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| **NAME** | **: Mrs. JAYANTI** | | |
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| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 14/Nov/2024 10:02AM |
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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## HAEMATOLOGY

### HAEMOGLOBIN (HB)

| | | | |
|---|---|---|---|
| HAEMOGLOBIN (HB)<br>*by CALORIMETRIC* | 13.1 | 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**

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

## BLOOD GROUP (ABO) AND RH FACTOR TYPING

| | | | |
|---|---|---|---|
| ABO GROUP<br>*by SLIDE AGGLUTINATION* | B | | |
| RH FACTOR TYPE<br>*by SLIDE AGGLUTINATION* | POSITIVE | | |

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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| **BLEEDING TIME (BT)** | | | |
| BLEEDING TIME (BT)<br>*by DUKE METHOD* | 1 MIN 20 SEC | MINS | 1 - 5 |

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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| **CLOTTING TIME (CT)** | | | |
| CLOTTING TIME (CT)<br>*by CAPILLARY TUBE METHOD* | 5 MIN 35 SEC | MINS | 4 - 9 |

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

## CLINICAL CHEMISTRY/BIOCHEMISTRY

### GLUCOSE TOLERANCE TEST MODIFIED (AFTER 75 GMS OF GLUCOSE)

| | | | |
|---|---|---|---|
| GLUCOSE FASTING (F): PLASMA<br>*by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)* | **112.12$^{H}$** | mg/dL | NORMAL: < 100.0<br>PREDIABETIC: 100.0 - 125.0<br>DIABETIC: > 0R = 126.0 |
| GLUCOSE AFTER 60 MINS: PLASMA<br>*by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)* | **267.4$^{H}$** | mg/dL | 60.0 - 180.0 |
| GLUCOSE AFTER 120 MINS: PLASMA<br>*by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)* | **209.12$^{H}$** | mg/dL | 60.0 - 160.0 |

**Interpretation: (In accordance with the American diabetes association guidelines):**

This test is recommended for patients who have tested positive in the screening OGT (50 gram OGT) or in patients who are deemed to be at high risk of developing gestational diabetes. An 8-14 hour fasting is mandatory for initiation of this test.

For this test, a fasting sample is followed by two more samples drawn at 1 hour and 2 hours after ingestion of 75 grams of glucose.

The American diabetes group recommendations suggest that gestational diabetes be diagnosed when one or more of the plasma glucose values are:

| Time | Unit | Blood Sugar level |
|---|---|---|
| Fasting | mg/dl | >=95 |
| 1 hour | mg/dl | >=180 |
| 2 hour | mg/dl | >=155 |

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

## ENDOCRINOLOGY

### THYROID STIMULATING HORMONE (TSH)

| | | | |
|---|---|---|---|
| THYROID STIMULATING HORMONE (TSH): SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*<br>**3rd GENERATION, ULTRASENSITIVE** | 1.55 | 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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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

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 |
|---|---|---|---|

## PROLACTIN

| | | | |
|---|---|---|---|
| PROLACTIN: SERUM | 17.35 | 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)<br>*by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)* | **40.6$^{H}$** | µIU/ml | 2.0 - 25.0 |

***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 | 0.57 | 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 |
|---|---|---|---|

## IMMUNOPATHOLOGY/SEROLOGY

### HEPATITIS C VIRUS (HCV) ANTIBODY: TOTAL

| | | | |
|---|---|---|---|
| HEPATITIS C ANTIBODY (HCV) TOTAL: SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 0.07 | S/CO | NEGATIVE: < 1.00<br>POSITIVE: > 1.00 |
| HEPATITIS C ANTIBODY (HCV) TOTAL RESULT<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | NON REACTIVE | | |

***INTERPRETATION:-***

| RESULT (INDEX) | REMARKS |
|---|---|
| < 1.00 | NON - REACTIVE/NOT - DETECTED |
| > =1.00 | REACTIVE/ASYMPTOMATIC/INFECTIVE STATE/CARRIER STATE. |

Hepatitis C (HCV) is an RNA virus of Favivirus group transmitted via blood transfusions, transplantation, injection drug abusers, accidental needle punctures in healthcare workers, dialysis patients and rarely from mother to infant. 10 % of new cases show sexual transmission. As compared to HAV & HBV , chronic infection with HCV occurs in 85 % of infected individuals. In high risk population, the predictive value of Anti HCV for HCV infection is > 99% whereas in low risk populations it is only 25 %.

**USES:**

1. Indicator of past or present infection, but does not differentiate between Acute/ Chronic/Resolved Infection.
2. Routine screening of low and high prevelance population including blood donors.

**NOTE:**

1. False positive results are seen in Auto-immune disease, Rheumatoid Factor, HYpergammaglobulinemia, Paraproteinemia, Passive antibody transfer, Anti-idiotypes and Anti-superoxide dismutase.
2. False negative results are seen in early Acute infection, Immunosuppression and Immuno—incompetence.
3. *HCV-RNA PCR recommended in all reactive results to differentiate between past and present infection.*

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| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 14/Nov/2024 11:40AM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## ANTI HUMAN IMMUNODEFICIENCY VIRUS (HIV) DUO ULTRA WITH (P-24 ANTIGEN DETECTION)

| | | | |
|---|---|---|---|
| HIV 1/2 AND P24 ANTIGEN: SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 0.06 | S/CO | NEGATIVE: < 1.00<br>POSITIVE: > 1.00 |
| HIV 1/2 AND P24 ANTIGEN RESULT<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | NON REACTIVE | | |

***INTERPRETATION:-***

| RESULT (INDEX) | REMARKS |
|---|---|
| < 1.00 | NON - REACTIVE |
| > = 1.00 | PROVISIONALLY REACTIVE |

Non-Reactive result implies that antibodies to HIV 1/ 2 have not been detected in the sample . This menas that patient has either not been exposed to HIV 1/ 2 infection or the sample has been tested during the “window phase” i.e. before the development of detectable levels of antibodies. Hence a Non Reactive result does not exclude the possibility of exposure or infection with HIV 1/ 2.

**RECOMMENDATIONS:**

1. Results to be clinically correlated
2. Rarely falsenegativity/positivity may occur.

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| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. JAYANTI** | | |
| **AGE/ GENDER** | : 28 YRS/FEMALE | **PATIENT ID** | : 1671637 |
| **COLLECTED BY** | : | **REG. NO./LAB NO.** | **: 012411140008** |
| **REFERRED BY** | : LOOMBA HOSPITAL (AMBALA CANTT) | **REGISTRATION DATE** | : 14/Nov/2024 09:38 AM |
| **BARCODE NO.** | : 01520762 | **COLLECTION DATE** | : 14/Nov/2024 09:47AM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 14/Nov/2024 11:40AM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## HEPATITIS B SURFACE ANTIGEN (HBsAg) ULTRA

| | | | |
|---|---|---|---|
| HEPATITIS B SURFACE ANTIGEN (HBsAg): SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 0.23 | S/CO | NEGATIVE: < 1.0<br>POSITIVE: > 1.0 |
| HEPATITIS B SURFACE ANTIGEN (HBsAg) RESULT<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | NON REACTIVE | | |

***INTERPRETATION:***

| RESULT IN INDEX VALUE | REMARKS |
|---|---|
| < 1.30 | NEGATIVE (-ve) |
| >=1.30 | POSITIVE (+ve) |

Hepatitis B Virus (HBV) is a member of the Hepadna virus family causing infection of the liver with extremely variable clinical features. Hepatitis B is transmitted primarily by body fluids especially serum and also spread effectively sexually and from mother to baby. In most individuals HBV hepatitis is self limiting, but 1-2 % normal adolescent and adults develop Chronic Hepatitis. Frequency of chronic HBV infection is 5-10% in immunocompromised patients and 80 % neonates. The initial serological marker of acute infection is HBsAg which typically appears 2-3 months after infection and disappears 12-20 weeks after onset of symtoms. Persistence of HBsAg for more than 6 months indicates carrier state or Chronic Liver disease.

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| **BARCODE NO.** | : 01520762 | **COLLECTION DATE** | : 14/Nov/2024 09:47AM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 14/Nov/2024 10:49AM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## VDRL

| | | | |
|---|---|---|---|
| VDRL<br>*by IMMUNOCHROMATOGRAPHY* | NON REACTIVE | | NON REACTIVE |

***INTERPRETATION:***

1.Does not become positive until 7 - 10 days after appearance ofchancre.
2.***High titer (>1:16) - active disease.***
3.***Low titer (<1:8) - biological falsepositive test in 90% cases or due to late or late latent syphillis.***
4.Treatment of primary syphillis causes progressive decline tonegative VDRL within 2 years.
5.Rising titer (4X) indicates relapse,reinfection, or treatment failure and need for retreatment.
6.May benonreactive in early primary, late latent, and late syphillis (approx. 25% ofcases).
***7.Reactive and weakly reactive tests should always be confirmedwith FTA-ABS (fluorescent treponemal antibody absorptiontest).***

**SHORTTERM FALSE POSITIVE TEST RESULTS (<6 MONTHS DURATION) MAY OCCURIN:**

1.Acute viral illnesses (e.g., hepatitis, measles, infectious mononucleosis)
2.M. pneumoniae; Chlamydia; Malaria infection.
3.Some immunizations
4.Pregnancy (rare)

**LONGTERM FALSE POSITIVE TEST RESULTS (>6 MONTHS DURATION) MAY OCCUR IN:**

1.Serious underlying disease e.g., collagen vascular diseases, leprosy ,malignancy.
2.Intravenous drug users.
3.Rheumatoid arthritis, thyroiditis, AIDS, Sjogren's syndrome.
4.<l0 % of patients older thanage 70 years.
5.Patients taking some anti-hypertensive drugs.

*** End Of Report ***

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