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NAME	**: Mrs. SUKHMANI DUGGAL**		
AGE/ GENDER	: 31 YRS/FEMALE	**PATIENT ID**	: 1752708
COLLECTED BY	: SURJESH	**REG. NO./LAB NO.**	**: 012502110019**
REFERRED BY	: CENTRAL PHOENIX CLUB (AMBALA CANTT)	**REGISTRATION DATE**	: 11/Feb/2025 10:49 AM
BARCODE NO.	: 01525315	**COLLECTION DATE**	: 11/Feb/2025 11:05AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 11/Feb/2025 01:36PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

HAEMATOLOGY

GLYCOSYLATED HAEMOGLOBIN (HBA1C)

GLYCOSYLATED HAEMOGLOBIN (HbA1c): WHOLE BLOOD *by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)*	5.6	%	4.0 - 6.4
ESTIMATED AVERAGE PLASMA GLUCOSE *by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)*	114.02	mg/dL	60.00 - 140.00

INTERPRETATION:

AS PER AMERICAN DIABETES ASSOCIATION (ADA):		
REFERENCE GROUP	**GLYCOSYLATED HEMOGLOGIB (HBAIC) in %**	
Non diabetic Adults >= 18 years	<5.7	
At Risk (Prediabetes)	5.7 – 6.4	
Diagnosing Diabetes	>= 6.5	
Therapeutic goals for glycemic control	**Age > 19 Years**	
	Goals of Therapy:	< 7.0
	Actions Suggested:	>8.0
	Age < 19 Years	
	Goal of therapy:	<7.5

COMMENTS:

1.Glycosylated hemoglobin (HbA1c) test is three monthly monitoring done to assess compliace with therapeutic regimen in diabetic patients.

2.Since Hb1c reflects long term fluctuations in blood glucose concentration, a diabetic patient who has recently under good control may still have high concentration of HbAIc. Converse is true for a diabetic previously under good control but now poorly controlled.

3.Target goals of < 7.0 % may be beneficial in patients with short duration of diabetes, long life expectancy and no significant cardiovascular disease. In patients with significant complications of diabetes, limited life expectancy or extensive co-morbid conditions, targetting a goal of < 7.0% may not be appropiate.

4.High HbA1c (>9.0 -9.5 %) is strongly associated with risk of development and rapid progression of microvascular and nerve complications

5.Any condition that shorten RBC life span like acute blood loss, hemolytic anemia falsely lower HbA1c results.

6.HbA1c results from patients with HbSS,HbSC and HbD must be interpreted with caution , given the pathological processes including anemia,increased red cell turnover, and transfusion requirement that adversely impact HbA1c as a marker of long-term gycemic control.

7.Specimens from patients with polycythemia or post-splenctomy may exhibit increse in HbA1c values due to a somewhat longer life span of the red cells.

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Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

PROLACTIN

PROLACTIN: SERUM	16.05	ng/mL	3 - 25

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:

1.Prolactin is secreted by the anterior pituitary gland and controlled by the hypothalamus.
2.The major chemical controlling prolactin secretion is dopamine, which inhibits prolactin secretion from the pituitary.
3.Physiological function of prolactin is the stimulation of milk production. In normal individuals, the prolactin level rises in response to physiologic stimuli such as sleep, exercise, nipple stimulation, sexual intercourse, hypoglycemia, postpartum period, and also is elevated in the newborn infant.

INCREASED (HYPERPROLACTEMIA):

1.Prolactin-secreting pituitary adenoma (prolactinoma, which is 5 times more frequent in females than males).
2.Functional and organic disease of the hypothalamus.
3.Primary hypothyroidism.
4.Section compression of the pituitary stalk.
5.Chest wall lesions and renal failure.
6.Ectopic tumors.
7.DRUGS:- Anti-Dopaminergic drugs like antipsychotic drugs, antinausea/antiemetic drugs, Drugs that affect CNS serotonin metabolism, serotonin receptors, or serotonin reuptake (anti-depressants of all classes, ergot derivatives, some illegal drugs such as cannabis), Antihypertensive drugs ,Opiates, High doses of estrogen or progesterone,anticonvulsants (valporic acid), anti-tuberculous medications (Isoniazid).

SIGNIFICANCE:

1.In loss of libido, galactorrhea, oligomHyperprolactinemia often results enorrhea or amenorrhea, and infertility in premenopausal females.
2.Loss of libido, impotence, infertility, and hypogonadism in males. Postmenopausal and premenopausal women, as well as men, can also suffer from decreased muscle mass and osteoporosis.
3. In males, prolactin levels >13 ng/mL are indicative of hyperprolactinemia.
4. In women, prolactin levels >27 ng/mL in the absence of pregnancy and postpartum lactation are indicative of hyperprolactinemia.
5.Clear symptoms and signs of hyperprolactinemia are often absent in patients with serum prolactin levels <100 ng/mL.
4. Mild to moderately increased levels of serum prolactin are not a reliable guide for determining whether a prolactin-producing pituitary adenoma is present, 5.Whereas levels >250 ng/mL are usually associated with a prolactin-secreting tumor.

CAUTION:

Prolactin values that exceed the reference values may be due to macroprolactin (prolactin bound to immunoglobulin). Macroprolactin should be evaluated if signs and symptoms of hyperprolactinemia are absent, or pituitary imaging studies are not informative.

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Test Name	Value	Unit	Biological Reference interval

INSULIN FASTING (F)

INSULIN FASTING (F)	11.4	µIU/ml	2.0 - 25.0

by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)

INTERPRETATION:-

1.Insulin is a hormone produced by the beta cells of the pancreas. It regulates the uptake and utilization of glucose and is also involved in protein synthesis and triglyceride storage.
2.Type 1 diabets (insulin-dependent diabetes) is caused by insulin deficiency due to destruction of insulin producing pancreatic islets (beta) cells.
3.Type 2 diabetes (noninsulin dependent diabetes) is characterized by resistance to the action of insulin (insulin resistance).
4.The test is useful for management of diabetes mellitus and for diagnoses of insulinomas, when used in conjunction with proinsulin and C-peptide measurements.

NOTE:

1.No standard referance range has yet been established for INSULIN POST-PRANDIAL (PP) in indian population, therefore same could not be provided along with test. However various studies done on several populations mention that the range of INSULIN PP can vary somewhere from 5-79 mIU/L which can be used for clinical purpose.

2.This assay has 100% cross-reactivity with recombinant human insulin (Novolin R and Novolin N). It does not recognize other commonly used analogues of injectable insulin (ie, insulin lispro, insulin aspart, and insulin glargine).

INTERPRETATIVE GUIDE:

1.During prolonged fasting, when the patient's glucose level is reduced to <40 mg/dL, elevated insulin level plus elevated levels of proinsulin and C-peptide suggest insulinomaS.
2.Insulin levels generally decline in patients with type 1 diabetes mellitus.
3.In the early stage of type 2 diabetes, insulin levels are either normal or elevated. In the late stage of type 2 diabetes, insulin levels decline.
4.In normal individuals, insulin levels parallel blood glucose levels.
5.Patients on insulin therapy may develop anti-insulin antibodies. These antibodies may interfere in the assay system, causing inaccurate results. In such individuals, measurement of free insulin FINS / Insulin, Free, Serum should be performed.

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Test Name	Value	Unit	Biological Reference interval

TESTOSTERONE: TOTAL

TESTOSTERONE - TOTAL: SERUM	0.43	ng/mL	0.0 - 0.80

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:

1.Testosterone is secreted in females by the ovary and formed indirectly from androstenedione in adrenal glands.
2.In males it is secreted by the testes. It circulates in blood bound largely to sex hormone binding globulin (SHBG). Less than 1% of the total testosterone is in the free form.
3.The bioavailable fraction includes the free form and that "weakly bound" to albumin (40% of the total in men and 20% of the total in women) and bound to cortisol binding globulin (CBG). It is the most potent circulating androgenic hormone.
4.The total testosterone bound to SHBG fluctuates since SHBG levels are affected by medication, disease, sex steroids and insulin.

CLINIC USE:

1.Assesment of testicular functions in males
2.Management of hirsutism and virilization in females

INCREASED LEVELS:

1.Precocious puberty (Males)
2.Androgen resistance
3.Testoxicosis
4.Congenital Adrenal Hyperplasia
5.Polycystic ovarian disease
7.Ovarian tumors

DECREASED LEVELS:

1.Delayed puberty (Males)
2.Gonadotropin deficiency
3.Testicular defects
4.Systemic diseases

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Test Name	Value	Unit	Biological Reference interval

TESTOSTERONE: FREE

TESTOSTERONE - FREE: SERUM	2.77	pg/mL	<4.20

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INERPRETATION:

1.Testosterone is secreted in females by the ovary and formed indirectly from androstenedione in adrenal glands.
2.In males it is secreted by the testes. It circulates in blood bound largely to sex hormone binding globulin (SHBG). Less than 1% of the total testosterone is in the free form.
3.The bioavailable fraction includes the free form and that "weakly bound" to albumin (40% of the total in men and 20% of the total in women) and bound to cortisol binding globulin (CBG). It is the most potent circulating androgenic hormone.
4.The total testosterone bound to SHBG fluctuates since SHBG levels are affected by medication, disease, sex steroids and insulin.

CLINICAL SIGNIFICANCE:

1.Usually, bioavailable and free testosterone levels parallel the total testosterone levels. However, a number of conditions and medications are known to increase or decrease the SHBG (SHBG / Sex Hormone Binding Globulin [SHBG], Serum) concentration, which may cause total testosterone concentration to change without necessarily influencing the bioavailable or free testosterone concentration, or vice versa.

CLINIC USE OF FREE TESTOSTERONE:

1.Assesment of testicular functions in males
2.Management of hirsutism and virilization in females.
3.Treatment with corticosteroids and sex steroids (particularly oral conjugated estrogen) can result in changes in SHBG levels and availability of sex-steroid binding sites on SHBG. This may make diagnosis of subtle testosterone abnormalities difficult.
4.Inherited abnormalities in SHBG binding.
5.Liver disease and severe systemic illness.
6.In pubertal boys and adult men, mild decreases of total testosterone without LH abnormalities can be associated with delayed puberty or mild hypogonadism. In this case, either bioavailable or free testosterone measurements are better indicators of mild hypogonadism than determination of total testosterone levels.
7.In polycystic ovarian syndrome and related conditions, there is often significant insulin resistance, which is associated with low SHBG levels. Consequently, bioavailable or free testosterone levels may be more significantly elevated.

INCREASED LEVELS:

1.Precocious puberty (Males)
2.Androgen resistance
3.Testoxicosis
4.Congenital Adrenal Hyperplasia
5.Polycystic ovarian disease
7.Ovarian tumors

DECREASED LEVELS:

1.Delayed puberty (Males)

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Test Name	Value	Unit	Biological Reference interval

2.Gonadotropin deficiency
3.Testicular defects
4.Systemic diseases

*** End Of Report ***

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