

Patient Name	: Pawan Manghnani	Barcode	: E0608316	
Age/Gender	: 18Y OM OD /Male	Sample Collected On	: 19/Jan/2024 06:55AM	
Order Id	: 9912663469	Sample Received On	: 19/Jan/2024 12:32PM	
Referred By	: Self	Report Generated On	: 19/Jan/2024 01:31PM	
Customer Since	: 19/Jan/2024	Sample Temperature	: Maintained ✓	
Sample Type	: Whole Blood EDTA	Report Status	: Final Report	

DEPARTMENT OF BIOCHEMISTRY HBA1C

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
HbA1c - Glycosylated Hemoglobin			
HbA1c (Glycosylated Hemoglobin)	4.70	%	4.2 - 5.7
Method: HPLC			
Average Estimated Glucose - plasma	88.19	mg/dl	
Method: Calculated			

INTERPRETATION:

AS PER AMERICAN DIABETES ASSOCIATION (ADA):

REFERENCE GROUP

Non diabetic

At Risk (Prediabetes)

Diagnosing Diabetes

Therapeutic goals for glycemic control

GLYCOSYLATED HEMOGLOBIN (HBA1c) in %

<5.7

5.7 – 6.4

>= 6.5

Age > 19 Years

Goals of Therapy: < 7.0

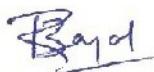
Actions Suggested: >8.0

Age < 19 Years

Goal of therapy: <7.5

REMARKS

1. HbA1c is used for monitoring diabetic control. It reflects the mean plasma glucose over three months
 2. HbA1c may be falsely low in diabetics with hemolytic disease. In these individuals a plasma fructosamine level may be used which evaluates diabetes over 15 days.
 3. Inappropriately low HbA1c values may be reported due to hemolysis, recent blood transfusion, acute blood loss, hypertriglyceridemia, chronic liver disease. Drugs like dapsone, ribavirin, antiretroviral drugs, trimethoprim, may also cause interference with estimation of HbA1c, causing falsely low values.
 4. HbA1c may be increased in patients with polycythemia or post-splenectomy.
 5. Inappropriately higher values of HbA1c may be caused due to iron deficiency, vitamin B12 deficiency, alcohol intake, uremia, hyperbilirubinemia and large doses of aspirin.
 6. Trends in HbA1c are a better indicator of diabetic control than a solitary test. 7. Any sample with >15% HbA1c should be suspected of having a hemoglobin variant, especially in a non-diabetic patient. Similarly, below 4% should prompt additional studies to determine the possible presence of variant hemoglobin.
 8. HbA1c target in pregnancy is to attain level <6 % .
 9. HbA1c target in paediatric age group is to attain level < 7.5 %.
- Method : Ion-exchange high-performance liquid chromatography (HPLC).
- Reference : American Diabetes Associations. Standards of Medical Care in Diabetes 2023



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DEPARTMENT OF BIOCHEMISTRY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
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Fasting Blood Sugar

Glucose, Fasting	80.7	mg/dl
Method: Hexokinase		

American Diabetes Association Reference Range :

Normal	: < 100 mg/dl
Impaired fasting glucose(Prediabetes)	: 100 - 126 mg/dl
Diabetes	: >= 126 mg/dl

Conditions that can result in an elevated blood glucose level include: Acromegaly, Acute stress (response to trauma, heart attack, and stroke for instance), Chronic kidney disease, Cushing syndrome, Excessive consumption of food, Hyperthyroidism, Pancreatitis

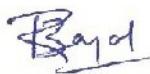
A low level of glucose may indicate hypoglycemia, a condition characterized by a drop in blood glucose to a level where first it causes nervous system symptoms (sweating, palpitations, hunger, trembling, and anxiety), then begins to affect the brain (causing confusion, hallucinations, blurred vision, and sometimes even coma and death). A low blood glucose level (hypoglycemia) may be seen with: Adrenal insufficiency, Drinking excessive alcohol, Severe liver disease, Hypopituitarism, Hypothyroidism, Severe infections, Severe heart failure, Chronic kidney (renal) failure, Insulin overdose, Tumors that produce insulin (insulinomas), Starvation.

C-Reactive Protein (CRP) -Quantitative

C-REACTIVE PROTEIN (CRP) (QUANTITATIVE)	<0.6	mg/L
Method: Immunoturbidimetric		<5

C-reactive protein (CRP) is one of the most sensitive acute-phase reactants for inflammation. Measuring changes in the concentration of CRP provides useful diagnostic information about the level of acuity and severity of a disease. Unlike ESR, CRP levels are not influenced by hematologic conditions such as anemia, polycythemia etc.

Increased levels are consistent with an acute inflammatory process. After onset of an acute phase response, the serum CRP concentration rises rapidly (within 6-12 hours and peaks at 24-48 hours) and extensively. Concentrations above 100 mg/L are associated with severe stimuli such as major trauma and severe infection (sepsis).


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SIN No:E0608316

Page 2 of 14

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DEPARTMENT OF BIOCHEMISTRY

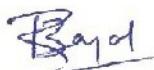
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Test Name	Value	Unit	Bio. Ref Interval
Liver Function Test (LFT)			
Serum Bilirubin, (Total) Method: Diazo	1.56	mg/dl	0.0 - 1.2
Serum Bilirubin, (Direct) Method: Diazo	0.77	mg/dl	0.0 - 0.30
Serum Bilirubin, (Indirect) Method: Calculated	0.79	mg/dl	0.0 - 0.9
Aspartate Aminotransferase (AST/SGOT) Method: IFCC with pyridoxal phosphate	23.50	U/L	10 - 50
Alanine Aminotransferase (ALT/SGPT) Method: IFCC with pyridoxal phosphate	20.5	U/L	10 - 50
Alkaline Phosphatase (ALP) Method: IFCC AMP Buffer	107.00	U/L	55 - 149
Gamma Glutamyl Transferase (GGT) Method: IFCC	12.8	U/L	10 - 71
Serum Total Protein Method: Biuret	7.49	g/dl	6.0 - 8.0
Serum Albumin Method: Bromo Cresol Green(BCG)	4.94	g/dL	3.5 - 5.2
Serum Globulin Method: Calculated	2.55	gm/dl	2.0 - 3.5
Albumin/Globulin Ratio Method: Calculated	1.94	Ratio	1.2 - 2.5
SGOT/SGPT Ratio Method: Calculated	1.15	Ratio	0.7 - 1.4

Bilirubin is a yellowish pigment found in bile and is a breakdown product of normal heme catabolism. Elevated levels results from increased bilirubin production (eg hemolysis and ineffective erythropoiesis); decreased bilirubin excretion (eg; obstruction and hepatitis); and abnormal bilirubin metabolism (eg; hereditary and neonatal jaundice). Conjugated (direct) bilirubin is elevated more than unconjugated (indirect) bilirubin in viral hepatitis; drug reactions, alcoholic liver disease conjugated (direct) bilirubin is also elevated more than unconjugated (indirect) bilirubin when there is some kind of blockage of the bile ducts like in Gallstones getting into the bile ducts tumors & Scarring of the bile ducts. Increased unconjugated (indirect) bilirubin may be a result of hemolytic or pernicious anemia, transfusion reaction & a common metabolic condition termed Gilbert syndrome.

AST levels increase in viral hepatitis, blockage of the bile duct ,cirrhosis of the liver, liver cancer, kidney failure, hemolytic anemia, pancreatitis, hemochromatosis. Alt levels may also increase after a heart attack or strenuous activity. ALT is commonly measured as a part of a diagnostic evaluation of hepatocellular injury, to determine liver health. Elevated ALP levels are seen in Biliary Obstruction, Osteoblastic Bone Tumors, Osteomalacia, Hepatitis, Hyperparathyroidism, Leukemia, Lymphoma, paget's disease, Rickets, Sarcoidosis etc.

Elevated serum GGT activity can be found in diseases of the liver, Biliary system and pancreas. Conditions that increase serum GGT are obstructive liver disease,



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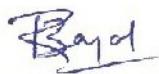
DEPARTMENT OF BIOCHEMISTRY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
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high alcohol consumption and use of enzyme-including drugs etc.

Serum total protein, also known as total protein, is a biochemical test for measuring the total amount of protein in serum..Protein in the plasma is made up of albumin and globulin. Higher-than-normal levels may be due to: Chronic inflammation or infection, including HIV and hepatitis B or C, Multiple myeloma,Waldenstrom's disease. Lower-than-normal levels may be due to: Agammaglobulinemia, Bleeding (hemorrhage), Burns, Glomerulonephritis, Liver disease, Malabsorption, Malnutrition, Nephrotic - Human serum albumin is the most abundant protein in human blood plasma. It is produced in the liver.Albumin constitutes about half of the blood serum protein. Low blood albumin levels (hypoalbuminemia) can be caused by: Liver disease like cirrhosis of the liver, nephrotic syndrome, protein-losing enteropathy, Burns, hemodilution, increased vascular permeability or decreased lymphatic clearance, malnutrition and wasting etc.


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SIN No:E0608316

Page 4 of 14

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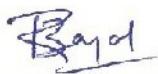
Test Name	Value	Unit	Bio. Ref Interval
Iron study			
Serum Iron Method: Ferrozine	142.0	µg/dl	33 - 193
UIBC Method: Ferrozine	194.00	µg/dl	125 - 345
Serum Total Iron Binding Capacity (TIBC) Method: FE+UIBC (saturation with iron)	336	µg/dl	250 - 400
Transferrin Saturation % Method: Calculated	42.26	%	10 - 50

Iron participates in a variety of vital processes in the body varying from cellular oxidative mechanisms to the transport and delivery of oxygen to body cells. It is a constituent of the oxygen-carrying chromoproteins, haemoglobin and myoglobin, as well as various enzymes, such as cytochrome oxidase and peroxidases.

Serum iron may be increased in hemolytic, megaloblastic and aplastic anemias, and in hemochromatosis acute leukemia, lead poisoning, pyridoxine deficiency, thalassemia, excessive iron therapy, and after repeated transfusions. Drugs causing increased serum iron include chloramphenicol, cisplatin, estrogens (including oral contraceptives), ethanol, iron dextran, and methotrexate. Iron can be decreased in iron-deficiency anemia, acute and chronic infections, carcinoma, nephrotic syndrome hypothyroidism, in protein- calorie malnutrition and after surgery. Diurnal variation is seen in serum iron levels with normal values obtained in the midmorning, low values in midafternoon and very low values near midnight.

TIBC measures the blood's capacity to bind iron with transferrin (TRF). Estrogens and oral contraceptives increase TIBC levels. Asparaginase, chloramphenicol, corticotropin, cortisone, and testosterone decrease the TIBC levels.

Transferrin is the primary plasma iron transport protein, which binds iron strongly at physiological pH. Transferrin is generally only 25% to 30% saturated with iron. The additional amount of iron that can be bound is the unsaturated iron-binding capacity (UIBC). Transferrin saturation represents the number of iron-binding sites that are occupied. It is a better index of iron stores than serum iron alone. Transferrin saturation is decreased in iron deficiency anemia (usually <10% in established deficiency).


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SIN No:E0608316

Page 5 of 14

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DEPARTMENT OF BIOCHEMISTRY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
Kidney Function Test1 (KFT1)			
Serum Creatinine Method: Jaffes Kinetic	0.75	mg/dl	0.5 - 1.0
GFR, ESTIMATED Method: Calculated	134.31	mL/min/1.73m ²	
Serum Uric Acid Method: Uricase	5.0	mg/dl	3.4 - 7.0
Serum Calcium Method: NM- BAPTA	9.9	mg/dl	8.4 - 10.2
Serum Phosphorus Method: Phosphomolybdate/UV	3.9	mg/dl	2.7 - 4.9
Serum Sodium Method: ISE (Indirect)	138	mmol/L	136 - 145
Serum Chloride Method: ISE (Indirect)	100	mmol/L	98 - 107
Blood Urea Method: Urease	20	mg/dl	16.6 - 48.5
Blood Urea Nitrogen (BUN) Method: Calculated	9.5	mg/dl	5 - 18
Bun/Creatinine Ratio Method: Calculated	12.76	Ratio	
Urea/Creatinine Ratio Method: Calculated	27.31	Ratio	

The kidneys play a vital role in the excretion of waste products and toxins such as urea, creatinine and uric acid, regulation of extracellular fluid volume, serum osmolality and electrolyte concentrations, as well as the production of hormones like erythropoietin and 1,25 dihydroxy vitamin D and renin. Assessment of renal function is important in the management of patients with kidney disease or pathologies affecting renal function. Tests of renal function have utility in identifying the presence of renal disease, monitoring the response of kidneys to treatment, and determining the progression of renal disease.

Urea is synthesized in the liver as the final product of protein and amino acid metabolism. Urea synthesis is therefore dependent on daily protein intake and endogenous protein metabolism.

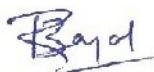
Creatinine is a metabolic product of creatine and phosphocreatine, which are both found almost exclusively in muscle.

Uric Acid is the major product of purine catabolism in humans. Uric acid levels are used to monitor the treatment of gout.

Measurement of calcium is used in the diagnosis and treatment of parathyroid disease, a variety of bone diseases, chronic renal disease, urolithiasis and tetany. Phosphorus levels are increased in acute or chronic renal failure with decreased GFR .

Sodium is an electrolyte, and it helps regulate the amount of water in and around the cells & the balance of chemicals in the body called acids and bases.

Chloride is a negatively charged ion that works with other electrolytes such as potassium, sodium, and bicarbonate, to help regulate the amount of fluid in the body and maintain the acid-base balance.



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DEPARTMENT OF BIOCHEMISTRY

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Test Name	Value	Unit	Bio. Ref Interval
Lipid Profile Basic			
Total Cholesterol Method: Enzymatic	143.0	mg/dl	Desirable : <200 Borderline: 200-239 High : >/=240
Serum Triglycerides Method: Enzymatic	101.0	mg/dl	Desirable : <150 Borderline high : 150-199 High : 200-499 Very high : > 500
Serum HDL Cholesterol Method: ENZYMATIC	67.2	mg/dl	40 - 60
LDL Cholesterol Calculated Method: Calculated	55.60	mg/dl	Optimal : <100 near /above Optimal:100 - 129 Borderline High: 130- 159 High : 160 - 189 Very High :>/=190
VLDL Cholesterol Calculated Method: Calculated	20.2	mg/dl	<30
Total CHOL / HDL Cholesterol Ratio Method: Calculated	2.13	Ratio	3.30 - 4.40
LDL / HDL Cholesterol Ratio Method: Calculated	0.83	Ratio	Desirable/Low Risk: 0.5-3.0 Line/Moderate Risk: 3.0-6.0 Elevated/High Risk: >6.0
HDL / LDL Cholesterol Ratio Method: Calculated	1.21	Ratio	Optimal->0.4 Moderate-0.4 to 0.3 High-<0.3
Non-HDL Cholesterol Method: Calculated	75.8	mg/dl	0.0 - 160.0

Dyslipidemia is a disorder of fat or lipoprotein metabolism in the body and includes lipoprotein overproduction or deficiency.

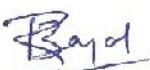
Dyslipidemias means increase in the level of one or more of the following: Total Cholesterol, low density lipoprotein (LDL) and/or triglyceride concentrations.

Dyslipidemia also includes a decrease in the "good" cholesterol or high-density lipoprotein (HDL) concentration in the blood.

Cholesterol is a steroid carried in the bloodstream as lipoprotein, necessary for cell membrane functioning and as a precursor to bile acids, progesterone ,vitamin D ,estrogens ,glucocorticoids and mineralocorticoids.

HDL is termed "good cholesterol" because its levels are inversely related to the risk of Coronary heart disease.

LDL cholesterol is termed the "bad cholesterol" and their increased levels are associated with increased risk of atherosclerosis and coronary



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DEPARTMENT OF BIOCHEMISTRY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
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heart disease.

Lipid level assessments must be made following 9 to 12 hours of fasting, otherwise assay results might lead to erroneous interpretation. Healthians labs report biological reference intervals (normal ranges) in accordance with the recommendations of The National Cholesterol Education Program (NCEP) & Adult Treatment Panel IV (ATP IV) guidelines providing the most desirable targets of various circulating lipid fractions in the blood. NCEP recommends that all adults above 20 years of age must be screened for abnormal lipid levels.



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SIN No:E0608316

Page 8 of 14

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DEPARTMENT OF CLINICAL PATHOLOGY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
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Urine Routine & Microscopy Extended

PHYSICAL EXAMINATION

Colour	Pale Yellow	Pale Yellow
Method: Visual		
Volume	40.00	mL
Method: Visual		

CHEMICAL EXAMINATION

Specific Gravity	1.020	1.001 - 1.035
Method: Dipstick-Ion exchange		
pH	6.5	4.5 - 7.5
Method: Dipstick-Double indicator		
Glucose	Negative	Negative
Method: Dipstick-oxidase peroxidase		
Urine Protein	Negative	Negative
Method: Dipstick-Bromophenol blue		
Ketones	Negative	Negative
Method: Sodium nitroprusside		
Urobilinogen	Normal	Normal
Method: Dipstick-Ehrlichs Test		
Bilirubin	Negative	Negative
Method: Dipstick-Ehrlichs Test		
Nitrite	Negative	Negative
Method: Dipstick-Griess test		
Blood	Negative	Nil
Method: Dipstick-Peroxidase		
Leucocyte Esterase	Negative	Nil
Method: Dipstick- Esterase		

MICROSCOPIC EXAMINATION

Pus Cells	0-1	/HPF	0 - 5
Method: Microscopic Examination			
Epithelial cells	0-1	/HPF	0 - 5



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Test Name	Value	Unit	Bio. Ref Interval
RBCs	Nil	/HPF	Nil
Method: Microscopic Examination			
Casts	Nil		Nil
Method: Microscopic Examination			
Crystals	Nil		Nil
Method: Microscopic Examination			
Bacteria	Absent		Absent
Method: Microscopic Examination			
Yeast Cell	Nil		Absent

The main indication for testing for glucose in urine is detection of unsuspected diabetes mellitus or follow-up of known diabetic patients. Renal glycosuria accounts for 5% of cases of glycosuria in general population.

Proteinuria can be seen in nephrotic syndrome, pyelonephritis, heavy metal poisoning, tuberculosis of kidney, interstitial nephritis, cystinosis, Fanconi syndrome , rejection of kidney transplant. Hemodynamic proteinuria is transient and can be seen in high fever, hypertension, heavy exercise, congestive cardiac failure, seizures, and exposure to cold. Post-renal proteinuria is caused by inflammatory or neoplastic conditions in renal pelvis, ureter, bladder, prostate, or urethra.

Ketonuria can be seen in uncontrolled Diabetes mellitus with ketoacidosis, Glycogen storage disorder, starvation, persistent vomiting in children, weight reduction program, fever in children, severe thyrotoxicosis, pregnancy and protein calorie malnutrition.

Presence of bilirubin in urine indicates conjugated hyperbilirubinemia (obstructive or hepatocellular jaundice). Bile salts along with bilirubin can be detected in urine in cases of obstructive jaundice. Normally about 0.5-4 mg of urobilinogen is excreted in urine in 24 hours. Therefore, a small amount of urobilinogen is normally detectable in urine. Increased urobilinogen in urine can be seen due to hemolysis , megaloblastic anemia and haemorrhage in tissues. Decreased urobilinogen can be seen in obstructive jaundice, reduction of intestinal bacterial flora, neonates and following antibiotic treatment. The presence of abnormal number of intact red blood cells in urine is called as hematuria. It implies presence of a bleeding lesion in the urinary tract. Hematuria can be seen in glomerular diseases like Glomerulonephritis, Berger's disease, lupus nephritis, Henoch-Schonlein purpura, non glomerular diseases like Calculus, tumor, infection, tuberculosis, pyelonephritis, hydronephrosis, polycystic kidney disease, trauma, after strenuous physical exercise, diseases of prostate (benign hyperplasia of prostate, carcinoma of prostate).

Nitrites are not present in normal urine. Ingested nitrites are converted to nitrate and excreted in urine. If gram-negative bacteria (e.g. E.coli, Salmonella, Proteus, Klebsiella, etc.) are present in urine, they will reduce the nitrates to nitrites through the action of bacterial enzyme nitrate reductase. As E. coli is the commonest organism causing urinary tract infection, this test is helpful as a screening test for urinary tract infection.

Some organisms like Staphylococci or Pseudomonas do not reduce nitrate to nitrite and therefore in such infections nitrite test is negative.

Leucocyte esterase test detects esterase enzyme released in urine from granules of leucocytes. Thus the test is positive in pyuria.



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Sample Type	: WHOLE BLOOD EDTA	Report Status	: Final Report	

DEPARTMENT OF HAEMATOLOGY

Advance Screening Package 3.0

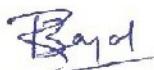
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Complete Blood Count

Haemoglobin (HB) Method: Photometric Measurement	16.4	g/dL	13.0-17.0
Total Leucocyte Count (TLC) Method: Coulter Principle	6.4	10 ³ /uL	4.0-10.0
Hematocrit (PCV) Method: Calculated	49.2	%	40.0-50.0
Red Blood Cell Count (RBC) Method: Coulter Principle	5.47	10 ⁶ /µl	4.50-5.50
Mean Corp Volume (MCV) Method: Derived from RBC Histogram	90.0	fL	83.0-101.0
Mean Corp Hb (MCH) Method: Calculated	29.9	pg	27.0-32.0
Mean Corp Hb Conc (MCHC) Method: Calculated	33.2	g/dL	31.5-34.5
RDW - CV Method: Derived from RBC Histogram	12.9	%	11.6-14.0
RDW - SD Method: Derived from RBC Histogram	40.70	fL	39.0-46.0
Mentzer Index Method: Calculated	16.45	Ratio	
RDWI Method: Calculated	212.25	Ratio	
Green and king index Method: Calculated	64	Ratio	

Differential Leucocyte Count

Neutrophils Method: VCS Technology	44.3	%	40 - 80
Lymphocytes Method: VCS Technology	44.6	%	20-40
Monocytes Method: VCS Technology	9.2	%	02 - 10
Eosinophils Method: VCS Technology	1.4	%	01 - 06
Basophils	0.5	%	00 - 02



Dr. Rekha Boyal
Consultant Pathologist



SIN No:E0608316

Patient Name	: Pawan Manghnani	Barcode	: E0608316	
Age/Gender	: 18Y OM OD /Male	Sample Collected On	: 19/Jan/2024 06:55AM	
Order Id	: 9912663469	Sample Received On	: 19/Jan/2024 12:32PM	
Referred By	: Self	Report Generated On	: 19/Jan/2024 01:22PM	
Customer Since	: 19/Jan/2024	Sample Temperature	: Maintained ✓	
Sample Type	: WHOLE BLOOD EDTA	Report Status	: Final Report	

DEPARTMENT OF HAEMATOLOGY

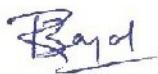
Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
Method: VCS Technology			
Absolute Leucocyte Count			
Absolute Neutrophil Count (ANC)	2.84	10 ³ /uL	2.0-7.0
Method: Calculated			
Absolute Lymphocyte Count (ALC)	2.85	10 ³ /uL	1.0-3.0
Method: Calculated			
Absolute Monocyte Count	0.59	10 ³ /uL	0.2-1.0
Method: Calculated			
Absolute Eosinophil Count (AEC)	0.09	10 ³ /uL	0.02-0.5
Method: Calculated			
Absolute Basophil Count	0.03	10 ³ /uL	0.02 - 0.10
Method: Calculated			
Platelet Count(PLT)	242	10 ³ /µl	150-410
Method: Coulter Principle			
MPV	10.1	fL	7 - 9
Method: Derived from PLT Histogram			

The International Council for Standardization in Haematology (ICSH) recommends reporting of absolute counts of various WBC subsets for clinical decision making. This test has been performed on a fully automated 5 part differential cell counter which counts over 10,000 WBCs to derive differential counts. A complete blood count is a blood panel that gives information about the cells in a patient's blood, such as the cell count for each cell type and the concentrations of Hemoglobin and platelets. The cells that circulate in the bloodstream are generally divided into three types: white blood cells (leukocytes), red blood cells (erythrocytes), and platelets (thrombocytes). Abnormally high or low counts may be physiological or may indicate disease conditions, and hence need to be interpreted clinically.

The Mentzer index is used to differentiate iron deficiency anaemia beta thalassemia trait. If a CBC indicates microcytic anaemia, these are two of the most likely causes, making it necessary to distinguish between them.

If the quotient of the mean corpuscular volume divided by the red blood cell count is then 13, thalassemia is more likely. If the result is greater than 13, then iron-deficiency anaemia is more likely.


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Order Id	: 9912663469	Sample Received On	: 19/Jan/2024 12:36PM	
Referred By	: Self	Report Generated On	: 19/Jan/2024 01:39PM	
Customer Since	: 19/Jan/2024	Sample Temperature	: Maintained ✓	
Sample Type	: Serum	Report Status	: Final Report	

DEPARTMENT OF IMMUNOLOGY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
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Vitamin B12

VITAMIN B12

Method: ECLIA

194

pg/ml

197 - 771

Vitamin B12 is a coenzyme that is involved in two very important metabolic functions vital to normal cell growth and DNA synthesis: 1) the synthesis of methionine, and 2) the conversion of methylmalonyl CoA to succinyl CoA. Deficiency of this vitamin can lead to megaloblastic anemia and ultimately to severe neurological problems. Also causes macrocytic anemia, glossitis, peripheral neuropathy, weakness, hyperreflexia, ataxia, loss of proprioception, poor coordination, and affective behavioral changes. A significant increase in RBC MCV may be an important indicator of vitamin B12 deficiency. Patients taking vitamin B12 supplementation may have misleading results. A normal serum concentration of B12 does not rule out tissue deficiency of vitamin B12. The most sensitive test for B12 deficiency at the cellular level is the assay for MMA. If clinical symptoms suggest deficiency, measurement of MMA and homocysteine should be considered, even if serum B12 concentrations are normal.

Vitamin D, 25-Hydroxy

VITAMIN D (25 - OH VITAMIN D)

19.10

ng/ml

Deficient - <=20, Insufficient- 21-<=29, Sufficient- 30-100, Upper safety Limit >100

Method: ECLIA

VITAMIN D STATUS	VITAMIN D 25 HYDROXY (ng/mL), Adult	VITAMIN D 25 HYDROXY (ng/mL), Pediatric
DEFICIENCY	<20	<15
INSUFFICIENCY	20 - 30	15 - 20
SUFFICIENCY	30 - 100	20 - 100

Vitamin D is a lipid-soluble steroid hormone that is produced in the skin through the action of sunlight or is obtained from dietary sources. The role of vitamin D in maintaining homeostasis of calcium and phosphorus is well established.

The assay measures both D2 (Ergocalciferol) and D3 (Cholecalciferol) metabolites of vitamin D. Vitamin D status is best determined by measurement of 25 hydroxy vitamin D, as it is the major circulating form and has longer half life (2-3 weeks) than 1,25 Dihydroxy vitamin D (5-8 hrs).

The reference ranges discussed in the preceding are related to total 25-OHD; as long as the combined total is 30 ng/mL or more, the patient has sufficient vitamin D. Levels needed to prevent rickets and osteomalacia (15 ng/mL) are lower than those that dramatically suppress parathyroid hormone levels (20-30 ng/mL). In turn, those levels are lower than levels needed to optimize intestinal calcium absorption (34 ng/mL). Neuromuscular peak performance is associated with levels approximately 38 ng/mL.



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Order Id	: 9912663469	Sample Received On	: 19/Jan/2024 12:36PM	
Referred By	: Self	Report Generated On	: 19/Jan/2024 01:31PM	
Customer Since	: 19/Jan/2024	Sample Temperature	: Maintained ✓	
Sample Type	: Serum	Report Status	: Final Report	

DEPARTMENT OF IMMUNOLOGY

Advance Screening Package 3.0

Test Name	Value	Unit	Bio. Ref Interval
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Thyroid Profile (Total T3,T4, TSH)

Tri-Iodothyronine (T3, Total) Method: ECLIA	1.09	ng/ml	0.8 - 2.0
Thyroxine (T4, Total) Method: ECLIA	6.72	ug/dl	5.1 - 14.1
Thyroid Stimulating Hormone (TSH)-Ultrasensitive Method: ECLIA	3.1800	uIU/ml	0.270 - 4.20

Pregnancy interval	Bio Ref Range for TSH in uIU/ml (As per American Thyroid Association)
First trimester	0.1 - 2.5
Second trimester	0.2 - 3.0
Third trimester	0.3 - 3.0

Healthians recommends that the following potential sources of variation should be considered while interpreting thyroid hormone results:

1. Thyroid hormones undergo rhythmic variation within the body this is called circadian variation in TSH secretion: Peak levels are seen between 2-4 am. Minimum levels seen between 6-10 am. This variation may be as much as 50% thus, influence of sampling time needs to be considered for clinical interpretation.
2. Circulating forms of T3 and T4 are mostly reversibly bound with Thyroxine binding globulins (TBG), and to a lesser extent with albumin and Thyroid binding Pre-Albumin. Thus the conditions in which TBG and protein levels alter such as chronic liver disorders, pregnancy, excess of estrogens, androgens, anabolic steroids and glucocorticoids may cause misleading total T3, total T4 and TSH interpretations.
3. Total T3 and T4 levels are seen to have physiological rise during pregnancy and in patients on steroid treatment.
4. T4 may be normal the presence of hyperthyroidism under the following conditions : T3 thyrotoxicosis, Hypoproteinemia related reduced binding, during intake of certain drugs (eg Phenyltoin, Salicylates etc)
5. Neonates and infants have higher levels of T4 due to increased concentration of TBG
6. TSH levels may be normal in central hypothyroidism, recent rapid correction of hypothyroidism or hyperthyroidism, pregnancy, phenytoin therapy etc.
7. TSH values of <0.03 uIU/mL must be clinically correlated to evaluate the presence of a rare TSH variant in certain individuals which is undetectable by conventional methods.
8. Presence of Autoimmune disorders may lead to spurious results of thyroid hormones
9. Various drugs can lead to interference in test results.
10. Healthians recommends evaluation of unbound fractions, that is free T3 (fT3) and free T4 (fT4) for clinic-pathologic correlation, as these are the metabolically active forms.

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


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