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

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



| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. REENA GUPTA** | | |
| **AGE/ GENDER** | : 38 YRS/FEMALE | **PATIENT ID** | : 1581797 |
| **COLLECTED BY** | : SURJESH | **REG. NO./LAB NO.** | **: 012408150029** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 15/Aug/2024 05:04 PM |
| **BARCODE NO.** | : 01515113 | **COLLECTION DATE** | : 15/Aug/2024 05:07PM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 15/Aug/2024 05:17PM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## HAEMATOLOGY

### HAEMOGLOBIN (HB)

| | | | |
|---|---|---|---|
| **HAEMOGLOBIN (HB)**<br>*by CALORIMETRIC* | **11.3L** | **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**

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

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

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

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



| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. REENA GUPTA** | | |
| **AGE/ GENDER** | : 38 YRS/FEMALE | **PATIENT ID** | : 1581797 |
| **COLLECTED BY** | : SURJESH | **REG. NO./LAB NO.** | **: 012408150029** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 15/Aug/2024 05:04 PM |
| **BARCODE NO.** | : 01515113 | **COLLECTION DATE** | : 15/Aug/2024 05:07PM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 15/Aug/2024 06:10PM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## CLINICAL CHEMISTRY/BIOCHEMISTRY

### URIC ACID

| | | | |
|---|---|---|---|
| URIC ACID: SERUM | 4.65 | mg/dL | 2.50 - 6.80 |

*by URICASE - OXIDASE PEROXIDASE*

***INTERPRETATION:-***

1.GOUT occurs when high levels of Uric Acid in the blood cause crystals to form & accumulate around a joint.
2.Uric Acid is the end product of purine metabolism . Uric acid is excreted to a large degree by the kidneys and to a smaller degree in the intestinal tract by microbial degradation.

**INCREASED:-**

**(A).DUE TO INCREASED PRODUCTION:-**

1.Idiopathic primary gout.
2.Excessive dietary purines (organ meats,legumes,anchovies, etc).
3.Cytolytic treatment of malignancies especially leukemais & lymphomas.
4.Polycythemai vera & myeloid metaplasia.
5.Psoriasis.
6.Sickle cell anaemia etc.

**(B).DUE TO DECREASED EXCREATION (BY KIDNEYS)**

1.Alcohol ingestion.
2.Thiazide diuretics.
3.Lactic acidosis.
4.Aspirin ingestion (less than 2 grams per day ).
5.Diabetic ketoacidosis or starvation.
6.Renal failure due to any cause etc.

**DECREASED:-**

**(A).DUE TO DIETARY DEFICIENCY**

1.Dietary deficiency of Zinc, Iron and molybdenum.
2.Fanconi syndrome & Wilsons disease.
3.Multiple sclerosis .
4.Syndrome of inappropriate antidiuretic hormone (SIADH) secretion & low purine diet etc.

**(B).DUE TO INCREASED EXCREATION**

1.Drugs:-Probenecid , sulphinpyrazone, aspirin doses (more than 4 grams per day), corticosterroids and ACTH, anti-coagulants and estrogens etc.

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

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

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

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



| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. REENA GUPTA** | | |
| **AGE/ GENDER** | : 38 YRS/FEMALE | **PATIENT ID** | : 1581797 |
| **COLLECTED BY** | : SURJESH | **REG. NO./LAB NO.** | **: 012408150029** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 15/Aug/2024 05:04 PM |
| **BARCODE NO.** | : 01515113 | **COLLECTION DATE** | : 15/Aug/2024 05:07PM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 15/Aug/2024 06:10PM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## CALCIUM

| | | | |
|---|---|---|---|
| CALCIUM: SERUM | 9.21 | 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)

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

| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. REENA GUPTA** | | |
| **AGE/ GENDER** | : 38 YRS/FEMALE | **PATIENT ID** | : 1581797 |
| **COLLECTED BY** | : SURJESH | **REG. NO./LAB NO.** | **: 012408150029** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 15/Aug/2024 05:04 PM |
| **BARCODE NO.** | : 01515113 | **COLLECTION DATE** | : 15/Aug/2024 05:07PM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 15/Aug/2024 06:29PM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## ENDOCRINOLOGY

### ANTI MULLERIAN HORMONE (AMH) GEN II

| | | | |
|---|---|---|---|
| ANTI MULLERIAN HORMONE (AMH) GEN II: SERUM<br>*by ECLIA (ELECTROCHEMILUMINESCENCE IMMUNOASSAY)* | 0.745 | ng/mL | 0.05 - 11.00 |

***INTERPRETATION:-***

**A Correlation of FERTILITY POTENTIAL and AMH levels are :**

| OVARIAN FERTILITY POTENTIAL | AMH VALUES IN (ng/mL) |
|---|---|
| OPTIMAL FERTILITY: | 4.00 – 6.80 ng/mL |
| SATISFACTORY FERTILITY: | 2.20 – 4.00 ng/mL |
| LOW FERTILITY: | 0.30 – 2.20 ng/mL |
| VERY LOW/UNDETECTABLE: | 0.00 – 0.30 ng/mL |
| HIGH LEVEL: | >6.8 ng/mL (PCOD/GRANULOSA CELL TUMOUR) |

Anti Mullerian Hormone (AMH) is also known as Mullerian Inhibiting Substance provided by sertoli cells of the testis in males and by ovarian granulose cells in females upto antral stage in females.

**IN MALES:**
1.It is used to evaluate testicular presence and function in infants with intersex conditions or ambiguous genitalia, and to distinguish between cryptorchidism and anorchia in males

**IN FEMALES:**
1.During reproductive age, follicular AMH productionbegins during the primary stage, peaks in preantral stage & has influence on follicular sensitivity to FSH which is impoetant in selection for follicular dominance. AMH levels thus represents the pool or number of primordial follicles but not thequality of oocytes.AMH does not vary significantly during menstrual cycle & hence can be measured independently of day of cycle.
2.Polycystic ovarian syndrome can elevate AMH 2 to 5 fold higher than age specific reference range & predict anovulatory, irregular cycles, ovarian tumours like Granulosa cell tumour are often associated with higher AMH levels.
3.Obese women are often associated with diminished ovarian reserve and can have 65% lower mean AMH levels than non-obese women.
4.In females , AMH levels do not change significantly throughout the menstrual cycle and decrease with age.
5.Assess Ovarian Reserve - correlates with the number of antral follicies in the ovaries.
6.Evaluate fertility potential and ovarian response in IVF- Women with low AMG levels are more likely to the poor ovarian responders.
7.Assess the condition of Polycystic Ovary and premature ovarian failure.

A combination of Age, Ultrasound markers-Ovarian Volume and Antral Follicle Count, AMH and FSH levels are useful for optimal assessment of ovarian reserve. Studies in various fertility clinics are ongoing to establish optimal AMH concentretaion for predicting response to invitro fertilization, however,given below is suggested interpretative reference.

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

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

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

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

| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. REENA GUPTA** | | |
| **AGE/ GENDER** | : 38 YRS/FEMALE | **PATIENT ID** | : 1581797 |
| **COLLECTED BY** | : SURJESH | **REG. NO./LAB NO.** | **: 012408150029** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 15/Aug/2024 05:04 PM |
| **BARCODE NO.** | : 01515113 | **COLLECTION DATE** | : 15/Aug/2024 05:07PM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 15/Aug/2024 06:29PM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

| AMH levels (ng/mL) | Suggested patient Categorization for fertility based on AMH for age group (20 to 45 yrs) | Anticipated Antral Follicle counts | Anticipated FSH levels (day 3) | Anticipated Response to IVF/COH cycle |
|---|---|---|---|---|
| Below 0.3 | Very low | Below 4 | Above 20 | Negligible/Poor |
| 0.3 to 2.19 | Low | 4 - 10 | Usually 16 - 20 | Reduced |
| 2.19 t0 4.00 | Satisfactory | 11 - 25 | Within reference range or between 11 - 15 | Safe/Normal |
| Above 4.00 | Optimal | Upto 30 and Above | Within reference range or between 11 – 15 or Above 15 | Possibly Excessive |

**INCREASED:**
1.Polycystic ovarian syndrome (most common)
2. Ovarian Tumour: Granulosa cell tumour

**DECREASED:**
1.Anorchia , Abnormal or absence of testis in males
2.Pseudohermaphroditism
3.Post Menopause

**NOTE**:
1.AMH measurement alone is seldom suffcient for diagnosis and results should be interpreted in the light of clinical finding and other relevant test such as ovarian ultrasonography(In fertility applications); abdominal or testicular ultrasound(intersex or testicular function applications); measurement of sex steroids (estradiol,Progesterone,Testosterone),FSH, Inhibin B (For fertility), and Inhibin A and B (for tumour work up).
*2.Conversion of AMH grom ng/mL to pmol/L can be performed by using equation 1 ng/mL = 7.14 pmol/L*

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

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

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

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



| | | | |
|---|---|---|---|
| **NAME** | **: Mrs. REENA GUPTA** | | |
| **AGE/ GENDER** | : 38 YRS/FEMALE | **PATIENT ID** | : 1581797 |
| **COLLECTED BY** | : SURJESH | **REG. NO./LAB NO.** | **: 012408150029** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 15/Aug/2024 05:04 PM |
| **BARCODE NO.** | : 01515113 | **COLLECTION DATE** | : 15/Aug/2024 05:07PM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 15/Aug/2024 06:29PM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

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

## VITAMINS

### VITAMIN D/25 HYDROXY VITAMIN D3

| | | | |
|---|---|---|---|
| **VITAMIN D (25-HYDROXY VITAMIN D3): SERUM**<br>***by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*** | **26.6[L]** | **ng/mL** | **DEFICIENCY: < 20.0**<br>**INSUFFICIENCY: 20.0 - 30.0**<br>**SUFFICIENCY: 30.0 - 100.0**<br>**TOXICITY: > 100.0** |

***INTERPRETATION:***

| | | |
|---|---|---|
| **DEFICIENT:** | < 20 | ng/mL |
| **INSUFFICIENT:** | 21 - 29 | ng/mL |
| **PREFFERED RANGE:** | 30 - 100 | ng/mL |
| **INTOXICATION:** | > 100 | ng/mL |

1.Vitamin D compounds are derived from dietary ergocalciferol (from plants, Vitamin D2), or cholecalciferol (from animals, Vitamin D3), or by conversion of 7- dihydrocholecalciferol to Vitamin D3 in the skin upon Ultraviolet exposure.
2.25-OH--Vitamin D represents the main body resevoir and transport form of Vitamin D and transport form of Vitamin D, being stored in adipose tissue and tightly bound by a transport protein while in circulation.
3.Vitamin D plays a primary role in the maintenance of calcium homeostatis. It promotes calcium absorption, renal calcium absorption and phosphate reabsorption, skeletal calcium deposition, calcium mobilization, mainly regulated by parathyroid harmone (PTH).
4.Severe deficiency may lead to failure to mineralize newly formed osteoid in bone, resulting in rickets in children and osteomalacia in adults.

**DECREASED:**
1.Lack of sunshine exposure.
2.Inadequate intake, malabsorption (celiac disease)
3.Depressed Hepatic Vitamin D 25- hydroxylase activity
4.Secondary to advanced Liver disease
5.Osteoporosis and Secondary Hyperparathroidism (Mild to Moderate deficiency)
6.Enzyme Inducing drugs: anti-epileptic drugs like phenytoin, phenobarbital and carbamazepine, that increases Vitamin D metabolism.

**INCREASED:**
1. Hypervitaminosis D is Rare, and is seen only after prolonged exposure to extremely high doses of Vitamin D. When it occurs, it can result in severe hypercalcemia and hyperphophatemia.

**CAUTION**: Replacement therapy in deficient individuals must be monitored by periodic assessment of Vitamin D levels in order to prevent hypervitaminosis D

**NOTE**:*-Dark coloured individuals as compare to whites, is at higher risk of developing Vitamin D deficiency due to excess of melanin pigment which interefere with Vitamin D absorption.*

*** End Of Report ***

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

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