs to the bodys tissues and returns carbon dioxide from the tissues back to the lungs.
A low hemoglobin level is referred to as ANEMIA or low red blood count.

ANEMIA (DECRESED HAEMOGLOBIN):

1) Loss of blood (traumatic injury, surgery, bleeding, colon cancer or stomach ulcer)
2) Nutritional deficiency (iron, vitamin B12, folate)
3) Bone marrow problems (replacement of bone marrow by cancer)
4) Suppression by red blood cell synthesis by chemotherapy drugs
5) Kidney failure
6) Abnormal hemoglobin structure (sickle cell anemia or thalassemia).

POLYCYTHEMIA (INCREASED HAEMOGLOBIN):

1) People in higher altitudes (Physiological)
2) Smoking (Secondary Polycythemia)
3) Dehydration produces a falsely rise in hemoglobin due to increased haemoconcentration
4) Advanced lung disease (for example, emphysema)
5) Certain tumors
6) A disorder of the bone marrow known as polycythemia rubra vera,
7) Abuse of the drug erythropoetin (Epogen) by athletes for blood doping purposes (increasing the amount of oxygen available to the body by chemically raising the production of red blood cells).

NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD

DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA
CONSULTANT PATHOLOGIST
MBBS , MD (PATHOLOGY)

Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

NAME	**: Mrs. RENU SHARMA**		
AGE/ GENDER	: 51 YRS/FEMALE	**PATIENT ID**	: 1655032
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410280009**
REFERRED BY	:	**REGISTRATION DATE**	: 28/Oct/2024 08:14 AM
BARCODE NO.	: 01519672	**COLLECTION DATE**	: 28/Oct/2024 08:40AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 28/Oct/2024 04:43PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

CLINICAL CHEMISTRY/BIOCHEMISTRY

LOW DENSITY LIPOPROTEIN (LDL) CHOLESTEROL (DIRECT)

LDL CHOLESTEROL (DIRECT): SERUM *by SELECTIVE SOLUBALISATION*	116.9	mg/dL	DESIRABLE: < 130.0 BORDERLIBE:130.0-159.0 HIGH RISK CHD: > 160.0

DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA
CONSULTANT PATHOLOGIST
MBBS , MD (PATHOLOGY)

Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

NAME	**: Mrs. RENU SHARMA**		
AGE/ GENDER	: 51 YRS/FEMALE	**PATIENT ID**	: 1655032
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410280009**
REFERRED BY	:	**REGISTRATION DATE**	: 28/Oct/2024 08:14 AM
BARCODE NO.	: 01519672	**COLLECTION DATE**	: 28/Oct/2024 08:40AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 30/Oct/2024 10:51AM
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)*	**16.22^{H}**	IU/L	Normal : <=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

DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA
CONSULTANT PATHOLOGIST
MBBS , MD (PATHOLOGY)

Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

NAME	**: Mrs. RENU SHARMA**		
AGE/ GENDER	: 51 YRS/FEMALE	**PATIENT ID**	: 1655032
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410280009**
REFERRED BY	:	**REGISTRATION DATE**	: 28/Oct/2024 08:14 AM
BARCODE NO.	: 01519672	**COLLECTION DATE**	: 28/Oct/2024 08:40AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 28/Oct/2024 12:36PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

THYROID FUNCTION TEST: TOTAL

Test Name	Value	Unit	Biological Reference interval
TRIIODOTHYRONINE (T3): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	**2.165^{H}**	ng/mL	0.35 - 1.93
THYROXINE (T4): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	11.98	µgm/dL	4.87 - 12.60
THYROID STIMULATING HORMONE (TSH): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	**0.03^{L}**	µIU/mL	0.35 - 5.50

3rd GENERATION, ULTRASENSITIVE

INTERPRETATION:

TSH levels are subject to circadian 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 concentrations. TSH stimulates the production and secretion of the metabolically active hormones, thyroxine (T4)and triiodothyronine (T3).Failure at any level of regulation of the hypothalamic-pituitary-thyroid axis will result in either underproduction (hypothyroidism) or overproduction(hyperthyroidism) of T4 and/or T3.

CLINICAL CONDITION	T3	T4	TSH
Primary Hypothyroidism:	Reduced	Reduced	Increased (Significantly)
Subclinical Hypothyroidism:	Normal or Low Normal	Normal or Low Normal	High
Primary Hyperthyroidism:	Increased	Increased	Reduced (at times undetectable)
Subclinical Hyperthyroidism:	Normal or High Normal	Normal or High Normal	Reduced

LIMITATIONS:-

1. T3 and T4 circulates in reversibly bound form with Thyroid binding globulins (TBG),and to a lesser extent albumin and Thyroid binding Pre Albumin so conditions in which TBG and protein levels alter such as pregnancy, excess estrogens, androgens, anabolic steroids and glucocorticoids may falsely affect the T3 and T4 levels and may cause false thyroid values for thyroid function tests.
2. Normal levels of T4 can also be seen in Hyperthyroid patients with :T3 Thyrotoxicosis, Decreased binding capacity due to hypoproteinemia or ingestion of certain drugs (e.g.: phenytoin , salicylates).
3. Serum T4 levels in neonates and infants are higher than values in the normal adult , due to the increased concentration of TBG in neonate serum.
4. TSH may be normal in central hypothyroidism , recent rapid correction of hyperthyroidism or hypothyroidism , pregnancy , phenytoin therapy.

TRIIODOTHYRONINE (T3)		THYROXINE (T4)		THYROID STIMULATING HORMONE (TSH)	
Age	Refferance Range (ng/mL)	Age	Refferance Range (µg/dL)	Age	Reference Range (µIU/mL)
0 - 7 Days	0.20 - 2.65	0 - 7 Days	5.90 – 18.58	0 - 7 Days	2.43 - 24.3
7 Days - 3 Months	0.36 - 2.59	7 Days - 3 Months	6.39 - 17.66	7 Days - 3 Months	0.58 - 11.00
3 - 6 Months	0.51 - 2.52	3 - 6 Months	6.75 – 17.04	3 Days – 6 Months	0.70 - 8.40
6 - 12 Months	0.74 - 2.40	6 - 12 Months	7.10 – 16.16	6 – 12 Months	0.70 - 7.00
1 - 10 Years	0.92 - 2.28	1 - 10 Years	6.00 - 13.80	1 – 10 Years	0.60 - 5.50

DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA
CONSULTANT PATHOLOGIST
MBBS , MD (PATHOLOGY)

Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

NAME	**: Mrs. RENU SHARMA**		
AGE/ GENDER	: 51 YRS/FEMALE	**PATIENT ID**	: 1655032
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410280009**
REFERRED BY	:	**REGISTRATION DATE**	: 28/Oct/2024 08:14 AM
BARCODE NO.	: 01519672	**COLLECTION DATE**	: 28/Oct/2024 08:40AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 28/Oct/2024 12:36PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name			Value	Unit	Biological Reference interval
11- 19 Years	0.35 - 1.93	11 - 19 Years	4.87- 13.20	11 – 19 Years	0.50 – 5.50
> 20 years (Adults)	0.35 - 1.93	> 20 Years (Adults)	4.87 - 12.60	> 20 Years (Adults)	0.35– 5.50
RECOMMENDATIONS OF TSH LEVELS DURING PREGNANCY (µIU/mL)					
1st Trimester			0.10 – 2.50		
2nd Trimester			0.20 – 3.00		
3rd Trimester			0.30 – 4.10		

INCREASED TSH LEVELS:
1.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, iodine containing agents & dopamine antagonist.
5.Neonatal period, increase in 1st 2-3 days of life due to post-natal surge

DECREASED TSH LEVELS:
1.Toxic multi-nodular goiter & Thyroiditis.
2.Over replacement of thyroid hormone in treatment of hypothyroidism.
3.Autonomously functioning Thyroid adenoma
4.Secondary pituitary or hypothalamic hypothyroidism
5.Acute psychiatric illness
6.Severe dehydration.
7.DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.
8.Pregnancy: 1st and 2nd Trimester

DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA
CONSULTANT PATHOLOGIST
MBBS , MD (PATHOLOGY)

Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

NAME	**: Mrs. RENU SHARMA**		
AGE/ GENDER	: 51 YRS/FEMALE	**PATIENT ID**	: 1655032
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410280009**
REFERRED BY	:	**REGISTRATION DATE**	: 28/Oct/2024 08:14 AM
BARCODE NO.	: 01519672	**COLLECTION DATE**	: 28/Oct/2024 08:40AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 28/Oct/2024 10:46AM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

IMMUNOPATHOLOGY/SEROLOGY

ANTI THYROID PEROXIDASE (TPO/AMA) ANTIBODIES

ANTI TPO/AMA ANTIBODIES: SERUM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	**> 1000.0^{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 ***

DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA
CONSULTANT PATHOLOGIST
MBBS , MD (PATHOLOGY)