



Patient NAME	: HEENA SADAF
Age/Gender	: 28/F
UAID/Oth.Lab Ref.	: M7085/
SIN No.	: ACW48006

Sample Collection Time	: 03/May/2023 09:44AM
Sample Received in Lab Time	: 03/May/2023 12:16PM
Reported Time	: 03/May/2023 12:44PM
Ref. Doctor	: Self

DEPARTMENT OF BIOCHEMISTRY

Test Name	Result	Unit	Bio. Ref. Range	Method
Glucose Fasting , Flouride Plasma				
Glucose, Fasting	85	mg/dl	70 - 100	Glucose oxidase Trinder

Criteria for Diabetes Mellitus according to ADA:

<100 mg/dL Normal

100 to 125 mg/dL Impaired Fasting Glucose

> or = 126 mg/dL Exclude Diabetes if unknown status

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.

Critical value of Glucose established as per laboratory policy:

Children : < 40 or > 450

Adult : < 40 or > 500

NewBorn : < 35 or > 200

Such critical value if obtained needs urgent medical attention.

Calcium Serum , SERUM

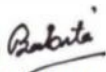
CALCIUM	9.6	mg/dl	8.7 - 10.4	Arsenazo III
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Common causes of decreased value of calcium (hypocalcemia) are chronic renal failure, hypomagnesemia and hypoalbuminemia. Hypercalcemia (increased value of calcium) can be caused by increased intestinal absorption (vitamin D intoxication), increased skeletal resorption (immobilization), or a combination of mechanisms (primary hyperparathyroidism). Primary hyperparathyroidism and malignancy accounts for 90-95% of all cases of hypercalcemia. Values of total calcium is affected by serum proteins, particularly albumin thus, latter's value should be taken into account when interpreting serum calcium levels important source of preanalytical error in the measurement of calcium is prolonged tourniquet application during sampling. Thus, this along with fist clenching should be avoided before phlebotomy.

Critical value of Calcium established as per laboratory policy:

Adult : < 6.0 or > 13.0

Such critical value if obtained needs urgent medical attention.



Dr. Babita Goyal
(MD Biochemistry)

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SCO 542, Sector 70
Mohali Distt

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Plot No 6, Sector 82 JLPL
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DEPARTMENT OF BIOCHEMISTRY

Test Name	Result	Unit	Bio. Ref. Range	Method
*Electrolytes Serum , SERUM				
SODIUM	141	mEq/L	132 - 146	Indirect Potentiometric
POTASSIUM	4.7	mEq/L	3.5 - 5.5	Indirect Potentiometric
CHLORIDE	106	mEq/L	99 - 109	Indirect Potentiometric

Comment:

Sodium levels are increased in dehydration, cushing's syndrome, aldosteronism & decreased in Addison's disease, hypopituitarism, liver disease. Hypokalemia (low K) is common in vomiting, diarrhea, alcoholism, folic acid deficiency and primary aldosteronism. Hyperkalemia may be seen in end-stage renal failure, hemolysis, trauma, Addison's disease, metabolic acidosis, acute starvation, dehydration, and with rapid K infusion. Chloride is increased in dehydration, renal tubular acidosis (hyperchloremia metabolic acidosis), acute renal failure, metabolic acidosis associated with prolonged diarrhea and loss of sodium bicarbonate, diabetes insipidus, adrenocortical hyperfunction, salicylate intoxication and with excessive infusion of isotonic saline or extremely high dietary intake of salt. Chloride is decreased in overhydration, chronic respiratory acidosis, salt-losing nephritis, metabolic alkalosis, congestive heart failure, Addisonian crisis, certain types of metabolic acidosis, persistent gastric secretion and prolonged vomiting.

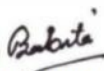
Critical value of Sodium established as per laboratory policy:

Adult : < 120 or > 160

Critical value of Potassium established as per laboratory policy:

Adult : < 2.7 or > 6.0

Such critical value if obtained needs urgent medical attention.



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DEPARTMENT OF BIOCHEMISTRY

Test Name	Result	Unit	Bio. Ref. Range	Method
Lipid Profile Screening , SERUM				
TOTAL CHOLESTEROL	166.0	mg/dl	0.0 - 200	ChodPap
TRIGLYCERIDES	58.0	mg/dl	30 - 150	Enzymatic
HDL CHOLESTEROL	56.7	mg/dl	40 - 60	Direct
LDL CHOLESTEROL	97.7	mg/dl	0 - 110	Calculated
VLDL CHOLESTEROL	11.6	mg/dl	06 - 30	Calculated
CHOL / HDL RATIO	2.93		4 - 6	Calculated
LDL / HDL RATIO	1.72		0.5 - 3.0	Calculated
TRIGLYCERIDES/HDL RATIO	1.02		< 1.0	Calculated
NON-HDL CHOLESTEROL	109.3	mg/dl	<130	Calculated
TOTAL LIPIDS	390.00	mg/dL	350 - 700	Calculated

Comment:

Triglycerides can show marked variation depending on previous day diet intake.
12 hrs fasting is mandatory before testing for lipid profile specially for triglyceride values.
In case, lipid profile is done in non-fasting state, then any abnormal value can come especially for triglycerides, LDL, VLDL
As per National Cholesterol Education Programme (NCEP) & guidelines

Total Cholesterol in mg/dl	
<200	Desirable
200 - 239	Borderline
> or =240	High
LDL Cholesterol	
< 100	Optimal
100 - 129	Near optimal
130 - 159	Borderline high
160 - 189	High
> or = 190	Very high
Triglycerides	
< 150	Normal
150 to 199	Borderline high
200 to 499	High
> or = 500	Very high



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DEPARTMENT OF BIOCHEMISTRY

Test Name	Result	Unit	Bio. Ref. Range	Method
Liver Function Screening , Serum				
BILIRUBIN, TOTAL	0.90	mg/dL	0.3 - 1.10	Vanadate oxidation
BILIRUBIN CONJUGATED (DIRECT)	0.20	mg/dl	< 0.3	Vanadate oxidation
BILIRUBIN (INDIRECT)	0.70	mg/dl	0.0 - 0.8	Calculated
ASPARTATE AMINOTRANSFERASE (AST/SGOT)	18.0	U/L	< 34	UV without Pyrodoxal Po4
ALANINE AMINOTRANSFERASE (ALT/SGPT)	10.0	U/L	10 - 49	UV without Pyrodoxal Po4
ALKALINE PHOSPHATASE (ALP)	67.0	U/L	45 - 129	Modified IFCC
PROTEIN, TOTAL	7.40	g/dl	5.7 - 8.2	Biuret
ALBUMIN	4.60	g/dL	3.2 - 4.8	BCG Dye Binding
GLOBULIN	2.80	gm/dl	3.0 - 4.2	Calculated
A/G RATIO	1.64		1.2 - 2.0	Calculated

Comment:

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. Ast 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.

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.

Critical value of serum albumin established as per laboratory policy:

: < 1.5

Critical value of serum Bilirubin established as per laboratory policy:

0 - 3 months : >15

4 - 6 months: >20

Adult : > 15

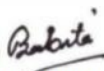
Critical value of SGOT established as per laboratory policy:

: > 1000

Critical value of SGPT established as per laboratory policy:

: > 1000

Such critical value if obtained needs urgent medical attention.



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DEPARTMENT OF BIOCHEMISTRY

Test Name	Result	Unit	Bio. Ref. Range	Method
Renal Function Screening , SERUM				
BLOOD UREA NITROGEN	8.0	mg/dl	5 - 23	Urease-GLDH
CREATININE	0.61	mg/dl	0.38 - 1.00	Jaffes, alkaline picrate
GFR, ESTIMATED	122.57	mL/min/1.7m ²		Compensated, Jaffes reaction, IDMS traceable
URIC ACID	3.10	mg/dl	3.1 - 7.8	Uricase/Peroxidase
UREA	17.12	mg/dL	10 - 41	Calculated
BUN/CREATININE RATIO	13.11	mg/dL	10 - 25	Calculated
UREA/CREATININE RATIO	28.07	mg/dL	20 - 50	Calculated

Comment:

AGE IN YEARS	GFR IN mL/min/1.73m ²
20 - 29	116
30 - 39	107
40 - 49	99
50 - 59	93
60 - 69	85
>=70	75
Normal GFR	>=90
Mild decrease in GFR	60 - 89
Moderate decrease in GFR	30 - 59
Sever decrease in GFR	15 - 29
Kidney Failure	<15

Note
1. National Kidney Disease Education program recommends the use of MDRD equation to estimate or predict GFR in adults (>=20 years) with Chronic Kidney Disease (CKD)
2. MDRD equation is most accurate for GFR <=60 mL/min/1.73m²
Critical value of BUN established as per laboratory policy:
Adult: > 60
Critical value of Creatinine established as per laboratory policy:
Adult : > 5.0
Such critical value if obtained needs urgent medical attention.


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(MD Biochemistry)

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Patient NAME : HEENA SADAF
 Age/Gender : 28/F
 UAID/Oth.Lab Ref. : M7085/
 SIN No. : ACW77665

Sample Collection Time : 03/May/2023 09:49AM
 Sample Received in Lab Time : 03/May/2023 12:18PM
 Reported Time : 03/May/2023 01:34PM
 Ref. Doctor : Self

DEPARTMENT OF CLINICAL PATHOLOGY

Test Name	Result	Unit	Bio. Ref. Range	Method
Complete Urine Examination , Urine				
PHYSICAL EXAMINATION				
COLOUR	PALE YELLOW		PALE YELLOW	PHYSICAL
TRANSPARENCY	SLIGHTLY TURBID		CLEAR	PHYSICAL
SP. GRAVITY	1.010		1.003 - 1.035	pKa Change
BIOCHEMICAL EXAMINATION				
pH	7.0		4.7 - 7.5	Double indicator
URINE PROTEIN	Negative		NOT DETECTED	Acid-Base Indicator
GLUCOSE	Negative		NOT DETECTED	Glucose Oxidase-Peroxidase
NITRITE	Negative		Not Detected	
KETONES	Negative		NOT DETECTED	Legals
UROBILINOGEN	Normal		Not Detected	Erlichs
MICROSCOPIC EXAMINATION				
PUS CELLS	2-4	/HPF	0 - 5	Microscopy
EPITHELIAL CELLS	10-12	/HPF	0 - 5	Microscopy
RBC	NIL	/HPF	NIL	Microscopy
CRYSTALS	NIL	/HPF	NIL	Microscopy
Budding Yeast	NIL	/HPF	NIL	Microscopy
BACTERIA	+	/HPF	NIL	Microscopy
Others (Non Specific)	NIL	%		HPLC

Comment:

Its an *in vitro* diagnostic test. The physical examination is intended for use in at-risk patient groups to assist diagnosis in the following areas:

- Kidney function
- Urinary tract infections
- Carbohydrate metabolism
- Liver function

Critical value of Urine Ketone established as per laboratory policy:

If positive.

Such critical value if obtained needs urgent medical attention.



Dr. Romilla Mittal
(MD, DNB Pathology)

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Patient NAME : HEENA SADAF	Sample Collection Time : 03/May/2023 09:44AM
Age/Gender : 28/F	Sample Received in Lab Time : 03/May/2023 12:13PM
UAID/Oth.Lab Ref. : M7085/	Reported Time : 03/May/2023 12:46PM
SIN No. : ACW47951	Ref. Doctor : Self

DEPARTMENT OF HAEMATOLOGY

Test Name	Result	Unit	Bio. Ref. Range	Method
Complete Blood Count (CBC) , WHOLE BLOOD EDTA				
HAEMOGLOBIN	12.5	g/dl	12.0 - 15.0	Cyan-methemoglobin
RBC COUNT	4.50	million/ μ l	4.5 - 5.5	Optical(2-Dimensional technology)
PCV	39.7	%	36 - 46	Mathematical Calculation
MCV	88.2	fL	83 - 101	Measured, RBC Histogram
MCH	27.7	pg	27 - 32	Mathematical Calculation
MCHC	31.4	g/dl	31.0 - 34.5	Mathematical Calculation
R.D.W	14	%	11.5 - 14.5	Measured, RBC Histogram
TOTAL LEUCOCYTE COUNT	2580	cells/ μ l	4000 -10000	Peroxidase/Basophil/Lobularity
DIFFERENTIAL LEUCOCYTE COUNT (DLC)				
NEUTROPHILS	58.3	%	40 -80	Peroxidase (Flowcytometry)
ABSOLUTE NEUTROPHIL COUNT	1,504	/ μ l	2000 - 7000	Peroxidase (Flowcytometry)
LYMPHOCYTES	30.9	%	20 - 45	Peroxidase (Flowcytometry)
ABSOLUTE LYMPHOCYTE COUNT	797	/ μ l	1000 - 3000	Peroxidase (Flowcytometry)
MONOCYTES	8	%	02 -10	Peroxidase (Flowcytometry)
ABSOLUTE MONOCYTE COUNT	206.4	/ μ l	200 - 1000	Peroxidase (Flowcytometry)
EOSINOPHILS	2.3	%	1 - 6	Peroxidase (Flowcytometry)
ABSOLUTE EOSINOPHIL COUNT	59.3	/ μ l	20-500	Peroxidase (Flowcytometry)
BASOPHILS	0.5	%	00 - 02	Basophil/Lobularity(Flowcytometry)
ABSOLUTE BASOPHIL COUNT	12.9	/ μ l	20 - 100	Basophil/Lobularity(Flowcytometry)
PLATELET COUNT	159000	cells/ μ l	150000 - 410000	Optical(2-Dimensional technology)
PCT	0.15	%	0.19 - 0.39	Mathematical calculation
MPV	9.5	fL	6.8 - 10.9	Measured Platelet Histogram
NUCLEATED RED BLOOD CELLS %	0.00	%	<0.01	Peroxidase/Basophil/Lobularity
NUCLEATED RED BLOOD CELLS	0.0			

Comment:

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. It is done on automated cell counter. The sample collected in EDTA is well preserved for 1 day. After 24 - 48 hrs, RBC morphology show increased in MCV & HCT. All abnormal haemograms are reviewed and confirmed microscopically.
Critical value of Hemoglobin established as per laboratory policy: Adult : < 7.0 or > 20, NewBorn : < 10 or > 22, Critical value of TLC established as per laboratory policy: Adult : < 2000 or > 30000 NewBorn : < 2000 or > 43000, Critical value of PCV established as per laboratory policy: Adult : < 20 or > 60 NewBorn : < 33 or > 71, Critical value of Platelets established as per laboratory policy: Adult : <40000 or > 1000000. Such critical value if obtained needs urgent medical attention.



Dr. Iffat Hameed ode
Consultant Pathologist



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DEPARTMENT OF IMMUNOLOGY

Test Name	Result	Unit	Bio. Ref. Range	Method
Vitamin B12 , Serum				
VITAMIN B12	288.0	pg/mL	211 - 911	C.L.I.A

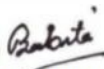
Comment:

Vitamin B12 deficiency frequently 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.

Critical value of VIT B12 established as per laboratory policy:

Adult : > 2000

Such critical value if obtained needs urgent medical attention.



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DEPARTMENT OF IMMUNOLOGY

Test Name	Result	Unit	Bio. Ref. Range	Method
*Vitamin D 25 Hydroxy (D3) , Serum				
VITAMIN D (25 - OH VITAMIN D)	31.44	ng/mL		CLIA

Comment:

BIOLOGICAL REFERENCE RANGES

VITAMIN D STATUS	VITAMIN D 25 HYDROXY (ng/mL)
DEFICIENCY	<20
INSUFFICIENCY	20 – <30
SUFFICIENCY	30 – 100
TOXICITY	>100

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)

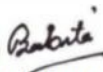
The reference ranges discussed in the preceding are related to total 25-OHD; as long as the combined total is 30 ng/mL or more, the patient has sufficient vitamin D.

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.

Critical value of VIT D established as per laboratory policy:

: > 100

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DEPARTMENT OF IMMUNOLOGY

Test Name	Result	Unit	Bio. Ref. Range	Method
Thyroid Profile (Total T3, Total T4, Ultrasensitive TSH) , Serum				
TRI-IODOTHYRONINE (T3, TOTAL)	0.91	ng/mL	0.60 - 1.81	C.L.I.A
THYROXINE (T4, TOTAL)	7.20	ug/dl	3.2 - 12.6	C.L.I.A
ULTRASENSITIVE TSH	2.170	μIU/ml	0.55 - 4.78	C.L.I.A

Comment:

Interpretations(s):

TSH stimulates the production and secretion of the metabolically active thyroid hormones, thyroxine (T4) and triiodothyronine (T3), by interacting with a specific receptor on the thyroid cell surface. The synthesis and secretion of TSH is stimulated by Thyrotropin releasing hormone (TRH), in response to low levels of circulating thyroid hormones. Elevated levels of T3 and T4 suppress the production of TSH via a classic negative feedback mechanism. Failure at any level of regulation of the hypothalamic-pituitary-thyroid axis will result in either underproduction (hypothyroidism) or overproduction (hyperthyroidism) of T4 and/or T3.

Limitations:

T3 and T4 circulates in reversibly bound form with Thyroid binding globulins (TBG), and to a lesser extent albumin and Thyroid binding Pre-Albumin, so conditions in which TBG and protein levels alter such as pregnancy, excess estrogens, androgens, steroids may falsely affect the T3 and T4 levels. Normal levels of T4 can also be seen in Hyperthyroid patients with: T3 Thyrotoxicosis, hypoproteinaemia or Ingestion of certain drugs. Serum T4 levels in neonates and infants are higher than values in the normal adult, due to the increased concentration of TBG in neonate serum. TSH may be normal in central hypothyroidism, recent rapid correction of hyperthyroidism or hypothyroidism, pregnancy, phenytoin therapy. Autoimmune disorders may produce spurious result. Various drugs can interfere with the test result. TSH has a diurnal rhythm so values may vary if sample collection is done at different times of the day. Recommended test for T3 and T4 is unbound fraction or free levels as it is metabolically active.

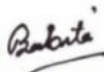
Time of sampling or food intake alter TSH levels. Recommended sample for thyroid tests is morning fasting sample (Shriram Mahadevn et al)

Each individual circadian rhythm is different, so for serial readings, one should always give the sample at the exact same time of the day every time.

Reference Intervals:

Age	T3 (ng/ml)	T4 (μg/dL)	TSH (μIU/mL)
Adults	0.60 - 1.81	3.20 - 12.6	0.55 - 4.78
For Pregnant females (As per American Thyroid Association)			
			First Trimester 0.10 - 2.50
			Second Trimester 0.20 - 3.00
			Third Trimester 0.30 - 3.00

*** End Of Report ***



Dr. Babita Goyal
(MD Biochemistry)

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