**REPORT**

**SWATI ANKUR AGARWAL**
Passport No-Z 2941623
B-20 Trump Tower Kalyani Nagar
Tel No: 919823030980
PID: 11533002

Age:44.30 Years Sex:FEMALE

**Reference:Dr.--**

**SID: 120487081**

Collection Date: 23-02-2021 10:58 AM
Registration Date: 23-02-2021 10:58 am
Report Date: 23-02-2021 07:14 PM

| Complete Blood Count | Result | Biological Reference Interval |
|---|---|---|
| (EDTA Whole Blood) | | |
| **Hemoglobin (Hb), EDTA whole blood** | **10.80** | 12.3 - 15.3 g/dL |
| Method: Photometry | | |
| **Total Leucocytes (WBC) count** | **11,700** | 4000-10000/µL |
| Method : Coulter Principle / Microscopy | | |
| **Platelet count** | **391,000** | 150000 - 450000 /µL |
| Method : Coulter Principle / Microscopy | | |
| **Red blood cell (RBC) count** | **4.48** | 4.10 - 5.10 x 10^6 /µL |
| Method: Coulter Principle | | |
| **PCV (Packed Cell Volume)** | **34.10** | 35.9 - 44.6 % |
| Method: Calculated | | |
| **MCV (Mean Corpuscular Volume)** | **76.20** | 80.0 - 96.0 fL |
| Method: Derived from RBC histogram | | |
| **MCH (Mean Corpuscular Hb)** | **24.00** | 27.5 - 33.2 pgms |
| Method: Calculated | | |
| **MCHC (Mean Corpuscular Hb Conc.)** | **31.50** | 33.4 - 35.5 g/dL |
| Method: Calculated | | |
| **RDW (RBC distribution width)** | **16.30** | 11.6 - 14.6 % |
| Method: Derived from RBC Histogram | | |
| **WBC Differential Count** | | |
| Method: VCSn / Microscopy / Calculated | | |
| **Neutrophils** | **65** | 40 - 80 % |
| **Absolute Neutrophils** | **7,605** | 2000 - 7000 /µL |
| **Eosinophils** | **10** | 1 - 6 % |
| **Absolute Eosinophils** | **1,170** | 20 - 500 /µL |
| **Basophils** | **0** | 0 - 2 % |
| **Absolute Basophils** | **0** | 0 - 100 /µL |
| **Lymphocytes** | **20** | 20 - 40 % |
| **Absolute Lymphocytes** | **2,340** | 1000 - 3000 /µL |
| **Monocytes** | **5** | 2 - 10 % |
| **Absolute Monocytes** | **585** | 200 - 1000 /µL |
| **-** | **#*-** | |



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**Complete Blood Count Findings**

| | | |
|---|---|---|
| R.B.C. | : | **Mild hypochromia, mild anisocytosis.** |
| W.B.C. | : | **Mild eosinophilia** |
| Platelets | : | **Adequate** |
| **Remark** | **:** | **SUGGESTED CLINICAL CORRELATION, IRON, B12, FOLIC ACID SUPPLEMENT & FOLLOW UP.** |

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| Test Description | Observed | Biological Reference Interval |
|---|---|---|
| **Liver Function Test :** | | |
| Bilirubin-Total, serum by Diazo method | **0.63** | 0.10 - 1.20 mg/dL<br>Neonates : Upto 15.0 mg/dL |
| Bilirubin-Conjugated, serum by Diazo method | **0.24** | Upto 0.5 mg/dL |
| Bilirubin-Unconjugated, serum by calculation | **0.39** | 0.1 to 1.0 mg/dL |
| SGOT (AST), serum by Enzymatic method | **15** | >or= 14 years : 8 - 43 U/Lt |
| SGPT (ALT), serum by Enzymatic Method | **11** | 7 to 45 U/Lt |
| Alkaline Phosphatase,serum by pNPP-kinetic | **78** | Adult Female : (Unit : U/Lt.).<br>15 - < 17 years : 50 - 117<br>> or =17 years: 35 - 104 |
| Protein (total), serum by Biuret method | **6.90** | 6.4 to 8.2 g/dL |
| Albumin, serum by Bromocresol purple method | **3.95** | 3.4 to 5.0 g/dL |
| Globulin, serum by calculation | **2.95** | 2.3 - 3.5 g/dL |

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|---|---|---|
| **TEST NAME** | | |
| Glycated Hemoglobin (HbA1C), by HPLC | **6.00** | 4.0 to 5.6 % |

**Interpretation :**
HbA1C level reflects the mean glucose concentration over previous 8-12 weeks and provides better indication of long term glycemic control.

**For diagnosis of Diabetes Mellitus (>/= 18 yrs of age) :**
5.7 % - 6.4 % : Increased risk for developing diabetes.
>/= 6.5 % : Diabetes

**Therapeutic goals for glycemic control :**
Adults : < 7%
Toddlers and Preschoolers : < 8.5% (but > 7.5 %)
School age (6-12 yrs) : < 8%
Adolescents and young adults (13 - 19 yrs) : < 7.5 %

Levels of HbA1C may be low as result of shortened RBC life span in case of hemolytic anemia.
Increased HbA1C values may be found in patients with polycythemia or post splenectomy patients.
Patients with Homozygous forms of rare variant Hb(CC,SS,EE,SC) HbA1c can not be quantitated as there is no HbA. In such circumstances glycemic control can be monitored using plasma glucose levels or serum Fructosamine.

The A1c target should be individualized based on numerous factors, such as age, life expectancy, comorbid conditions, duration of diabetes, risk of hypoglycemia or adverse consequences from hypoglycemia, patient motivation and adherence.

Ref : ADA (Standards of Medical Care in Diabetes - 2017)



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| Test Description | Observed Value | Biological Reference Interval |
|---|---|---|
| **Clinical Chemistry :** | | |
| Urea, serum by GLDH-urease | **20** | 17 to 49 mg/dL |
| Uric Acid, serum by Uricase method | **4.40** | Female : 2.60 to 6.00 mg/dL |

** Uric acid is useful for 1. Diagnosis and follow up of renal failure. 2. Monitoring patients receiving cytotoxic drugs and a variety of other disorders, including gout, leukemia, psoriasis, starvation and other wasting conditions . * Increased uric acid is seen in following conditions :*
*1. Increased purine synthesis 2. Inherited metabolic disorders 3. Excess dietary purine intake 4. Increased nucleic acid turnover 5. Malignancy, cytotoxic drugs 6. Decreased urinary excretion (due to CRF) 7. Increased renal reabsorption .*
** Uric acid is decreased in : 1. Hepatocellular disease with reduced purine synthesis 2. Defective renal reabsorption 3. Overtreatment of uricemia (allopurinol or cancer therpies like 6-mercaptopurine, etc).*



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|---|---|---|
| **Clinical Chemistry :** | | |
| Creatinine, serum by Jaffe w/o deproteinization | **0.68** | 0.6 to 1.2 mg/dL |
| **Hormones** | | |
| T3 (Total), serum by CMIA | **1.06** | 0.64 to 1.52 ng/ml |
| T4 (Total), serum by CMIA | **8.98** | 4.87 to 11.72 µg/dL |
| TSH(Ultrasensitive), serum by CMIA | **0.92** | For non pregnant female : 0.40 - 4.00 µIU/mL<br>For pregnant female :<br>1st trimester : 0.1 - 2.5 µIU/mL<br>2nd trimester : 0.2 - 3.0 µIU/mL<br>3rd trimester : 0.3 - 3.0 µIU/mL<br>Ref : American Thyroid Association guidelines 2017 |



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| Test Description | Observed Value | Biological Reference Interval |
|---|---|---|
| **TEST NAME** | | |
| Vitamin B12, serum by CMIA | **185.0** | 187 - 883 pg/mL |

Interpretation :

1. Vitamin B12 (cobalamin) is necessary for hematopoiesis and normal neuronal function.

2. Vitamin B12 is decreased in

| Decreased Serum B12 |
|---|
| Pregnancy |
| Contraceptive hormones |
| Malabsorption |
| Ethanol ingestion |
| Smoking |
| Strict vegan diet |
| Pernicious anemia |

3. Serum methylmalonic acid and homocysteine levels are also elevated in vitamin B12 deficiency states. Active B12 ( Holotranscobalamin) is low in Vitamin B12 deficiency.

4. Please correlate in case of patients taking vitamin B12 supplementation.



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| Test Description | Observed value | Biological Reference Interval |
|---|---|---|
| **HOMA Index Insulin Resistance Test** | | |
| Plasma glucose, random by Hexokinase method | **156** | < 200 mg/dL<br>American Diabetes Association Guidelines 2020 |
| Insulin Random, serum by CMIA | **73.10** | Fasting : 2.6 to 25 µU/mL<br>Peak upto 150 µU/mL |
| HOMA IR Index | **28.16** | > 2.5 indicates insulin resistance |

**Interpretation**

1. As, the direct measurement of the insulin effect on the blood sugar concentration is not possible other indices are used for determining an insulin resistance.
2. One of the most common indices is the HOMA index (Homeostasis Model Assessment), which is calculated according to the following formula:
   HOMA index = fasting insulin (µU/ml) X fasting blood sugar (mg/dl) /405
3. Indications :
   * Adiposis (BMI > 28 kg/m²)
   * Suspected insulin resistance (metabolic syndrome, diabetes mellitus type 2)
   * Suspected polycystic ovary syndrome
   * Cycle disturbances (e. g. amenorrhea)
   * Infertility
4. Reference ranges :
   > 2.0 indication for insulin resistance
   > 2.5 insulin resistance probable
   > 5.0 average value in patients with diabetes mellitus type 2

Reference : https://www.bioscientia.de/en/files/2011/10/Marker



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| Test Description | Observed Value | Biological Reference Interval |
|---|---|---|
| **TEST NAME** | | |
| 25 - OH Vitamin D, serum by CMIA | **14.30** | Severe deficiency : < 10 ng/mL<br>Mild to moderate deficiency : 10 to 19 ng/mL<br>Optimum levels : 20 to 50 ng/mL<br>Increased risk of hypercalciuria: 51 to 80 ng/mL<br>Toxicity possible : > 80 ng/mL<br>Ref. : Mayo Medical Laboratories<br>These reference ranges represent clinical decision values, based on the 2011 Institute of Medicine report |

**Interpretation :**

Vitamin D is vital for strong bones. It also has important, emerging roles in immune function and cancer prevention.

Vitamin D compounds in the body are exogenously derived by dietary means; from plants as 25-hydroxyvitamin D2 (ergocalciferol or calciferol) or from animal products as 25-hydroxyvitamin D3 (cholecalciferol or calcidiol).

Vitamin D may also be endogenously derived by conversion of 7-dihydrocholesterol to 25-hydroxyvitamin D3 in the skin upon ultraviolet exposure.

The total 25-hydroxyvitamin D (25-OH-VitD) level (the sum of 25-OH-vitamin D2 and 25-OH-vitamin D3) is the appropriate indicator of vitamin D body stores.

Patients with renal failure can have very high 25-OH-VitD levels without any signs of toxicity, as renal conversion to the active hormone 1,25-OH-VitD is impaired or absent.

Kindly corelate clinically, with supplementation history & repeat with fresh sample if necessary.



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| Test Description | Observed Value | Biological Reference Interval |
|---|---|---|
| CRP(hs) - C- Reactive Protein high sensitivity | **9.84** | See clinical information below .<br>Method : Nephelometry / Immunoturbidimetry |

Clinical Information :

1. C-reactive protein (CRP) is a biomarker of inflammation. Plasma CRP concentrations increase rapidly and dramatically (100-fold or more) in response to tissue injury or inflammation.

2. High-sensitivity CRP (hs-CRP) is more precise than standard CRP when measuring baseline (i.e. normal) concentrations and enables a measure of chronic inflammation. It is recommended for cardiovascular risk assessment. Atherosclerosis is an inflammatory disease and hs-CRP has been endorsed by multiple guidelines as a biomarker of atherosclerotic cardiovascular disease risk.

Low cardiovascular risk : < 2.0 mg/L
High cardiovascular risk : >/= 2.0 mg/L
Acute inflammation : > 10.0 mg/L

3. A single test for high-sensitivity CRP (hs-CRP) may not reflect an individual patient's basal hs-CRP level. Repeat measurement may be required to firmly establish an individual's basal hs-CRP concentration. The lowest of the measurements should be used as the predictive value.

Reference : Mayo Medical Laboratories

End of Report

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