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MEDICAL LABORATORY

BML445785

Laboratory Investigation Report

Name	:	Ms. HAYAT ABUBEKER DAWD	**Ref No.**	:	43698
DOB	:	27/09/1998	**Sample No.**	:	2407455641
Age / Gender	:	25 Y 10 M / Female	**Collected**	:	29/07/2024 20:00
Referred by	:	DR HUMAIRA	**Registered**	:	29/07/2024 22:09
Centre	:	CITICARE MEDICAL CENTER	**Reported**	:	29/07/2024 23:10

BIOCHEMISTRY

Test	Result	Flag	Unit	Reference Range	Methodology
URIC ACID (SERUM)	3.8		mg/dL	2.4 - 5.7 Please note change. Source: Roche IFU.	Uricase, UV
CREATININE (SERUM)	0.66		mg/dL	0.5 - 0.9 Please note change. Source: Roche IFU.	Alkaline picrate (IFCC standardised)

INTERPRETATION NOTES :

1. Creatinine measurements are used as an aid in diagnosis and monitoring of renal disorders, Chronic Kidney disease (CKD) and in monitoring of renal dialysis and also used for the calculation of the fractional excretion of other urine analytes (e. g., albumin, α-amylase).
2. Creatinine is a break-down product of creatine phosphate in muscle, and is produced at a fairly constant rate by the body (depending on muscle mass). It is freely filtered by the glomeruli and, under normal conditions, is not reabsorbed by the tubules to any appreciable extent. A small but significant amount is also actively secreted. Its concentration is thus, inversely related to glomerular filtration rate (GFR).
3. Physiological factors affecting serum creatinine concentration include age, gender, race, muscularity, exercise, pregnancy, certain drugs, diet, dehydration and nutritional status.
4. Low serum Creatinine levels is seen in cases of low muscle mass like muscular atrophy, or aging.
5. High serum creatinine levels is seen in Acute and Chronic kidney disease, obstruction.
6. Since a rise in blood creatinine is observed only with marked damage of the nephrons, it is not suited to detect early stage kidney disease.

UREA (SERUM)	24		mg/dL	12.86 - 42.86 Please note change. Source: Roche IFU	Kinetic test with urease and glutamate
C-REACTIVE PROTEIN (CRP)	2.2		mg/L	< 5.0 Please note change. Source: Roche IFU.	Immunoturbidimetry

INTERPRETATION NOTES :

1. CRP measurements are used as aid in diagnosis, monitoring, prognosis, and management of suspected inflammatory disorders and associated diseases, acute infections and tissue injury.
2. C-reactive protein is the classic acute phase protein in inflammatory reactions.
3. CRP is the most sensitive of the acute phase reactants and its concentration increases rapidly during inflammatory processes. The CRP response frequently precedes clinical symptoms, including fever. After onset of an acute phase response, the serum CRP concentration rises rapidly and extensively. The increase begins within 6 to 12 hours and the peak value is reached within 24 to 48 hours. Levels above 100 mg/L are associated with severe stimuli such as major trauma and severe infection (sepsis).
4. CRP response may be less pronounced in patients suffering from liver disease.
5. CRP assays are used to detect systemic inflammatory processes (apart from certain types of inflammation such as systemic lupus erythematosus (SLE) and Colitis ulcerosa); to assess treatment of bacterial infections with antibiotics; to detect intrauterine infections with concomitant premature amniorrhexis; to differentiate between active and inactive forms of disease with concurrent infection, e.g. in patients suffering from SLE or Colitis ulcerosa; to therapeutically monitor rheumatic disease and assess anti-inflammatory therapy; to determine the presence of post-operative complications at an early stage, such as infected wounds, thrombosis and pneumonia, and to distinguish between infection and bone marrow transplant rejection.

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Pathologist

Dr. Vyoma V Shah
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HARSHAD MANIKANDAN
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Test	Result	Flag	Unit	Reference Range	Methodology
LIPID PROFILE TEST					
CHOLESTEROL (TOTAL)	164		mg/dl	Desirable: < 200 Borderline High: 200 - 239 High: ≥ 240 Please note change. Source: Roche IFU.	Enzymatic colorimteric assay
HDL CHOLESTEROL	63	H	mg/dl	40 - 60 Please note change. Source: Roche IFU.	Homogeneous enzymatic colorimetric assay
LDL CHOLESTEROL DIRECT	97		mg/dl	Optimal: < 100 Near/Above Optimal: 100 - 129 Borderline High: 130 - 159 High: 160 - 189 Very High: ≥ 190 Please note change. Source: Roche IFU.	Homogeneous enzymatic colorimetric assay
VLDL CHOLESTEROL	8		mg/dL	< 30	Calculation
NON-HDL CHOLESTEROL	105		mg/dL	< 140	Calculation
TRIGLYCERIDES	38		mg/dl	Normal: < 150 Borderline High: 150 - 199 High: 200 - 499 Very High: > 500 Source: Roche IFU.	Enzymatic colorimetric assay
TOTAL CHOLESTEROL / HDL RATIO	2.6		--	< 4.5	Calculation
LDL / HDL RATIO	1.5		--	< 3.5	Calculation

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Test	Result	Flag	Unit	Reference Range	Methodology
LIVER FUNCTION TEST					
ALT / SGPT	11		U/L	< or = 35 Please note change. Source: Roche IFU.	UV with P5P 37°C (IFCC)
AST / SGOT	16		U/L	< or = 35 Please note change. Source: Roche IFU.	IFCC; Tris buffer with P5P
ALP (ALKALINE PHOSPHATASE)	63		U/L	35 - 104 Please note change. Source: Roche IFU.	Colorimetric assay
GGT (GAMMA GLUTAMYL TRANSFERASE)	14		U/L	6 - 42 Please note change. Source: Roche IFU.	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
BILIRUBIN (TOTAL)	0.4		mg/dL	0 - 1.2 Please note change. Source: Roche IFU.	Jendrassik Grof
BILIRUBIN (DIRECT)	0.2		mg/dL	0 - 0.2 Please note change. Source: Roche IFU.	Diazotization
INDIRECT BILIRUBIN	0.20		mg/dL	< or = 0.9	Calculated
TOTAL PROTEIN	7.5		g/dL	6.4 - 8.3	Biuret reaction
ALBUMIN (SERUM)	4.5		g/dL	3.5 - 5.2 Please note change. Source: Roche IFU.	Colorimetric assay (Bromocresol Green)
GLOBULIN	3.0		g/dL	2.0 - 3.5	Calculation
A/G RATIO	1.5			0.8 - 2.0	Calculation

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Test	Result	Flag	Unit	Reference Range	Methodology
ELECTROLYTES (Na,K,Cl)					
SODIUM (NA)	139		mmol/L	136 - 145 Please note change. Source: Roche IFU.	ISE (Indirect)
POTASSIUM (K)	4.5		mmol/L	3.5 - 5.1 Please note change. Source: Roche IFU.	ISE (Indirect)
CHLORIDE (CL)	103		mmol/L	98 - 107 Please note change. Source: Roche IFU.	ISE (Indirect)

INTERPRETATION NOTES :

Sodium (NA)

Hypernatremia will be seen in dehydration, Cushing syndrome, central or nephrogenic diabetes insipidus with insufficient fluids, primary aldosteronism, lactic acidosis, azotemia, weight loss, nonketotic hyperosmolar coma. Hyponatremia occurs with nephrotic syndrome, cachexia, hypoproteinemia, intravenous glucose infusion, in congestive heart failure, and other clinical entities. Serum sodium is a predictor of cardiovascular mortality in patients in severe congestive heart failure. Addison disease, hypopituitarism, cirrhosis, hypertriglyceridemia, and psychogenic polydipsia.

Chloride (CL)

Increased level is seen in dehydration, with ammonium chloride administration, with renal tubular acidosis (hyperchloremic metabolic acidosis), and with an excessive infusion of normal saline, hyperparathyroidism. Decreased level with overhydration, congestive failure, syndrome of inappropriate secretion of ADH, vomiting, gastric suction, chronic respiratory acidosis, Addison disease, salt-losing nephritis, burns, metabolic alkalosis, and in some instances of diuretic therapy.

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BIOCHEMISTRY

Test	Result	Flag	Unit	Reference Range	Methodology
TIBC (TOTAL IRON BINDING CAPACITY)					
TOTAL IRON BINDING CAPACITY	289		µg/dL	168 - 585 Please note change in reference range.	Ferene
UNSATURATED IRON BINDING CAPACITY	243		µg/dL	135 - 392 Please note change. Source: Roche IFU.	FerroZine
IRON	46		ug/dL	33 - 193 Please note change. Source: Roche IFU.	Colorimetric without ppt (Ferene)

Sample Type : Serum

End of Report

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HEMATOLOGY

Test	Result	Flag	Unit	Reference Range	Methodology
COMPLETE BLOOD COUNT (CBC)					
HEMOGLOBIN	12.4		g/dL	12 - 15.5	Spectrophotometry (Oxyhemoglobin)
RBC COUNT	4.2		10^6/µL	3.9 - 5	Electrical Impedance
HEMATOCRIT	37.4		%	35 - 45	Calculation
MCV	88.8		fL	82 - 98	Calculation
MCH	29.6		pg	27 - 32	Calculation
MCHC	33.3		g/dL	32 - 37	Calculation
RDW	13.2		%	11.9 - 15.5	Calculation
RDW-SD	40.7		fL		Calculation
MPV	8.7		fL	7.6 - 10.8	Calculation
PLATELET COUNT	325		10^3/uL	150 - 450	Electrical Impedance
PCT	0.3		%	0.01 - 9.99	Calculation
PDW	16.3		Not Applicable	0.1 - 99.9	Calculation
NUCLEATED RBC (NRBC)^	0		/100 WBC		Flow Cytometry
ABSOLUTE NRBC COUNT^	0		10^3/uL		Calculation
EARLY GRANULOCYTE COUNT (EGC)^	0.4		%		Flow Cytometry
ABSOLUTE EGC^	0		10^3/uL		Calculation
WBC COUNT	10.4		10^3/µL	4 - 11	Electrical Impedance
DIFFERENTIAL COUNT (DC)					
NEUTROPHILS	80	H	%	40 - 75	Flow Cytometry
LYMPHOCYTES	15	L	%	30 - 60	Flow Cytometry
EOSINOPHILS	0		%	0 - 6	Flow Cytometry
MONOCYTES	4		%	1 - 6	Flow Cytometry
BASOPHILS	1		%	0 - 1	Flow Cytometry
ABSOLUTE COUNT					
ABSOLUTE NEUTROPHIL COUNT	8.3	H	10^3/uL	1.6 - 8.25	Calculation
ABSOLUTE LYMPHOCYTE COUNT	1.5		10^3/uL	1.2 - 6.6	Calculation
ABSOLUTE MONOCYTE COUNT	0.4		10^3/uL	0.04 - 0.66	Calculation
ABSOLUTE EOSINOPHIL COUNT	0.0		10^3/uL	0 - 0.66	Calculation
ABSOLUTE BASOPHIL COUNT	0.0		10^3/uL	0 - 0.11	Calculation

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HEMATOLOGY

Test	Result	Flag	Unit	Reference Range	Methodology

COMPLETE BLOOD COUNT (CBC)

INTERPRETATION NOTES : Please note update on CBC report format and changes in reference ranges.

Sample Type : *EDTA Whole Blood*

End of Report

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IMMUNOLOGY

Test	Result	Flag	Unit	Reference Range	Methodology
VITAMIN B12	868	H	pg/mL	197 - 771	ECLIA

INTERPRETATION NOTES :

Increase B12 level is seen in Liver disease (such as cirrhosis or hepatitis), Myeloproliferative disorders (for example, polycythemia vera and chronic myelogenous leukemia).
Decreased B12 level is seen in diseases that cause malabsorption (for example, celiac disease and Crohn disease), Lack of intrinsic factor, a protein that helps the intestine absorb vitamin B12, hyperthyroidism, pregnancy.

VITAMIN D, 25-OH (TOTAL)	21	ng/mL	Deficiency: <20 Insufficiency: 20 - <30 Sufficiency: 30 - 80 Toxicity: >80 Please note change. Source: Roche IFU.	ECLIA

INTERPRETATION NOTES :

Vit D (25 – OH) is the sum of Vit D2 (25 – OH) and Vit D3 (25 – OH). In normal persons not taking external supplements - Vit D3 comprises approximately 90 % of the total.

25 hydroxy (25–OH) vitamin D3 or calcidiol is the storage form of vitamin D3. Deficiency is associated with osteoporosis, multiple sclerosis, and rheumatoid arthritis, and mood disorders. Both Vitamin D2 and Vitamin D3 are converted to 25–OH vitamin D3 in the liver. 25 hydroxy vitamin D3 circulates to the kidney where it is converted to 1, 25 hydroxy vitamins D3 or calcitriol, the functional form of the vitamin.

Calcitriol is vital to calcium regulation and low serum calcium causes release of parathormone which converts 25–OH vitamin D3 to 1, 25 –OH vitamin D3 which then triggers osteolysis releasing calcium into the bloodstream.

Sample Type : Serum

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