

240378105791999

Mr. ISHAAN GOSAIN

PID NO: P41524532193229
Age: 18 Year(s) Sex: Male

Reference: SELF

Sample Collected At:
KHURANA DIAGNOSTICS
B1/43, MALKA GANJ, DELHI-110007 PH-
23851055, 23858042 INDIA NEW
Zone: DARYA GANJ Processing
Location:- 530/1 Ground floor, Block C,
Sector-8, Rohini, New Delhi-110085

VID: 240378105791999

Registered On:

14/09/2024 12:57 PM

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Reported On:

14/09/2024 06:16 PM

Haemogram

Investigation	Observed Value	Unit	Biological Reference Interval
<u>Erythrocytes</u>			
Erythrocyte (RBC) Count	<u>6.17</u>	mill/cu.mm	4.7-6.0
Haemoglobin (Hb)	14.8	g/dL	13.5-18
HCT(Hematocrit)	44.7	%	42-52
MCV (Mean Corpuscular Volume)	<u>72.5</u>	fL	78-100
MCH (Mean Corpuscular Hb)	<u>24.1</u>	pg	27-31
MCHC (Mean Corpuscular Hb Concn.)	33.2	g/dL	32-36
RDW (Red Cell Distribution Width)	<u>15.5</u>	CV%	11.5-14.0
<u>Leucocytes</u>			
Total Leucocytes (WBC) count	5240	cells/cu.mm	4300-10300
Absolute Neutrophils Count	2620	/c.mm	2000-7000
Absolute Lymphocyte Count	2201	/c.mm	1000-3000
Absolute Monocyte Count	314	/c.mm	200-1000
Absolute Eosinophils Count	105	/c.mm	20-500
Absolute Basophils Count	<u>0</u>	/c.mm	20-100
Neutrophils	<u>50</u>	%	40-80
Lymphocytes	<u>42</u>	%	20-40
Monocytes	6	%	2.0-10
Eosinophils	2	%	1-6
Basophils	0	%	0-2
<u>Platelets</u>			
Platelet count	192	$10^3 / \mu\text{l}$	150-450
MPV (Mean Platelet Volume)	<u>9.9</u>	fL	6-9.5
PCT (Platelet Haematocrit)	<u>0.190</u>	%	0.2-0.5
PDW (Platelet Distribution Width)	13.9	%	9-17

EDTA Whole Blood : Test is done on Automated Five Part Cell Counter. Hemoglobin is measured by Spectrophotometry method. WBC, RBC and Platelet Count are measured by Coulter Principle (Impedance Method). WBC Differential is done by VCS Method. MCV and RDW are derived from RBC histogram. MPV and PDW are derived from Platelet histogram. Calculated Parameters are: HCT, MCH, MCHC, PCT and Absolute WBC counts. All abnormal hemogram are reviewed and confirmed microscopically. Differential count is based on approximately 10,000 cells.

Dr. Shimi Pahuja
M.D (Pathology)

INNER HEALTH REVEALED

This is computer generated medical diagnostics report that has been validated by an Authorized Medical Practitioner/Doctor. The report does not need physical signature. Results relate only to the sample as received. Refer to conditions of reporting overleaf.



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Investigation**Observed Value****Unit****Biological Reference Interval****METHEALTH****ESR - Erythrocyte Sedimentation Rate**

(EDTA Whole Blood, WESTERGREN)

1

mm/hr

<= 14

Method: Westergren**Interpretation:**

- It indicates presence and intensity of an inflammatory process, never diagnostic of a specific disease. Changes are more significant than a single abnormal test.
- It is a prognostic test and used to monitor the course or response to treatment of diseases like tuberculosis, bacterial endocarditis, acute rheumatic fever, rheumatoid arthritis, SLE, Hodgkins disease, temporal arteritis, polymyalgia rheumatica.
- It is also increased in pregnancy, multiple myeloma, menstruation, and hypothyroidism.

Glucose fasting

(Plasma-F, GOD-POD)

91

mg/dL

Normal: 70-99

Impaired Tolerance: 100-125

Diabetes mellitus: >= 126

(on more than one occasion)

(American diabetes association guidelines 2022)



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(Serum,CHOD-POD)

160

mg/dL

Desirable: < 200
Borderline High: 200-239
High: >= 240**Triglycerides level**
(Serum,GPO)

103

mg/dL

Normal: < 150
Borderline High: 150-199
High: 200-499
Very High: >= 500**HDL Cholesterol**
(Serum,CHOD-PAP)

41

mg/dL

Major risk factor for heart
disease: <= 40
Negative risk factor for heart
disease: >= 60**Non HDL Cholesterol**
(Serum,Calculated)

119.0

mg/dL

Optimal: < 130
Desirable: 130-159
Borderline high: 159-189
High: 189-220
Very High: >= 220**LDL Cholesterol**
(Serum,Calculated)

98.4

mg/dL

Optimal: < 100
Near Optimal: 100-129
Borderline high: 130-159
High: 160-189
Very High: >= 190**VLDL Cholesterol**
(Serum,Calculated)

20.6

mg/dL

< 30

LDL/HDL RATIO
(Serum,Calculated)2.4

2.5-3.5

CHOL/HDL RATIO
(Serum,Calculated)

3.9

3.5-5

Note: Reference Interval as per National Cholesterol Education Program (NCEP) Adult Treatment Panel III Report.



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(Serum,BCG)

4.4

g/dL

3.4-4.9

Globulin

(Serum,Calculated)

2.10

g/dL

1.8-3.6

A/G Ratio

(Serum,Calculated)

2.1

1.1-2.2

Calcium

(Serum,ARSENASO III)

8.4

mg/dL

8.4-10.2

Phosphorous

(Serum,UV PHOSPHOMOLYBDATE)

3.27

mg/dL

2.3-4.7



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Investigation

25 Hydroxy (OH) Vit D
 (Serum, CLIA)

Observed Value

16.63

Unit

ng/mL

Biological Reference Interval

Deficiency: < 10

Insufficiency: 10-30

Sufficiency: 30-100

Hypervitaminosis: > 100

Interpretation :

1. Vitamin D is a fat soluble vitamin and exists in two main forms as cholecalciferol(vitamin D3) which is synthesized in skin from 7-dehydrocholesterol in response to sunlight exposure & Ergocalciferol(vitamin D2) present mainly in dietary sources. Both cholecalciferol & Ergocalciferol are converted to 25(OH)vitamin D in liver.
2. Testing for 25(OH)vitamin D is recommended as it is the best indicator of vitamin D nutritional status as obtained from sunlight exposure & dietary intake. For diagnosis of vitamin D deficiency it is recommended to have clinical correlation with serum 25(OH)vitamin D, serum calcium, serum PTH & serum alkaline phosphatase.
3. During monitoring of oral vitamin D therapy- suggested testing of serum 25(OH)vitamin D is after 12 weeks or 3 mths of treatment. However, the required dosage of vitamin D supplements & time to achieve sufficient vitamin D levels show significant seasonal(especially winter) & individual variability depending on age, body fat, sun exposure, physical activity ,genetic factors(especially variable vitamin D receptor responses), associated liver or renal disease, malabsorption syndromes and calcium or magnesium deficiency influencing the vitamin D metabolism Vitamin D toxicity is known but very rare.kindly correlate clinically, repeat with fresh sample if indicated.

Abbreviation :

CLIA : Chemiluminescence Immunoassay

Associated Test Profile :

- For diagnosis of vitamin D deficiency it is recommended to have clinical correlation with serum 25(OH)vitamin D and serum PTH. An inverse relationship exists between PTH and 25(OH)D levels, Parathyroid hormone levels start to rise at 25(OH)D levels below 31 ng/mL & usually decrease after the correction of vitamin D insufficiency. Thus, restoration of PTH and 25(OH)D levels to normalcy after adequate vitamin D replacement therapy is a useful monitoring strategy.
- As a holistic & scientific approach for diagnosis and optimal treatment for vitamin D deficiency, Vitamin D plus profile (25 Hydroxy(OH) Vit D and PTH) is suggested.



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Investigation

Vitamin B12 level
 (Serum, CLIA)

Observed Value

287.7

Unit

pg/mL

Biological Reference Interval

197-771

Interpretation :

1. Vit B12 levels are decreased in megaloblastic anemia, partial/total gastrectomy, pernicious anemia, peripheral neuropathies, chronic alcoholism, senile dementia, and treated epilepsy.
2. An associated increase in homocysteine levels is an independent risk marker for cardiovascular disease and deep vein thrombosis.
3. HoloTranscobalamin II levels are a more accurate marker of active VitB12 component.

Abbreviation :

CLIA : Chemiluminescence Immunoassay



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Investigation**Observed Value****Unit****Biological Reference Interval****METHEALTH****Thyroid panel - 2**

(Serum, CLIA)

Free T3	3.57	pg/mL	2.56-5.01
Free T4	1.50	ng/dL	0.98-1.63
TSH(Ultrasensitive)	1.33	μIU/mL	0.51-4.3

INTERPRETATION

TSH	T3 / FT3	T4 / FT4	Suggested Interpretation for the Thyroid Function Tests Pattern
Within Range	Decreased	Within Range	• Isolated Low T3-often seen in elderly & associated Non-Thyroidal illness. In elderly the drop in T3 level can be upto 25%.
Raised	Within Range	Within Range	•Isolated High TSHespecially in the range of 4.7 to 15 mIU/ml is commonly associated with Physiological & Biological TSH Variability. •Subclinical Autoimmune Hypothyroidism •Intermittent T4 therapy for hypothyroidism •Recovery phase after Non-Thyroidal illness"
Raised	Decreased	Decreased	•Chronic Autoimmune Thyroiditis •Post thyroidectomy, Post radioiodine •Hypothyroid phase of transient thyroiditis"
Raised or within Range	Raised	Raised or within Range	•Interfering antibodies to thyroid hormones (anti-TPO antibodies) •Intermittent T4 therapy or T4 overdose •Drug interference- Amiodarone, Heparin,Beta blockers,steroids, anti-epileptics"
Decreased	Raised or within Range	Raised or within Range	•Isolated Low TSH -especially in the range of 0.1 to 0.4 often seen in elderly & associated with Non-Thyroidal illness •Subclinical Hyperthyroidism •Thyroxine ingestion"
Decreased	Decreased	Decreased	•Central Hypothyroidism •Non-Thyroidal illness •Recent treatment for Hyperthyroidism (TSH remains suppressed)"
Decreased	Raised	Raised	•Primary Hyperthyroidism (Graves' disease),Multinodular goitre, Toxic nodule •Transient thyroiditis:Postpartum, Silent (lymphocytic), Postviral (granulomatous,subacute, DeQuervain's),Gestational thyrotoxicosis with hyperemesis gravidarum"
Decreased or within Range	Raised	Within Range	•T3 toxicosis •Non-Thyroidal illness

References: 1. Interpretation of thyroid function tests. Dayan et al. THE LANCET • Vol 357 • February 24, 2001
 2. Laboratory Evaluation of Thyroid Function, Indian Thyroid Guidelines, JAPI, January 2011, vol. 59

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110044

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Investigation**Observed Value****Unit****Biological Reference Interval****Microalbumin / Creatinine Ratio Spot****Microalbumin**

(Urine, Immuno Turbidimetry)

3.90

mg/L

Creatinine, Urine

(Urine, Modified Jaffe)

196

mg/dL

Microalb/Creatinine Ratio in Spot Urine

(Urine)

1.99

Normal : < 30.0 mg albumin/g creatinine

Microalbuminuria : 30 - 300

Clinical Albuminuria : > 300

Interpretation :

- Factors that may cause an abnormal Microalbumin Creatinine ratio (independant of kidney damage) can be physiological like exercise within 24 hours, menstruation, pregnancy, benign postural proteinuria, water consumption & pathological like infection (UTI), hematuria, fever, marked hyperglycemia, cardiac decompensation, marked hypertension & poor metabolic control.
- A randomly collected urine sample can be used, but is associated with greater variability because of variable urine output & albumin & creatinine excretion. Hence, it is recommended that abnormal results be repeated using first morning sample.
- As per ADA guidelines, 2020: Two to three specimens collected over a period of 3 - 6 months should be abnormal before considering a patient to have albuminuria.
- A high albumin/ creatinine ratio in persons with low muscle mass indicates low urinary creatinine more often than microalbuminuria.



Tests marked with NABL symbol are accredited by NABL vide Certificate no MC-2676; Validity till 04-04-2026



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HbA1c- Glycated Haemoglobin, blood by HPLC method

(EDTA Whole Blood)

<u>Investigation</u>	<u>Observed Value</u>	<u>Unit</u>	<u>Biological Reference Interval</u>
HbA1C- Glycated Haemoglobin (HPLC)	5.3	%	Non-diabetic: <= 5.6 Pre-diabetic: 5.7-6.4 Diabetic: >= 6.5
Estimated Average Glucose (eAG) (Calculated)	105.41	mg/dL	

Interpretation & Remark:

1. HbA1c is used for monitoring diabetic control. It reflects the estimated average glucose (eAG).
2. HbA1c has been endorsed by clinical groups & ADA (American Diabetes Association) guidelines 2022, for diagnosis of diabetes using a cut-off point of 6.5%.
3. Trends in HbA1c are a better indicator of diabetic control than a solitary test.
4. Low glycated haemoglobin(below 4%) in a non-diabetic individual are often associated with systemic inflammatory diseases, chronic anaemia(especially severe iron deficiency & haemolytic), chronic renal failure and liver diseases. Clinical correlation suggested.
5. To estimate the eAG from the HbA1C value, the following equation is used: eAG(mg/dl) = 28.7*A1c-46.7
6. Interference of Haemoglobinopathies in HbA1c estimation.
 - A. For HbF > 25%, an alternate platform (Fructosamine) is recommended for testing of HbA1c.
 - B. Homozygous hemoglobinopathy is detected, fructosamine is recommended for monitoring diabetic status
 - C. Heterozygous state detected (D10/ turbo is corrected for HbS and HbC trait).
7. In known diabetic patients, following values can be considered as a tool for monitoring the glycemic control. Excellent Control - 6 to 7 %, Fair to Good Control - 7 to 8 %, Unsatisfactory Control - 8 to 10 % and Poor Control - More than 10 % .

Note : Hemoglobin electrophoresis (HPLC method) is recommended for detecting hemoglobinopathy.

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InvestigationObserved ValueUnitBiological Reference Interval**METHEALTH****Iron Studies, Serum**

(Serum)

Iron
(FerroZine)

136.4

µg/dL

33-193

TIBC (Total Iron Binding Capacity)
(Calculated)

302

µg/dL

250-450

UIBC (Unsaturated Iron Binding Capacity)
(FerroZine)

165.4

µg/dL

125-345

Transferin Saturation
(Calculated)

45

%

14-50

Interpretation :

- Measurements of serum iron, TIBC and the percentage of iron saturation of transferrin are useful screening tests for iron deficiency anaemia.
- However, serum iron exhibits significant diurnal variation and may transiently rise or reach reference values after dietary or iron supplements & post blood transfusion.
- The diagnostic specificity of a low serum iron for iron deficiency is lost in the presence of acute & chronic inflammatory processes as the concentrations of iron and transferrin in the serum are significantly affected, and fall rapidly as part of the acute phase response irrespective of the iron stores status in the body.
- Hence, Concurrent measurement of the markers mentioned in the below interpretative table alongwith serum iron studies improves the diagnostic specificity for iron deficiency anaemia & also provides a reliable work up for microcytic hypochromic anaemia.

Tests	Iron Deficiency anaemia	Anaemia of Chronic disease	Iron overload	Hemoglobinopathy (Especially Trait)
Serum Iron	Decreased	Decreased	Increased	Normal
Serum Total Iron Binding Capacity	Increased	Decreased or Normal	Increased or Normal	Normal
% Transferrin Saturation	Decreased	Decreased or Normal	Increased or Normal	Normal
Serum Ferritin	Decreased	Increased	Increased or Normal	Normal
Serum Soluble Transferrin receptor	Increased	Normal	Decreased	Normal
Serum Hepcidin	Normal	Increased	Normal	Normal

Associated Tests :

- Serum Soluble Transferrin receptor
- Serum Hepcidin

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ROUTINE EXAMINATION URINE

Investigation	Observed Value	Unit	Biological Reference Interval
METHEALTH			
General Examination			
Colour	Pale Yellow		Pale Yellow
Transparency (Appearance)	Clear		Clear
Reaction (pH)	6.0		4.5-7.0
Specific gravity	1.025		1.005-1.030
Chemical Examination			
Urine Protein (Albumin)	Absent		Absent
Urine Ketones (Acetone)	Absent		Absent
Urine Glucose (sugar)	Absent		Absent
Bile pigments	Absent		Absent
Bile salts	Absent		Absent
Urobilinogen	Normal		Normal
Nitrite	Negative		Negative
Microscopic Examination			
Red blood cells	Nil	/hpF	0-4
Pus cells (WBCs)	1-2	/hpF	0-9
Epithelial cells	1-2	/hpF	0-4
Crystals	Absent		Absent
Cast	Absent		Absent
Bacteria	Absent		Absent
Trichomonas Vaginalis	Absent		Absent
Yeast cells	Absent		Absent

Note : 1. Chemical examination through Dipstick includes test methods as Protein (Protein Error Principle), Glucose (Glucose oxidase-Peroxidase), Ketone (Legals Test), Bilirubin (Azo-Diazo reaction), Urobilinogen (Diazonium ion Reaction) Nitrite (Griess Method). Abnormal results of chemical examination are confirmed by manual methods. 2. Negative nitrite test does not exclude the urinary tract infections. Trace proteinuria can be seen with many physiological conditions like prolonged recumbency, exercise, high protein diet. False positive reactions for bile pigments, proteins, glucose and nitrites can be caused by peroxidase like activity by disinfectants, therapeutic dyes, ascorbic acid and certain drugs. 3. Pre-test conditions : Void first urine, collect mid-stream urine in clean sterile container to avoid contamination with perineal, vaginal or urethral discharge.

-- End of Report --

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