

(A Unit of KOS Healthcare)



Dr. Vinay Chopra
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Chairman & Consultant Pathologist

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

NAME : Mrs. URMILA

AGE/ GENDER : 50 YRS/FEMALE **PATIENT ID** : 1621958

COLLECTED BY: SURJESH REG. NO./LAB NO. : 012409230017

 REFERRED BY
 : 23/Sep/2024 09:27 AM

 BARCODE NO.
 : 01517526
 COLLECTION DATE
 : 23/Sep/2024 09:47 AM

 CLIENT CODE.
 : KOS DIAGNOSTIC LAB
 REPORTING DATE
 : 23/Sep/2024 10:08 AM

CLIENT ADDRESS: 6349/1, NICHOLSON ROAD, AMBALA CANTT

Test Name Value Unit Biological Reference interval

SWASTHYA WELLNESS PANEL: 1.2 COMPLETE BLOOD COUNT (CBC)

RED BLOOD CELLS (RBCS) COUNT AND INDICES

| HAEMOGLOBIN (HB) by CALORIMETRIC | 12.3 | gm/dL | 12.0 - 16.0 |
|---|-------------------|--------------|---|
| RED BLOOD CELL (RBC) COUNT by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE | 4.77 | Millions/cmm | 3.50 - 5.00 |
| PACKED CELL VOLUME (PCV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 38.6 | % | 37.0 - 50.0 |
| MEAN CORPUSCULAR VOLUME (MCV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 81 | fL | 80.0 - 100.0 |
| MEAN CORPUSCULAR HAEMOGLOBIN (MCH) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 25.8 ^L | pg | 27.0 - 34.0 |
| MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 31.8 ^L | g/dL | 32.0 - 36.0 |
| RED CELL DISTRIBUTION WIDTH (RDW-CV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 14.3 | % | 11.00 - 16.00 |
| RED CELL DISTRIBUTION WIDTH (RDW-SD) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 43.2 | fL | 35.0 - 56.0 |
| MENTZERS INDEX by CALCULATED | 16.98 | RATIO | BETA THALASSEMIA TRAIT: < 13.0 IRON DEFICIENCY ANEMIA: >13.0 |
| GREEN & KING INDEX by CALCULATED | 24.3 | RATIO | BETA THALASSEMIA TRAIT:<= 65.0 IRON DEFICIENCY ANEMIA: > 65.0 |
| WHITE BLOOD CELLS (WBCS) | | | |
| TOTAL LEUCOCYTE COUNT (TLC) by Flow cytometry by SF cube & microscopy | 7390 | /cmm | 4000 - 11000 |
| NUCLEATED RED BLOOD CELLS (nRBCS) by automated 6 part hematology analyzer | NIL | | 0.00 - 20.00 |
| NUCLEATED RED BLOOD CELLS (nRBCS) % by calculated by automated hematology analyzer DIFFERENTIAL LEUCOCYTE COUNT (DLC) | NIL | % | < 10 % |
| NEUTROPHILS by Flow cytometry by SF cube & microscopy | 44 ^L | % | 50 - 70 |



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| YMPHOCYTES by Flow cytometry by SF cube & microscopy | 45 ^H | % | 20 - 40 |
| OSINOPHILS by flow cytometry by sf cube & microscopy | 4 | % | 1 - 6 |
| MONOCYTES by flow cytometry by sf cube & microscopy | 7 | % | 2 - 12 |
| BASOPHILS by flow cytometry by sf cube & microscopy ABSOLUTE LEUKOCYTES (WBC) COUNT | 0 | % | 0 - 1 |
| BSOLUTE NEUTROPHIL COUNT by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY | 3252 | /cmm | 2000 - 7500 |
| BSOLUTE LYMPHOCYTE COUNT by flow cytometry by sf cube & microscopy | 3326 | /cmm | 800 - 4900 |
| BSOLUTE EOSINOPHIL COUNT by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY | 296 | /cmm | 40 - 440 |
| ABSOLUTE MONOCYTE COUNT by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY | 517 | /cmm | 80 - 880 |
| NBSOLUTE BASOPHIL COUNT by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY LATELETS AND OTHER PLATELET PREDICTIVE MARKEI | 0 RS. | /cmm | 0 - 110 |
| LATELET COUNT (PLT) by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE | 254000 | /cmm | 150000 - 450000 |
| LATELETCRIT (PCT) by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE | 0.33 | % | 0.10 - 0.36 |
| MEAN PLATELET VOLUME (MPV) by hydro dynamic focusing, electrical impedence | 13 ^H | fL | 6.50 - 12.0 |
| PLATELET LARGE CELL COUNT (P-LCC) by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE | 120000 ^H | /cmm | 30000 - 90000 |
| LATELET LARGE CELL RATIO (P-LCR) by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE | 47.1 ^H | % | 11.0 - 45.0 |
| PLATELET DISTRIBUTION WIDTH (PDW) by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD | 16.1 | % | 15.0 - 17.0 |



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Value Unit **Biological Reference interval** Test Name

ERYTHROCYTE SEDIMENTATION RATE (ESR)

REPORTING DATE

ERYTHROCYTE SEDIMENTATION RATE (ESR)

23H

mm/1st hr

0 - 20

: 23/Sep/2024 10:24AM

by RED CELL AGGREGATION BY CAPILLARY PHOTOMETRY

INTERPRETATION:

CLIENT CODE.

- 1. ESR is a non-specific test because an elevated result often indicates the presence of inflammation associated with infection, cancer and auto-
- immune disease, but does not tell the health practitioner exactly where the inflammation is in the body or what is causing it.

 2. An ESR can be affected by other conditions besides inflammation. For this reason, the ESR is typically used in conjunction with other test such as C-reactive protein
- 3. This test may also be used to monitor disease activity and response to therapy in both of the above diseases as well as some others, such as systemic lupus erythematosus

CONDITION WITH LOW ESR

A low ESR can be seen with conditions that inhibit the normal sedimentation of red blood cells, such as a high red blood cell count (polycythaemia), significantly high white blood cell count (leucocytosis), and some protein abnormalities. Some changes in red cell shape (such as sickle cells in sickle cell anaemia) also lower the ESR.

NOTE:

- 1. ESR and C reactive protein (C-RP) are both markers of inflammation.
 2. Generally, ESR does not change as rapidly as does CRP, either at the start of inflammation or as it resolves.
 3. CRP is not affected by as many other factors as is ESR, making it a better marker of inflammation.
 4. If the ESR is elevated, it is typically a result of two types of proteins, globulins or fibrinogen.
 5. Women tend to have a higher ESR, and menstruation and pregnancy can cause temporary elevations.
 6. Drugs such as dextran, methyldopa, oral contraceptives, penicillamine procainamide, theophylline, and vitamin A can increase ESR, while services and quiping may decrease it. aspirin, cortisone, and quinine may decrease it



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Test Name Value Unit **Biological Reference interval**

CLINICAL CHEMISTRY/BIOCHEMISTRY **GLUCOSE FASTING (F)**

GLUCOSE FASTING (F): PLASMA 106.93^H mg/dL NORMAL: < 100.0

by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD) PREDIABETIC: 100.0 - 125.0 DIABETIC: > 0R = 126.0

INTERPRETATION
IN ACCORDANCE WITH AMERICAN DIABETES ASSOCIATION GUIDELINES:

1. A fasting plasma glucose level below 100 mg/dl is considered normal.

2. A fasting plasma glucose level between 100 - 125 mg/dl is considered as glucose intolerant or prediabetic. A fasting and post-prandial blood test (after consumption of 75 gms of glucose) is recommended for all such patients.

3. A fasting plasma glucose level of above 125 mg/dl is highly suggestive of diabetic state. A repeat post-prandial is strongly recommended for all such patients. A fasting plasma glucose level in excess of 125 mg/dl on both occasions is confirmatory for diabetic state.



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| Test Name | Value | Unit | Biological Reference interval |
|--|---------------------|---------|--|
| | LIPID PROFILE | : BASIC | |
| CHOLESTEROL TOTAL: SERUM by CHOLESTEROL OXIDASE PAP | 202.37 ^H | mg/dL | OPTIMAL: < 200.0 BORDERLINE HIGH: 200.0 - 239.0 HIGH CHOLESTEROL: > OR = 240.0 |
| TRIGLYCERIDES: SERUM by GLYCEROL PHOSPHATE OXIDASE (ENZYMATIC) | 124.74 | mg/dL | OPTIMAL: < 150.0 BORDERLINE HIGH: 150.0 - 199.0 HIGH: 200.0 - 499.0 VERY HIGH: > OR = 500.0 |
| HDL CHOLESTEROL (DIRECT): SERUM by SELECTIVE INHIBITION | 58.05 | mg/dL | LOW HDL: < 30.0 BORDERLINE HIGH HDL: 30.0 - 60.0 HIGH HDL: > OR = 60.0 |
| LDL CHOLESTEROL: SERUM by CALCULATED, SPECTROPHOTOMETRY | 119.37 | mg/dL | OPTIMAL: < 100.0 ABOVE OPTIMAL: 100.0 - 129.0 BORDERLINE HIGH: 130.0 - 159.0 HIGH: 160.0 - 189.0 VERY HIGH: > OR = 190.0 |
| NON HDL CHOLESTEROL: SERUM by CALCULATED, SPECTROPHOTOMETRY | 144.32 ^H | mg/dL | OPTIMAL: < 130.0 ABOVE OPTIMAL: 130.0 - 159.0 BORDERLINE HIGH: 160.0 - 189.0 HIGH: 190.0 - 219.0 VERY HIGH: > OR = 220.0 |
| VLDL CHOLESTEROL: SERUM by CALCULATED, SPECTROPHOTOMETRY | 24.95 | mg/dL | 0.00 - 45.00 |
| TOTAL LIPIDS: SERUM by CALCULATED, SPECTROPHOTOMETRY | 529.48 | mg/dL | 350.00 - 700.00 |
| CHOLESTEROL/HDL RATIO: SERUM by CALCULATED, SPECTROPHOTOMETRY | 3.49 | RATIO | LOW RISK: 3.30 - 4.40 AVERAGE RISK: 4.50 - 7.0 MODERATE RISK: 7.10 - 11.0 HIGH RISK: > 11.0 |
| LDL/HDL RATIO: SERUM by CALCULATED, SPECTROPHOTOMETRY | 2.06 | RATIO | LOW RISK: 0.50 - 3.0 MODERATE RISK: 3.10 - 6.0 HIGH RISK: > 6.0 |



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Test Name Value Unit **Biological Reference interval**

TRIGLYCERIDES/HDL RATIO: SERUM 2.15^L **RATIO** 3.00 - 5.00by CALCULATED, SPECTROPHOTOMETRY

INTERPRETATION:

1. Measurements in the same patient can show physiological analytical variations. Three serial samples 1 week apart are recommended for Total Cholesterol, Triglycerides, HDL & LDL Cholesterol.

2. As per NLA-2014 guidelines, all adults above the age of 20 years should be screened for lipid status. Selective screening of children above the age of 2 years with a family history of premature cardiovascular disease or those with at least one parent with high total cholesterol is recommended.

3. Low HDL levels are associated with increased risk for Atherosclerotic Cardiovascular disease (ASCVD) due to insufficient HDL being available

to participate in reverse cholesterol transport, the process by which cholesterol is eliminated from peripheral tissues.

4. NLA-2014 identifies Non HDL Cholesterol (an indicator of all atherogeniclipoproteins such as LDL, VLDL, IDL, Lpa, Chylomicron remnants) along with LDL-cholesterol as co-primary target for cholesterol lowering therapy. Note that major risk factors can modify treatment goals for LDL &Non

5. Additional testing for Apolipoprotein B, hsCRP,Lp(a) & LP-PLA2 should be considered among patients with moderate risk for ASCVD for risk refinement



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Test Name Value Unit **Biological Reference interval**

LIVER FUNCTION TEST (COMPLETE)

| BILIRUBIN TOTAL: SERUM by DIAZOTIZATION, SPECTROPHOTOMETRY | 0.44 | mg/dL | INFANT: 0.20 - 8.00 ADULT: 0.00 - 1.20 |
|--|--------------------|-------|---|
| BILIRUBIN DIRECT (CONJUGATED): SERUM by DIAZO MODIFIED, SPECTROPHOTOMETRY | 0.11 | mg/dL | 0.00 - 0.40 |
| BILIRUBIN INDIRECT (UNCONJUGATED): SERUM by CALCULATED, SPECTROPHOTOMETRY | 0.33 | mg/dL | 0.10 - 1.00 |
| SGOT/AST: SERUM by IFCC, WITHOUT PYRIDOXAL PHOSPHATE | 37.54 | U/L | 7.00 - 45.00 |
| SGPT/ALT: SERUM by IFCC, WITHOUT PYRIDOXAL PHOSPHATE | 66.31 ^H | U/L | 0.00 - 49.00 |
| AST/ALT RATIO: SERUM by CALCULATED, SPECTROPHOTOMETRY | 0.57 | RATIO | 0.00 - 46.00 |
| ALKALINE PHOSPHATASE: SERUM by PARA NITROPHENYL PHOSPHATASE BY AMINO METHYL PROPANOL | 117.81 | U/L | 40.0 - 130.0 |
| GAMMA GLUTAMYL TRANSFERASE (GGT): SERUM by SZASZ, SPECTROPHTOMETRY | 78.43 ^H | U/L | 0.00 - 55.0 |
| TOTAL PROTEINS: SERUM by BIURET, SPECTROPHOTOMETRY | 6.44 | gm/dL | 6.20 - 8.00 |
| ALBUMIN: SERUM | 3.39 ^L | gm/dL | 3.50 - 5.50 |
| by BROMOCRESOL GREEN GLOBULIN: SERUM by CALCULATED, SPECTROPHOTOMETRY | 3.05 | gm/dL | 2.30 - 3.50 |
| A : G RATIO: SERUM | 1.11 | RATIO | 1.00 - 2.00 |

INTERPRETATION

by CALCULATED, SPECTROPHOTOMETRY

NOTE:- To be correlated in individuals having SGOT and SGPT values higher than Normal Reference Range. **USE**:- Differential diagnosis of diseases of hepatobiliary system and pancreas.

INCREASED:

| DRUG HEPATOTOXICITY | > 2 |
|--|----------------------------|
| ALCOHOLIC HEPATITIS | > 2 (Highly Suggestive) |
| CIRRHOSIS | 1.4 - 2.0 |
| INTRAHEPATIC CHOLESTATIS | > 1.5 |
| HEPATOCELLULAR CARCINOMA & CHRONIC HEPATITIS | > 1.3 (Slightly Increased) |



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DECREASED:

1. Acute Hepatitis due to virus, drugs, toxins (with AST increased 3 to 10 times upper limit of normal)

2. Extra Hepatic cholestatis: 0.8 (normal or slightly decreased).

PROGNOSTIC SIGNIFICANCE:

| NORMAL | < 0.65 |
|----------------------|-----------|
| GOOD PROGNOSTIC SIGN | 0.3 - 0.6 |
| POOR PROGNOSTIC SIGN | 1.2 - 1.6 |



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|---|--------------------|---------------|-------------------------------|
| | KIDNEY FUNCTION TE | ST (COMPLETE) | |
| UREA: SERUM by urease - glutamate dehydrogenase (gldh) | 29.75 | mg/dL | 10.00 - 50.00 |
| CREATININE: SERUM by ENZYMATIC, SPECTROPHOTOMETERY | 0.74 | mg/dL | 0.40 - 1.20 |
| BLOOD UREA NITROGEN (BUN): SERUM by CALCULATED, SPECTROPHOTOMETRY | 13.9 | mg/dL | 7.0 - 25.0 |
| BLOOD UREA NITROGEN (BUN)/CREATININE | 18.78 | RATIO | 10.0 - 20.0 |
| RATIO: SERUM by CALCULATED, SPECTROPHOTOMETRY | | | |
| UREA/CREATININE RATIO: SERUM by CALCULATED, SPECTROPHOTOMETRY | 40.2 | RATIO | |
| URIC ACID: SERUM by URICASE - OXIDASE PEROXIDASE | 4.88 | mg/dL | 2.50 - 6.80 |
| CALCIUM: SERUM by ARSENAZO III, SPECTROPHOTOMETRY | 9.6 | mg/dL | 8.50 - 10.60 |
| PHOSPHOROUS: SERUM by PHOSPHOMOLYBDATE, SPECTROPHOTOMETRY | 4.32 | mg/dL | 2.30 - 4.70 |
| ELECTROLYTES | | | |
| SODIUM: SERUM by ISE (ION SELECTIVE ELECTRODE) | 142.6 | mmol/L | 135.0 - 150.0 |
| POTASSIUM: SERUM by ISE (ION SELECTIVE ELECTRODE) | 4.19 | mmol/L | 3.50 - 5.00 |
| CHLORIDE: SERUM by ISE (ION SELECTIVE ELECTRODE) | 106.95 | mmol/L | 90.0 - 110.0 |
| ESTIMATED GLOMERULAR FILTERATION RATE | | | |
| ESTIMATED GLOMERULAR FILTERATION RATE | 98.5 | | |

(eGFR): SERUM by CALCULATED

INTERPRETATION:

To differentiate between pre- and post renal azotemia.

INCREASED RATIO (>20:1) WITH NORMAL CREATININE:

- 1. Prerenal azotemia (BUN rises without increase in creatinine) e.g. heart failure, salt depletion, dehydration, blood loss) due to decreased glomerular filtration rate.
- 2. Catabolic states with increased tissue breakdown.



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KOS Central Lab: 6349/1, Nicholson Road, Ambala Cantt -133 001, Haryana



KOS Diagnostic Lab (A Unit of KOS Healthcare)



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- 3. GI haemorrhage.
- 4. High protein intake.
- 5. Impaired renal function plus
- 6. Excess protein intake or production or tissue breakdown (e.g. infection, GI bleeding, thyrotoxicosis, Cushing's syndrome, high protein diet, burns, surgery, cachexia, high fever).
- 7. Urine reabsorption (e.g. ureter colostomy)
- 8. Reduced muscle mass (subnormal creatinine production)
- 9. Certain drugs (e.g. tetracycline, glucocorticoids)

INCREASED RATIO (>20:1) WITH ELEVATED CREATININE LEVELS:

- 1. Postrenal azotemia (BUN rises disproportionately more than creatinine) (e.g. obstructive uropathy).
- 2. Prerenal azotemia superimposed on renal disease.

DECREASED RATIO (<10:1) WITH DECREASED BUN:

- 1. Acute tubular necrosis.
- 2. Low protein diet and starvation.
- 3. Severe liver disease.
- 4. Other causes of decreased urea synthesis.
- 5. Repeated dialysis (urea rather than creatinine diffuses out of extracellular fluid).
- 6. Inherited hyperammonemias (urea is virtually absent in blood).
- 7. SIADH (syndrome of inappropiate antidiuretic harmone) due to tubular secretion of urea.
- 8. Pregnancy.

DECREASED RATIO (<10:1) WITH INCREASED CREATININE:

- 1. Phenacimide therapy (accelerates conversion of creatine to creatinine).
- 2. Rhabdomyolysis (releases muscle creatinine).
- 3. Muscular patients who develop renal failure.

INAPPROPIATE RATIO:

- 1. Diabetic ketoacidosis (acetoacetate causes false increase in creatinine with certain methodologies, resulting in normal ratio when dehydration should produce an increased BUN/creatinine ratio).
- 2. Cephalosporin therapy (interferes with creatinine measurement). ESTIMATED GLOMERULAR FILTERATION RATE:

| ESTIMATED GEOIMERGEART | ILI LIVITION IVIIL. | | |
|------------------------|--------------------------|-----------------------|--------------------------|
| CKD STAGE | DESCRIPTION | GFR (mL/min/1.73m2) | ASSOCIATED FINDINGS |
| G1 | Normal kidney function | >90 | No proteinuria |
| G2 | Kidney damage with | >90 | Presence of Protein, |
| | normal or high GFR | | Albumin or cast in urine |
| G3a | Mild decrease in GFR | 60 -89 | |
| G3b | Moderate decrease in GFR | 30-59 | |
| G4 | Severe decrease in GFR | 15-29 | |
| G5 | Kidney failure | <15 | |



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

NAME : Mrs. URMILA

AGE/ GENDER : 50 YRS/FEMALE **PATIENT ID** : 1621958

COLLECTED BY : SURJESH REG. NO./LAB NO. :012409230017

REFERRED BY **REGISTRATION DATE** : 23/Sep/2024 09:27 AM BARCODE NO. :01517526 **COLLECTION DATE** : 23/Sep/2024 09:47AM

CLIENT CODE. : KOS DIAGNOSTIC LAB REPORTING DATE : 23/Sep/2024 11:38AM

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Test Name Value Unit **Biological Reference interval**

COMMENTS:

1. Estimated Glomerular filtration rate (eGFR) is the sum of filtration rates in all functioning nephrons and so an estimation of the GFR provides a measure of functioning nephrons of the kidney.

2. eGFR calculated using the 2009 CKD-EPI creatinine equation and GFR category reported as per KDIGO guideline 2012

3. In patients, with eGFR creatinine between 45-59 ml/min/1.73 m2 (G3) and without any marker of Kidney damage, It is recommended to measure

4. eGFR category G1 OR G2 does not fullfill the criteria for CKD, in the absence of evidence of Kidney Damage
5. In a suspected case of Acute Kidney Injury (AKI), measurement of eGFR should be done after 48-96 hours of any Intervention or procedure
6. eGFR calculated by Serum Creatinine may be less accurate due to certain factors like Race, Muscle Mass, Diet, Certain Drugs. In such cases, eGFR should be calculated using Serum Cystatin C
7. A decrease in eGFR implies either progressive renal disease, or a reversible process causing decreased nephron function (eg, severe dehydration).

KDIGO guideline, 2012 recommends Chronic Kidney Disease (CKD) should be classified based on cause, eGFR category and Albuminuria (ACR) category. GFR & ACR category combined together reflect risk of progression and helps Clinician to identify the individual who are progressing at more rapid rate than anticipated



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ENDOCRINOLOGY

THYROID FUNCTION TEST: TOTAL

TRIIODOTHYRONINE (T3): SERUM 1.064 ng/mL 0.35 - 1.93 by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

THYROXINE (T4): SERUM 8.67 μgm/dL 4.87 - 12.60

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

THYROID STIMULATING HORMONE (TSH): SERUM 2.816 μIU/mL 0.35 - 5.50

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

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 trilodothyronine (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 | Т3 | 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, 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 (eq: phenytoin , salicylates).
- 3. Serum T4 levles 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 hypothroidism, pregnancy, phenytoin therapy.

| TRIIODOTHY | TRIIODOTHYRONINE (T3) THYROXINE (T4) | | THYROID STIMULATING HORMONE (TSH) | | |
|-------------------|--------------------------------------|-------------------|-----------------------------------|-------------------|------------------------------|
| Age | Refferance Range (ng/mL) | Age | Refferance Range (μg/dL) | Age | Reference Range (μΙυ/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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| Test Name | | | Value | Unit | | Biological Reference interva |
|---------------------|---------------|------------------------|-----------------|---------------------|-------------|------------------------------|
| 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 | |
| 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 | |
| | RECO | OMMENDATIONS OF TSH LI | VELS DURING PRE | GNANCY (µIU/mL) | | |
| | 1st Trimester | | 0.10 - 2.50 | | | |
| | 2nd Trimester | r | 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.
- $2. Over \ replacement \ of \ thyroid \ harmone \ in \ treatment \ of \ hypothyroid ism.$
- 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.

8. Pregnancy: 1st and 2nd Trimester



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CLINICAL PATHOLOGY

URINE ROUTINE & MICROSCOPIC EXAMINATION

PHYSICAL EXAMINATION

| QUANTITY RECIEVED | 10 | ml |
|--|----|----|
| by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY | | |

COLOUR PALE YELLOW PALE YELLOW PALE YELLOW

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

TRANSPARANCY HAZY CLEAR by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

SPECIFIC GRAVITY 1.02 1.002 - 1.030

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

CHEMICAL EXAMINATION

REACTION ACIDIC

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY.

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

PROTEIN

Negative

NEGATIVE (-ve)

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

SUGAR Negative NEGATIVE (-ve)
by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

pH <=5.0 5.0 - 7.5

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

BILIRUBIN Negative NEGATIVE (-ve) by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

NITRITE Negative NEGATIVE (-ve)

UROBILINOGEN Normal EU/dL 0.2 - 1.0

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

KETONE BODIES

Negative

NEGATIVE (-ve)

by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

BLOOD Negative NEGATIVE (-ve) by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

ASCORBIC ACID NEGATIVE (-ve) NEGATIVE (-ve) by DIP STICK/REFLECTANCE SPECTROPHOTOMETRY

MICROSCOPIC EXAMINATION



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|--|---------------------|------|-------------------------------|
| RED BLOOD CELLS (RBCs) by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | NEGATIVE (-ve) | /HPF | 0 - 3 |
| PUS CELLS by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | 1-3 | /HPF | 0 - 5 |
| EPITHELIAL CELLS by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | 5-7 | /HPF | ABSENT |
| CRYSTALS by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | A few crystals seen | | NEGATIVE (-ve) |
| CASTS by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | NEGATIVE (-ve) | | NEGATIVE (-ve) |
| BACTERIA by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | NEGATIVE (-ve) | | NEGATIVE (-ve) |
| OTHERS by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | NEGATIVE (-ve) | | NEGATIVE (-ve) |
| TRICHOMONAS VAGINALIS (PROTOZOA) by MICROSCOPY ON CENTRIFUGED URINARY SEDIMENT | ABSENT | | ABSENT |

*** End Of Report ***



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