Mrs. KAMLESH GOSWAMI

PID NO: P542000107014
Age: 63.0 Year(s) Sex: Female

Reference:

Sample Collected At:
PATODIA DIAGNOSTICS CENTRE
H- 8 MANASAROVER PARK SHAHDARA-32 PH-9810207255 NEW
Zone: TRANS HINDEN110032

VID: 54203150092687
Registered On:
30/09/2020 02:37 PM
Collected On:
30/09/2020 2:37PM
Reported On:
01/10/2020 06:38 AM

Haemogram

Investigation	Observed Value	Unit	Biological Reference Interval
Erythrocytes			
Erythrocyte (RBC) Count	4.61	mill/cu.mm	4.2-5.4
Haemoglobin (Hb)	12.5	gm/dL	12.5-16
HCT(Hematocrit)	37.9	%	37-47
MCV (Mean Corpuscular Volume)	82.1	fL	78-100
MCH (Mean Corpuscular Hb)	27.1	pg	27-31
MCHC (Mean Corpuscular Hb Concn.)	33.0	g/dL	32-36
RDW (Red Cell Distribution Width)	**16.8**	CV%	11.5-14.0
Leucocytes			
Total Leucocytes (WBC) count	8000	cells/cu.mm	4000-10500
Absolute Neutrophils Count	5040	/c.mm	2000-7000
Absolute Lymphocyte Count	2240	/c.mm	1000-3000
Absolute Monocyte Count	480	/c.mm	200-1000
Absolute Eosinophils Count	160	/c.mm	20-500
Absolute Basophils Count	80	/c.mm	20-100
Neutrophils	63	%	40-80
Lymphocytes	28	%	20-40
Monocytes	6	%	2.0-10
Eosinophils	2	%	1-6
Basophils	1	%	0-2
Platelets			
Platelet count	153	10^3 / µl	150-450
MPV (Mean Platelet Volume)	**10.8**	fL	6-9.5
PCT (Platelet Haematocrit)	**0.14**	%	0.2-0.5
PDW (Platelet Distribution Width)	**17.8**	%	9-17

EDTA Whole Blood : Test is done on Automated Five Part Cell Counter. Hemoglobin is measured by Photometric 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. Reema Agrawal
MD (Pathology)

Mrs. KAMLESH GOSWAMI PID NO: P542000107014 Age: 63.0 Year(s) Sex: Female	**Reference:** Sample Collected At: PATODIA DIAGNOSTICS CENTRE H- 8 MANASAROVER PARK SHAHDARA-32 PH-9810207255 NEW **Zone: TRANS HINDEN110032**	**VID: 54203150092687** Registered On: 30/09/2020 02:37 PM Collected On: 30/09/2020 2:37PM Reported On: 01/10/2020 06:38 AM

HbA1c Glycated Haemoglobin

(EDTA Whole Blood)

Investigation	Observed Value	Unit	Biological Reference Interval
HbA1C- Glycated Haemoglobin (HPLC)	**7.3**	%	Non-diabetic: <= 5.6 Pre-diabetic: 5.7-6.4 Diabetic: >= 6.5
Estimated Average Glucose (eAG)	162.81	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 2020, 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.

Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
METHEALTH			
ESR - Erythrocyte Sedimentation Rate (EDTA Whole Blood)	**60**	mm/hr	<= 20

Method: Automated, based on Westergren Method

Interpretation:

1. It indicates presence and intensity of an inflammatory process, never diagnostic of a specific disease. Changes are more significant than a single abnormal test.
2. 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.
3. It is also increased in pregnancy, multiple myeloma, menstruation, and hypothyroidism.

Glucose fasting (Fluoride Plasma-F,Hexokinase)	**114**	mg/dL	Normal: 70-99 Impaired Tolerance: 100-125 Diabetes mellitus: >= 126 (on more than one occasion) (American diabetes association guidelines 2018)

Reema

Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
Lipid Profle-Mini			
Cholesterol (Total)* (Serum,Cholesterol Oxidase- Peroxidase)	185	mg/dL	Desirable: < 200 Borderline High: 200-239 High: >= 240
Triglycerides level (Serum,Glycerol Phosphate Oxidase)	**182**	mg/dL	Normal: < 150 Borderline High: 150-199 High: 200-499 Very High: >= 500
Non HDL Cholesterol (Serum,Calculated)	**153.0**	mg/dL	Optimal: < 130 Desirable: 130-159 Borderline high: 159-189 High: 189-220 Very High: >= 220
HDL Cholesterol (Serum,Accelerator Selective Detergent)	**32**	mg/dL	Major risk factor for heart disease: <= 40 Negative risk factor for heart disease: >= 60
LDL Cholesterol (Serum,Calculated)	**116.6**	mg/dL	Optimal: < 100 Near Optimal: 100-129 Borderline high: 130-159 High: 160-189 Very High: >= 190
VLDL Cholesterol (Serum,Calculated)	**36.4**	mg/dL	< 30
LDL/HDL RATIO (Serum,Calculated)	**3.64**		2.5-3.5
CHOL/HDL RATIO (Serum,Calculated)	5.78		3.5-5

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

Reema
Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
Liver Function Test(LFT)			
SGOT (AST) (Serum,NADH without P5P)	23	U/L	0-31
SGPT (ALT) (Serum,NADH without P5P)	26	U/L	0-34
Alkaline Phosphatase* (Serum,para-Nitrophenyl-phosphate)	90	U/L	35-104 Note : Change in reference range
Gamma GT (GGTP) (Serum,L-Gamma-glutamyl-3-carboxy -4 - nitroanalyte substrate, IFCC)	22	U/L	9-36
BilirubinTotal, Direct, IndirectSerum			
Bilirubin-Total (Serum,Diazotized Sulfanilic Acid (Modified Jendrassik & Grof))	0.66	mg/dL	0.2-1.2
Bilirubin-Direct (Serum,Diazotized Sulfanilic Acid (Modified Jendrassik & Grof))	0.30	mg/dL	0.0-0.5
Bilirubin- Indirect (Serum,Calculated)	0.36	mg/dL	0.1-1.0
Proteins			
Total Protein (Serum,Biuret)	7.9	g/dL	6.2-8.1
Albumin (Serum,Bromocresol green)	4.3	g/dL	3.2-4.6
Globulin (Serum,Calculated)	3.60	g/dL	1.8-3.6
A/G Ratio (Serum,Calculated)	1.19		1.1-2.2
Calcium (Serum,Arsenazo III dye)	9.0	mg/dL	8.4-10.2
Microalbumin / Creatinine Ratio Spot			
Microalbumin (Spot Urine,PETINIA)	72.6	mg/L	
Creatinine, Urine (Spot Urine,Modified Jaffe)	245.0	mg/dL	
Microalb/Creatinine Ratio in Spot Urine (Spot Urine)	29.63		Normal : < 30.0 mg albumin/g creatinine Microalbuminuria : 30 - 300 Clinical Albuminuria : > 300

Reema

Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval

Interpretation :

1. 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.
2. 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.
3. 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.
4. A high albumin/ creatinine ratio in persons with low muscle mass indicates low urinary creatinine more often than microalbuminuria.

Abbreviation :
PETINIA : Particle Enhanced Turbidimetric Inhibition Immunoassay.

Creatinine* (Serum,Modified Jaffe)	0.70	mg/dL	0.60-1.10 Note : Change in Reference range
BUN-Blood Urea Nitrogen* (Serum,Urease)	10.5	mg/dL	8-23 Note : Change in Reference range

Remark: In blood, Urea is usually reported as BUN and expressed in mg/dl. BUN mass units can be converted to urea mass units by multiplying by 2.14.

Electrolytes
(Serum,Ion selective electrode, indirect)

Sodium	144	mEq/L	136-145
Potassium	**3.3**	mEq/L	3.5-5.1
Medical Remarks: Correlate clinically.			
Chlorides	104	mEq/L	98-107
Uric Acid (Serum,Uricase)	5.3	mg/dL	2.6-6

Reema
Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
25 Hydroxy (OH) Vit D (Serum,CMIA)	44.4	ng/mL	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 :
CMIA : Chemiluminescence Microparticle 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.

Reema
Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
Vitamin B12 level* (Serum,ECLIA)	579	pg/mL	197-771 Note : Change in Method & Reference range

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 :
ECLIA : Electrochemiluminescence Immunoassay

Reema
Dr. Reema Agrawal
MD (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
METHEALTH			
Thyroid panel - 2 (Serum,ECLIA)			
Free T3*	3.56	pg/mL	2.0-4.4 First Trimester :2.46 - 3.49 Second Trimester : 2.09 - 3.55 Third trimester : 2.01 - 3.27 Note : Change in Method & Reference range
Free T4*	0.93	ng/dL	0.93-1.7 First Trimester : 0.7-2.0 Second Trimester : 0.5-1.6 Third Trimester : 0.5-1.6 Note : Change in Method & Reference range.
TSH(Ultrasensitive)*	0.781	µIU/mL	0.54-5.3 First Trimester : 0.33-4.59 Second Trimester : 0.35-4.10 Third trimester : 0.21-3.15 Note : Change in Method & Reference range.

INTERPRETATION

Dr. Geeta Chopra
M.D (Pathology)

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

Dr. Geeta Chopra
M.D (Pathology)

Investigation	Observed Value	Unit	Biological Reference Interval
METHEALTH			
Iron Studies, Serum (Serum)			
Iron (FerroZine)	63.2	µg/dL	33-193
TIBC (Total Iron BInding Capacity) (Calculated)	276	µg/dL	250-450
UIBC (Unsaturated Iron Binding Capacity) (FerroZine)	212.9	µg/dL	135-392
Transferin Saturation * (Calculated)	23	%	14-50

Interpretation :

1. Measurements of serum iron, TIBC and the percentage of iron saturation of transferrin are useful screening tests for iron deficiency anaemia.
2. However, serum iron exhibits significant diurnal variation and may transiently rise or reach reference values after dietary or iron supplements & post blood transfusion.
3. 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.
4. 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 :
1. Serum Soluble Transferrin receptor
2. Serum Hepcidin

Dr. Geeta Chopra
M.D (Pathology)

Mrs. KAMLESH GOSWAMI

PID NO: P542000107014

Age: 63.0 Year(s) Sex: Female

Reference:

Sample Collected At:
PATODIA DIAGNOSTICS CENTRE
H- 8 MANASAROVER PARK SHAHDARA-32 PH-9810207255 NEW
Zone: TRANS HINDEN110032

VID: 54203150092687
Registered On:
30/09/2020 02:37 PM
Collected On:
30/09/2020 2:37PM
Reported On:
01/10/2020 06:38 AM

ROUTINE EXAMINATION URINE

Investigation	Observed Value	Unit	Biological Reference Interval
METHEALTH			
General Examination			
Colour	Pale Yellow		Pale Yellow
Transparency (Appearance)	Clear		Clear
Reaction (pH)	5.0		4.5-7.0
Specific gravity	1.030		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	0	/hpf	0-4
Pus cells (WBCs)	1-2	/hpf	0-9
Epithelial cells	1-2	/hpf	0-4
Crystals	**Calcium Oxalate (+)**		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).All abnormal results of chemical examination are confirmed by manual methods. **2.** Pre-test conditions to be observed while submitting the sample- First void, mid-stream urine, collected in a clean, dry, sterile container is recommended for routine urine analysis, avoid contamination with any discharge from vaginal, urethra, perineum,as applicable, avoid prolonged transit time & undue exposure to sunlight. **3.** During interpretation, points to be considered are 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**.4.**All urine samples are checked for adequacy and suitability before examination.

-- End of Report --

Reema

Dr. Reema Agrawal
MD (Pathology)