

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

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

| | | | |
|-----------------------|--|--------------------------|------------------------|
| NAME | : Mrs. AARTI PRASAD | PATIENT ID | : 1563801 |
| AGE/ GENDER | : 29 YRS/FEMALE | REG. NO./LAB NO. | : 012407290039 |
| COLLECTED BY | : | REGISTRATION DATE | : 29/Jul/2024 12:02 PM |
| REFERRED BY | : | COLLECTION DATE | : 29/Jul/2024 12:45PM |
| BARCODE NO. | : 01514061 | REPORTING DATE | : 29/Jul/2024 12:45PM |
| CLIENT CODE. | : KOS DIAGNOSTIC LAB | | |
| CLIENT ADDRESS | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

| Test Name | Value | Unit | Biological Reference interval |
|-----------|-------|------|-------------------------------|
|-----------|-------|------|-------------------------------|

ENDOCRINOLOGY

THYROID FUNCTION TEST: TOTAL

| | | | |
|---|--------------------|--------|--------------|
| TRIIODOTHYRONINE (T3): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i> | 1.786 | ng/mL | 0.35 - 1.93 |
| THYROXINE (T4): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i> | 14.66 ^H | µgm/dL | 4.87 - 12.60 |
| THYROID STIMULATING HORMONE (TSH): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i> | 1.752 | 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 (eg: 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 |




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| 6 - 12 Months | 0.74 - 2.40 | 6 - 12 Months | 7.10 - 16.16 |
| 1 - 10 Years | 0.92 - 2.28 | 1 - 10 Years | 6.00 - 13.80 |
| 11- 19 Years | 0.35 - 1.93 | 11 - 19 Years | 4.87- 13.20 |
| > 20 years (Adults) | 0.35 - 1.93 | > 20 Years (Adults) | 4.87 - 12.60 |
| RECOMMENDATIONS OF TSH LEVELS DURING PREGNANCY (μ U/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, 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.Toxic multi-nodular goitre & 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




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BETA HCG - TOTAL (QUANTITATIVE): MATERNAL


BETA HCG TOTAL, PREGNANCY MATERNAL: **170.23^H** mIU/mL < 5.0
 SERUM
 by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)

INTERPRETATION:

| | | |
|---|-------------|----------------|
| MEN: | mIU/ml | < 2.0 |
| NON PREGNANT PRE-MENOPAUSAL WOMEN: | mIU/ml | < 5.0 |
| MENOPAUSAL WOMEN: | mIU/ml | < 7.0 |
| BETA HCG EXPECTED VALUES IN ACCORDANCE TO WEEKS OF GESTATIONAL AGE | | |
| WEEKS OF GESTATION | Unit | Value |
| 4-5 | mIU/ml | 1500 - 23000 |
| 5-6 | mIU/ml | 3400 - 135300 |
| 6-7 | mIU/ml | 10500 - 161000 |
| 7-8 | mIU/ml | 18000 - 209000 |
| 8-9 | mIU/ml | 37500 - 219000 |
| 9-10 | mIU/ml | 42800 - 218000 |
| 10-11 | mIU/ml | 33700 - 218700 |
| 11-12 | mIU/ml | 21800 - 193200 |
| 12-13 | mIU/ml | 20300 - 166100 |
| 13-14 | mIU/ml | 15400 - 190000 |
| 2nd TRIMESTER | mIU/ml | 2800 - 176100 |
| 3rd TRIMESTER | mIU/ml | 2800 - 144400 |




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1.hCG is a Glycoprotein with alpha and beta chains. Beta subunit is specific to hCG.
 2.It is largely secreted by trophoblastic tissue. Small amounts may be secreted by fetal tissues and by the adult ant pituitary.
INCREASED :
 1.Pregnancy
 2.Gestationalsite & Non gestational trophoblastic neoplasia.
 3.In mixed germ cell tumors.
SIGNIFICANTLY HIGHER THAN EXPECTED LEVEL:
 1.Multiple pregnancies & High risk molar pregnancies are usually associated with levels in excess of one lac mIU/ml.
 2.Erythroblastosis fetalis & Downs syndrome.
DECREASED:
 1.Ectopic pregnancy.
 2.Intra-uterine fetal death.
NOTE:
 1.The test becomes positive 7-9 days after the midcycle surge that precedes ovulation (time of blastocyst implantation). Blood levels rise rapidly after this and double every 1.4 - 2 days.
 2.Peak values are usually seen at 60-80 days of LMP. The levels then begin to taper and ebb out around the 20th week. These low levels are then maintained throughout pregnancy.
 3.Doubling time: In intra-uterine pregnancy, serum hCG levels increase by approximately 66% every 48 hrs.Inappropriately rising serum hCG levels are suggestive of dying or ectopic pregnancy.
CAUTION:
 Spuriously high levels (Phantom hCG) may be seen in presence of heterophilic antibodies (found in some normal people). If persistently raised levels are seen in a non-pregnant patient with no evidence of other obvious causes for such an increase a urine hCG assay may help confirm presence of the heterophile antibodies.

*** End Of Report ***




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