





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

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

NAME : Mrs. SUNITA DUGGAL

AGE/ GENDER : 49 YRS/FEMALE PATIENT ID : 1588679

COLLECTED BY : REG. NO./LAB NO. : 012408230014

 REFERRED BY
 : 23/Aug/2024 10:42 AM

 BARCODE NO.
 : 01515540
 COLLECTION DATE
 : 23/Aug/2024 10:47 AM

 CLIENT CODE.
 : KOS DIAGNOSTIC LAB
 REPORTING DATE
 : 23/Aug/2024 10:47 AM

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

Test Name Value Unit Biological Reference interval

# HAEMATOLOGY HAEMOGLOBIN (HB)

HAEMOGLOBIN (HB) 11.6<sup>L</sup> gm/dL 12.0 - 16.0

by CALORIMETRIC

tissues back to the lungs.

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

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



DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)





(A Unit of KOS Healthcare)



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

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

**NAME** : Mrs. SUNITA DUGGAL

**AGE/ GENDER** : 49 YRS/FEMALE **PATIENT ID** : 1588679

**COLLECTED BY** REG. NO./LAB NO. :012408230014

REFERRED BY **REGISTRATION DATE** : 23/Aug/2024 09:07 AM BARCODE NO. **COLLECTION DATE** : 23/Aug/2024 09:28AM :01515540 CLIENT CODE. : KOS DIAGNOSTIC LAB REPORTING DATE : 23/Aug/2024 09:42AM

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

Test Name Value Unit **Biological Reference interval** 

#### ERYTHROCYTE SEDIMENTATION RATE (ESR)

**ERYTHROCYTE SEDIMENTATION RATE (ESR)** 

0 - 20

by MODIFIED WESTERGREN AUTOMATED METHOD

#### INTERPRETATION:

- 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.

- ESR and C reactive protein (C-RP) are both markers of inflammation.
   Generally, ESR does not change as rapidly as does CRP, either at the start of inflammation or as it resolves.
   CRP is not affected by as many other factors as is ESR, making it a better marker of inflammation.
   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 aspirin, cortisone, and quinine may decrease it



CONSULTANT PATHOLOGIST MBBS, MD (PATHOLOGY & MICROBIOLOGY)





(A Unit of KOS Healthcare)



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

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

**NAME** : Mrs. SUNITA DUGGAL

**AGE/ GENDER** : 49 YRS/FEMALE **PATIENT ID** : 1588679

**COLLECTED BY** :012408230014 REG. NO./LAB NO.

REFERRED BY **REGISTRATION DATE** : 23/Aug/2024 09:07 AM BARCODE NO. :01515540 **COLLECTION DATE** : 23/Aug/2024 09:28AM CLIENT CODE. : KOS DIAGNOSTIC LAB REPORTING DATE : 23/Aug/2024 10:44AM

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

Test Name Value Unit **Biological Reference interval** 

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

**GLUCOSE FASTING (F): PLASMA** 112.69H 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.



CONSULTANT PATHOLOGIST MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA CONSULTANT PATHOLOGIST





(A Unit of KOS Healthcare)



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

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

NAME : Mrs. SUNITA DUGGAL

**AGE/ GENDER** : 49 YRS/FEMALE **PATIENT ID** : 1588679

COLLECTED BY : REG. NO./LAB NO. : 012408230014

 REFERRED BY
 : 23/Aug/2024 09:07 AM

 BARCODE NO.
 : 01515540
 COLLECTION DATE
 : 23/Aug/2024 09:28AM

 CLIENT CODE.
 : KOS DIAGNOSTIC LAB
 REPORTING DATE
 : 23/Aug/2024 10:44AM

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

Test Name Value Unit Biological Reference interval

**UREA** 

UREA: SERUM 14.5 mg/dL 10.00 - 50.00

JREA. SERUIVI by UREASE - GLUTAMATE DEHYDROGENASE (GLDH)



DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)



CLIENT CODE.



## **KOS Diagnostic Lab**

(A Unit of KOS Healthcare)



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

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

: 23/Aug/2024 10:44AM

**NAME** : Mrs. SUNITA DUGGAL

by ENZYMATIC, SPECTROPHOTOMETRY

**AGE/ GENDER PATIENT ID** : 49 YRS/FEMALE : 1588679

**COLLECTED BY** : 012408230014 REG. NO./LAB NO.

**REGISTRATION DATE** : 23/Aug/2024 09:07 AM REFERRED BY BARCODE NO. :01515540 **COLLECTION DATE** : 23/Aug/2024 09:28AM

: KOS DIAGNOSTIC LAB **CLIENT ADDRESS** : 6349/1, NICHOLSON ROAD, AMBALA CANTT

Test Name Value Unit **Biological Reference interval** 

**CREATININE** 

REPORTING DATE

**CREATININE: SERUM** 0.84 0.40 - 1.20



DR.VINAY CHOPRA CONSULTANT PATHOLOGIST MBBS, MD (PATHOLOGY & MICROBIOLOGY)



KOS Central Lab: 6349/1, Nicholson Road, Ambala Cantt -133 001, Haryana KOS Molecular Lab: IInd Floor, Parry Hotel, Staff Road, Opp. GPO, Ambala Cantt -133 001, Haryana 0171-2643898, +91 99910 43898 | care@koshealthcare.com | www.koshealthcare.com



(A Unit of KOS Healthcare)



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

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

NAME : Mrs. SUNITA DUGGAL

AGE/ GENDER : 49 YRS/FEMALE PATIENT ID : 1588679

COLLECTED BY : REG. NO./LAB NO. : 012408230014

 REFERRED BY
 : 23/Aug/2024 09:07 AM

 BARCODE NO.
 : 01515540
 COLLECTION DATE
 : 23/Aug/2024 09:28AM

 CLIENT CODE.
 : KOS DIAGNOSTIC LAB
 REPORTING DATE
 : 23/Aug/2024 10:44AM

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

Test Name Value Unit Biological Reference interval

**CALCIUM** 

CALCIUM: SERUM 9.31 mg/dL 8.50 - 10.60

by ARSENAZO III, SPECTROPHOTOMETRY

#### **INTERPRETATION:**-

- 1.Serum calcium (total) estimation is used for the diagnosis and monitoring of a wide range of disorders including diseases of bone, kidney, parathyroid gland, or gastrointestinal tract.
- 2. Calcium levels may also reflect abnormal vitamin D or protein levels.
- 3.The calcium content of an adult is somewhat over 1 kg (about 2% of the body weight). Of this, 99% is present as calcium hydroxyapatite in bones and <1% is present in the extra-osseous intracellular space or extracellular space (ECS).
- 4. In serum, calcium is bound to a considerable extent to proteins (approximately 40%), 10% is in the form of inorganic complexes, and 50% is present as free or ionized calcium.

**NOTE:**-Calcium ions affect the contractility of the heart and the skeletal musculature, and are essential for the function of the nervous system. In addition, calcium ions play an important role in blood clotting and bone mineralization.

#### HYPOCALCEMIA (LOW CALCIUM LEVELS) CAUSES:-

- 1.Due to the absence or impaired function of the parathyroid glands or impaired vitamin-D synthesis.
- 2. Chronic renal failure is also frequently associated with hypocalcemia due to decreased vitamin-D synthesis as well as hyperphosphatemia and skeletal resistance to the action of parathyroid hormone (PTH).
- 3. NOTE:- A characteristic symptom of hypocalcemia is latent or manifest tetany and osteomalacia.

#### HYPERCALCEMIA (INCREASE CALCIUM LEVELS) CAUSES:-

- 1.Increased mobilization of calcium from the skeletal system or increased intestinal absorption.
- 2. Primary hyperparathyroidism (pHPT)
- 3. Bone metastasis of carcinoma of the breast, prostate, thyroid gland, or lung

**NOTE:**-Severe hypercalcemia may result in cardiac arrhythmia.



DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)





# KOS Diagnostic Lab (A Unit of KOS Healthcare)



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

NAME : Mrs. SUNITA DUGGAL

AGE/ GENDER : 49 YRS/FEMALE PATIENT ID : 1588679

COLLECTED BY : REG. NO./LAB NO. : 012408230014

 REFERRED BY
 : 23/Aug/2024 09:07 AM

 BARCODE NO.
 : 01515540
 COLLECTION DATE
 : 23/Aug/2024 09:28AM

 CLIENT CODE.
 : KOS DIAGNOSTIC LAB
 REPORTING DATE
 : 23/Aug/2024 10:44AM

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

Test Name Value Unit Biological Reference interval

### **CREATININE PHOSPHOKINASE (CPK-NAC) TOTAL**

CREATININE PHOSPHO KINASE (CPK-NAC)

by SPECTROPHOTOMETERY

152.4 IU/L 24 - 19

#### Interpretation:-

- 1. Serum creatine kinase (CK) activity is greatly elevated, at some time during the course of the disease, in all types of muscular dystrophy, and especially so in Duchenne type, in which levels up to 50 times the upper limit of normal may be encountered.
- 2.In progressive muscular dystrophy, enzyme activity in serum is highest in infancy and childhood (7-10 years of age) and may be elevated long before the disease is clinically apparent.
- 3. Quite high values of CK are noted in viral myositis, polymyositis, and similar muscle diseases.
- 4. However, in neurogenic Parkinsonism, serum enzyme activity is normal. Very high activity is also encountered in malignant hyperthermia. Significance:-
- 1.An early rise in CK is also seen after an acute MI, with values peaking at 12 to 24 hours and falling back to normal in 3 to 4 days.
- 2. Although total CK activity has been used as a diagnostic test for MI, it has been replaced by the troponin T and I immunoassays, and is no longer the laboratory test choice for diagnosing and monitoring acute infarctions.
- 3.Serum CK activity may increase in patients with acute cerebrovascular disease or neurosurgical intervention and with cerebral ischemia.
- 4.Serum CK activity also demonstrates an inverse relationship with thyroid activity. About 60% of hypothyroid subjects show an average elevation of CK activity 5-fold over the upper reference limit; elevation of as high as 50-fold may also be found.

Note: Exercise and muscle trauma (contact sports, traffic accidents, intramuscular injections, surgery, convulsions, wasp or bee stings, and burns) can elevate serum creatine kinase values.



DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)





(A Unit of KOS Healthcare)



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

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

NAME : Mrs. SUNITA DUGGAL

AGE/ GENDER : 49 YRS/FEMALE PATIENT ID : 1588679

COLLECTED BY : REG. NO./LAB NO. : 012408230014

 REFERRED BY
 : 23/Aug/2024 09:07 AM

 BARCODE NO.
 : 01515540
 COLLECTION DATE
 : 23/Aug/2024 09:28AM

 CLIENT CODE.
 : KOS DIAGNOSTIC LAB
 REPORTING DATE
 : 23/Aug/2024 11:12AM

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

Test Name Value Unit Biological Reference interval

### **ENDOCRINOLOGY**

#### THYROID FUNCTION TEST: TOTAL

TRIIODOTHYRONINE (T3): SERUM 1.126 ng/mL 0.35 - 1.93

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

THYROXINE (T4): SERUM 8.14 μgm/dL 4.87 - 12.60

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

THYROID STIMULATING HORMONE (TSH): SERUM 2.454 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.

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	



DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)



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



(A Unit of KOS Healthcare)



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

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

NAME : Mrs. SUNITA DUGGAL

AGE/ GENDER : 49 YRS/FEMALE PATIENT ID : 1588679

COLLECTED BY : REG. NO./LAB NO. : 012408230014

 REFERRED BY
 : 23/Aug/2024 09:07 AM

 BARCODE NO.
 : 01515540
 COLLECTION DATE
 : 23/Aug/2024 09:28AM

**CLIENT CODE.** : KOS DIAGNOSTIC LAB **REPORTING DATE** : 23/Aug/2024 11:12AM

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

Test Name			Value	Unit		Biological Reference interval	
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	MMENDATIONS OF TSH L	EVELS DURING PRE	GNANCY ( µIU/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.
- $2. Over \ replacement \ of \ thyroid \ harmone \ in \ treatment \ of \ hypothyroid ism.$
- 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

\*\*\* End Of Report \*\*\*



DR.VINAY CHOPRA
CONSULTANT PATHOLOGIST
MBBS, MD (PATHOLOGY & MICROBIOLOGY)

DR.YUGAM CHOPRA CONSULTANT PATHOLOGIST MBBS , MD (PATHOLOGY)



KOS Central Lab: 6349/1, Nicholson Road, Ambala Cantt -133 001, Haryana KOS Molecular Lab: Ilnd Floor, Parry Hotel, Staff Road, Opp. GPO, Ambala Cantt -133 001, Haryana

0171-2643898, +91 99910 43898 | care@koshealthcare.com | www.koshealthcare.com