Dr. Vinay Chopra
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Dr. Yugam Chopra
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NAME	**: Mrs. NEELAM DEVI**		
AGE/ GENDER	: 35 YRS/FEMALE	**PATIENT ID**	: 1672832
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012411150047**
REFERRED BY	: LOOMBA HOSPITAL (AMBALA CANTT)	**REGISTRATION DATE**	: 15/Nov/2024 02:04 PM
BARCODE NO.	: 01520863	**COLLECTION DATE**	: 15/Nov/2024 02:09PM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 15/Nov/2024 04:29PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

THYROID STIMULATING HORMONE (TSH)

THYROID STIMULATING HORMONE (TSH): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* **3rd GENERATION, ULTRASENSITIVE**	3.156	µIU/mL	0.35 - 5.50

INTERPRETATION:

AGE	REFFERENCE RANGE (µIU/mL)
0 – 5 DAYS	0.70 – 15.20
6 Days – 2 Months	0.70 – 11.00
3 – 11 Months	0.70 – 8.40
1 – 5 Years	0.70 – 7.00
6 – 10 Years	0.60 – 5.50
11 - 15	0.50 – 5.50
> 20 Years (Adults)	0.27 – 5.50
PREGNANCY	
1st Trimester	0.10 - 3.00
2nd Trimester	0.20 - 3.00
3rd Trimester	0.30 - 4.10

NOTE:-*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.*

USE:- TSH controls biosynthesis and release of thyroid harmones T4 & T3. It is a sensitive measure of thyroid function, especially useful in early or subclinical hypothyroidism, before the patient develops any clinical findings or goitre or any other thyroid function abnormality.

INCREASED LEVELS:

1.Primary or untreated hypothyroidism, may vary from 3 times to more than 100 times normal depending on degree of hypofunction.
2.Hypothyroid patients receiving insufficient thyroid replacement therapy.
3.Hashimotos thyroiditis.
4.DRUGS: Amphetamines, Iodine containing agents and dopamine antagonist.
5.Neonatal period, increase in 1st 2-3 days of life due to post-natal surge.

DECREASED LEVELS:

1.Toxic multi-nodular goitre & Thyroiditis.
2.Over replacement of thyroid harmone 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.

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8.Pregnancy: 1st and 2nd Trimester

LIMITATIONS:

1.TSH may be normal in central hypothyroidism, recent rapid correction of hyperthyroidism or hypothyroidism, pregnancy, phenytoin therapy.

2.Autoimmune disorders may produce spurious results.

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Test Name	Value	Unit	Biological Reference interval

ESTRADIOL (E2)

ESTRADIOL (E2): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	44.537	pg/mL	FEMALE FOLLICULAR PHASE: 19.5 - 144.2 FEMALE MID CYCLE PHASE: 63.9 - 356.7 FEMALE PRE OVULATORY PHASE: 136.0 - 251.0 FEMALE LUTEAL PHASE: 55.8 - 214.2 POST MENOPAUSAL:< 50.0

INTEPRETATION:

OTHER MATERNAL FACTORS AND PREGNANCY	UNITS	RANGE
Hormonal Contraceptives	pg/mL	15.0 – 95.0
1st Trimester (0 – 12 Weeks)	pg/mL	38.0 – 3175.0
2nd Trimester (13 – 28 Weeks)	pg/mL	678.0 – 16633.0
3rd Trimester (29 – 40 Weeks)	pg/mL	43.0 – 33781.0
Post Menopausal	Pg/mL	< 50.0
MALES:	pg/mL	< 40.0

1. Estrogens are involved in development and maintenance of the female phenotype,germ cell maturation,and pregnancy.They also are important for many other,nongender-specific processes, including growth,nervous system maturation,bone metabolism/remodeling,and endothelial responsiveness.
2. E2 is produced primarily in ovaries and testes by aromatization of testosterone.
3. Small amounts are produced in the adrenal glands and some peripheral tissues,most notably fat.E2 levels in premenopausal women fluctuate during the menstrual cycle.
4. They are lowest during the early follicular phase. E2 levels then rise gradually until 2 to 3 days before ovulation, at which stage they start to increase much more rapidly and peak just before the ovulation-inducing luteinizing hormone (LH)/follicle stimulating hormone (FSH) surge at 5 to 10 times the early follicular levels.This is followed by a modest decline during the ovulatory phase.E2 levels then increase again gradually until the midpoint of the luteal phase and thereafter decline to trough,early follicular levels.

INDICATIONS FOR ASSAY: -

1. Evaluation of hypogonadism and oligo-amenorrhea in females.
2. Assessing ovarian status, including follicle development,for assisted reproduction protocols (eg, in vitro fertilization)
3. In conjunction with lutenizing hormone measurements,monitoring of estrogen replacement therapy in hypogonadal premenopausal women
4. Evaluation of feminization,including gynecomastia,in males.
5. Diagnosis of estrogen-producing neoplasms in males,and,to a lesser degree,females
6. As part of the diagnosis and work-up of precocious and delayed puberty in females,and,to a lesser degree, males
7. As part of the diagnosis and work-up of suspected disorders of sex steroid metabolism,eg:aromatase deficiency and 17 alpha-hydroxylase

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Test Name	Value	Unit	Biological Reference interval

deficiency
8. As an adjunct to clinical assessment,imaging studies and bone mineral density measurement in the fracture risk assessment of postmenopausal women,and,to a lesser degree,older men
9. Monitoring low-dose female hormone replacement therapy in post-menopausal women
10. Monitoring antiestrogen therapy (eg, aromatase inhibitor therapy).

CAUSES FOR INCREASED E2 LEVELS:

1. High androgen levels caused by tumors or androgen therapy (medical or sport performance enhancing),with secondary elevations in E1 and E2 due to aromatization
2. Obesity with increased tissue production of E1
3. Decreased E1 and E2 clearance in liver disease
4. Estrogen producing tumors
5. Estrogen Ingestion

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Test Name	Value	Unit	Biological Reference interval

PROGESTERONE

PROGESTERONE: SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	4.89	ng/mL	FEMALE FOLLICULAR PHASE: 0.10 - 1.50 FEMALE OVULATORY PHASE: 0.40 - 3.00 FEMALE LUTEAL PHASE: 1.20 - 18.80 POST MENOPAUSAL: < 1.40 MALES: < 2.80

INTERPRETATION:

EXPECTED VALUES OF PROGESTERONE DURING PREGNANCY	
	UNITS (ng/mL)
First trimester (0 - 12 Wweeks)	15.8 - 46.0
Second trimester (13 - 28 Wweeks)	15.6 - 74.0
Third trimester (29 - 40 Wweeks)	45.0 - 143.0
Post Menopausal	< 1.40

1. Progesterone is produced by the adrenal glands, corpus luteum, and placenta.
2. After ovulation, there is a significant rise in serum Progesterone levels as the corpus luteum begins To produce progesterone in increasing amounts. This causes changes in the uterus, preparing it for implantation of a fertilized egg. If implantation occurs, the trophoblast begins to secrete human chorionic gonadotropin, which maintains the corpus luteum and its secretion of progesterone. If there is no implantation, the corpus luteum degenerates and circulating progesterone levels decrease rapidly, reaching follicular phase levels about 4 days before the next menstrual period.

The test is indicated for:

1. Ascertaining whether ovulation occurred in a menstrual cycle
2. Evaluation of placental function in pregnancy
3. Workup of some patients with adrenal or testicular tumors

NOTE:

In patients receiving therapy with high biotin doses (ie, >5 mg/day), no specimen should be drawn until at least 8 hours after the last biotin administration.

*** End Of Report ***

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