MC-6561

Barcode No:	**00493480**	Reg No.	171321
Patient Name:	**MR. PARDEEP**	Reg Date	06-Jul-2024 10:07 AM
Age/Sex:	24Y 0M 0D/Male	Sample Coll. Date	06-Jul-2024 10:07 AM
Refered By:	SELF	Sample Rec.Date	06-Jul-2024 10:08 AM
Client Code/Name:	HR023-VISHAL	Report Date:	06-Jul-2024 10:32 AM
Panel Address:	KTL		

HAEMATOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
CBC (Complete Blood Count), Whole Blood EDTA			
Hemoglobin (Hb) Photometric Cyanmethemoglobin Method	**10.20**	**Low**	13.0-17.0 gm/dl
Erythrocyte Count (RBCs Counts) Optical Flow Cytometry	3.66	Normal	
Packed Cell Volume (PCV) Hematocrit RBC Pulse Hight Detection	**31.70**	**Low**	40-50 %
Mean Corpuscular Volume (MCV) Automated/Calculated	86.60	Normal	83 - 101 fL
Mean Corpuscular Hemoglobin (MCH) Automated/Calculated	27.90	Normal	24-32 pg/cell
Mean Corpuscular Hb concentration (MCHC) Automated/Calculated	32.20	Normal	28 - 35 g/dL
Red Blood Cell Distribution Width Coefficient of Variation (RDW-CV) Automated/Calculated	16.00	Normal	11.7 - 17.2 %
Red Blood Cell Distribution Width Standard Deviation (RDW-SD) Automated/Calculated	53.50	Normal	36.4 - 58.0 10^3/uL
Platelet Count Automated Optical Flow Cytometry /Manual Calculated	**128**	**Low**	150-410 10^3/ul
Plateletcrit (PCT) Automated Optical Flow Cytometry /Manual Calculated	0.15	Normal	0.15 - 0.39 %
Mean Platelet Volume (MPV) Automated/Calculated	11.30	Normal	7.0- 12.5 %
Platelet Distribution Width (PDW) Automated/Calculated	17.1	Normal	9.2-17.9 %
Platelet-Large Cell Count (P-LCC) Automated/Calculated	61.0	Normal	
Platelet Larger Cell Ratio (P-LCR) Automated/Calculated	55.90	Normal	18.5 - 68.0 %
Total Leukocyte Count (TLC/WBC Counts) Automated Optical Flow Cytometry /Manual Calculated	7.11	Normal	4.0-11 10^3/uL
Differential Leukocyte Count (DLC) Flow Cytometry/Manual/ Microscopic			
Neutrophils Impedance Flow Cytometry/ Microscopy	56.0	Normal	40 - 75 %
Lymphocytes Impedance Flow Cytometry/ Microscopy	40.0	Normal	20 - 40 %
Monocytes Impedance Flow Cytometry/ Microscopy	2.0	Normal	2 - 10 %
Eosinophils Impedance Flow Cytometry/ Microscopy	2.0	Normal	1 - 6 %

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HAEMATOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
Basophils Impedance Flow Cytometry/ Microscopy	0.0	Normal	0 - 2 %
Absolute Neutrophil Count Automated/Calculated	3.98	Normal	2.00-8.00 10^3/uL
Absolute Lymphocyte Count Automated/Calculated	2.84	Normal	1.00-3.00 10^3/uL
Absolute monocyte Count Automated/Calculated	**0.14**	**Low**	0.20 - 1.00 10^3ul
Absolute Eosinophils Automated/Calculated	0.14	Normal	0.02-0.50 10^3/ul
Absolute Basophils Automated/Calculated	**0.00**	**Low**	0.02 - 0.10 10^3ul

INTERPRETATION: Hemoglobin: Decreases in hemoglobin occur for the same reasons as decreased RBCs. **RBCs**: The RBC count will be low with iron deficiency, blood loss, hemolysis and bone marrow suppression. Increases may be found when one moves to a higher altitude or after prolonged physical exercise, hypoxia, Polycythemia vera. **Hematocrit:** After hemorrhage or excessive intravenous fluid infusion, the hematocrit will be low. If the patient is dehydrated, the hematocrit will be increased. **MCV**: Low values indicate the cells are microcytic and are evident with conditions such as iron deficiency, lead poisoning and Thalassemias. High values indicate macrocytic cells (large cells), and are found in conditions as megaloblastic anemia, folate or Vitamin B12 deficiency, liver disease, post-splenectomy, chemotherapy or hypothyroidism. **MCH** & **MCHC:** Low values are associated with iron deficiency thalassemia and malnutrition. **RDW**: Elevated levels may indicate iron deficiency or other conditions with a wide distribution of various cell sizes. **Platelets:** Thrombocytopenia (reduced platelets) can cause severe bleeding. Thrombocytopenia may occur in case of aplastic anemia, drug-induced, leukemia. Elevated platelet number can be seen in following cases essential thrombocythemia, chronic leukemia, post-splenectomy, iron deficiency anemia, malignancy, chronic infection or inflammation and other conditions which may enhance platelet function are atherosclerosis, diabetes, smoking and elevated lipid and cholesterol levels. **WBCs:** Low white blood cell count (leukopenia) may be caused by a medical condition, such as an autoimmune disorder that destroys white blood cells, bone marrow problems. Certain medications also can cause white blood cell counts to drop. If your white blood cell count is higher than normal, you may have an infection or inflammation. It could indicate that you have an immune system disorder or a bone marrow disease. A high white blood cell count can also be a reaction to medication.

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HAEMATOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
Erythrocyte Sedimentation Rate (ESR), Whole Blood EDTA			
Erythrocyte Sedimentation Rate (ESR) Westergreen Method	**45**	**High**	<15 mm/hr

CLINICAL COMMENTS: Erythrocyte sedimentation rate (ESR or sed rate) is a relatively simple, inexpensive, non-specifictest that indirectly measures the degree of inflammation present in the body. Inflammation is part of the body's immune response. It can be acute, developing rapidly after trauma, injury or infection, for example, or can occur over an extended time (chronic) with conditions such as autoimmune diseases or cancer. Moderately elevated ESR occurs with inflammation but also with anemia, infection, pregnancy, and with aging. A very high ESR usually has an obvious cause, such as a severe infection, marked by an increase in globulins, systemic vasculitis, polymyalgia rheumatica or temporal arteritis. People with multiple myeloma or Waldenstrom's macroglobulinemia (tumors that make large amounts of immunoglobulins) typically have very high ESRs even if they don't have inflammation.

Factors increasing ESR:

- Advanced age
- Anemia
- Pregnancy
- High fibrinogen
- Macrocytosis
- Kidney problems
- Thyroid disease
- Some cancers, such as multiple myeloma
- Infection

Factors decreasing ESR

- Microcytosis
- Low fibrinogen
- Polycythemia
- Marked leukocytosis

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BIOCHEMISTRY & IMMUNOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
Lipid (Heart Risk) Profile, Serum			
TOTAL CHOLESTEROL Chod/Pap Method	145.02	Normal	Desirable:80-200 Borderline High: 200 - 239 High > 240 mg/dL
TRIGLYCERIDES Gpo/Pap Method	121.22	Normal	Normal 150 Border line High 150-199 High 200-499 Very High> 500 mg/dL
HDL CHOLESTEROL Direct Enzymatic Method	58.30	Normal	35 - 60 mg/dL
LDL CHOLESTEROL Direct Enzymatic Method	62.48	Normal	Normal: 00-100, Above optimal: 101-130, Borderline High: 130-160, High; 160-200 mg/dL
VERY LOW DENSITY LIPOPROTEIN (VLDL) Automated/Calculated	24.24	Normal	0.0-30.0 mg/dL
TOTAL CHOLESTEROL / HDL CHOLESTEROL Ratio Automated/Calculated	2.49	Normal	<5.0 mg/dL
LDL / HDL CHOLESTEROL Ratio Automated/Calculated	**1.07**	**Low**	Less than 3.50 mg/dL
TOTAL LIPIDS Automated/Calculated	412.02	Normal	400-1000 mg/dL

CLINICAL COMMENTS: Lipid Profile is the blood test useful in screening the abnormalities associated with lipids. The results of this test can assess approximate risks for cardiovascular disease (Heart attack, Heart Failure, stroke, coronary artery disease), certain forms of pancreatitis, Hypertriglyceridemia (indicative of insulin resistance) and certain genetic disorders. Total cholesterol is an estimate of all the cholesterol in the blood. Thus, higher total cholesterol may be due to high levels of HDL or high levels of LDL. So knowing the breakdown is important. High-density lipoprotein (HDL) is good cholesterol. HDL helps carry bad cholesterol out of the bloodstream and arteries. It plays a very important role in preventing clogged arteries. So, the higher the HDL number, the better. Low-density lipoprotein (LDL) is bad cholesterol. High LDL levels increase the risk of heart disease. Your actual LDL goal depends on whether or not you have existing risk factors for heart disease, such as diabetes or high blood pressure. Very Low-density lipoprotein (VLDL) is a type of bad cholesterol that contains the highest amount of triglycerides. The higher your VLDL level, the more likely you are to have a heart attack or stroke. Triglycerides are a type of blood fat that has been linked to heart disease and diabetes. If you have high triglycerides, your total cholesterol and LDL levels may be high, as well. Lifestyle plays a large role in your triglyceride level. Smoking, excessive drinking, uncontrolled diabetes, and medications such as estrogen, steroids, and some acne treatments can contribute to high triglyceride levels. Total cholesterol to HDL ratio is useful in predicting the risk of developing atherosclerosis (plaque build-up inside the arteries). **NOTE: 10-12 Hours Fasting is Mandatory for Lipid Profile.** **In case of the lipemic or highly turbid due to lipoproteins mainly chylomicrons,the test cannot be performed on the specimen but the patient can request for this test again after consuming a fat free diet for at least a weak.**

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BIOCHEMISTRY & IMMUNOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
Liver Function Test (LFT) - Extended, Serum			
Bilirubin Total Mod.Jendrassik and Grof"s Method	0.90	Normal	0.1-1.2 mg/dL
Bilirubin Direct DCA METHOD	0.21	Normal	0.00 - 0.30 mg/dL
Bilirubin Indirect Calculated	0.69	Normal	0.1 - 1.10 mg/dL
Aspartate Transaminase (AST/SGOT) Mod. IFCC Method	**93.76**	**High**	0-50 U/L
Alanine Amino Transferase (ALT/SGPT) Mod. IFCC Method	**74.34**	**High**	3-50 U/L
SGOT/SGPT Ratio Automated/Calculated	1.26	Normal	0.00 - 3.50 g/dL
Alkaline Phosphatase (ALP) Mod. IFCC Method	**157.80**	**High**	43-115 U/L
Gamma Glutamyl Transferase (GGT) Carboxy Substrate Method	**68.30**	**High**	5 - 64 U/L
Protein Total Biuret Method	6.98	Normal	6.4-8.3 g/dL
Albumin BCG (Bromo Cresol Green) Method	4.12	Normal	3.5-5.6 g/dL
Globulin Automated/Calculated	2.86	Normal	2.5 - 3.8 g/dL
Albumin/Globulin Ratio (A/G) Automated/Calculated	1.44	Normal	1.00 - 2.30 g/dL

CLINICAL COMMENTS: Liver function tests can be suggested in case of hepatitis, liver cirrhosis and monitor possible side effects of medications. A variety of diseases and infections can cause acute or chronic damage to the liver, causing inflammation (hepatitis), scarring (cirrhosis), bile duct obstructions, liver tumors, and liver dysfunction. Alcohol, drugs, some herbal supplements, and toxins can also inure the liver. A significant amount of liver damage may occur before symptoms such as jaundice, dark urine, light-colored stools, itching (pruritus), nausea, fatigue, diarrhea, and unexplained weight loss or gain appear. Early detection of liver injury is essential in order to minimize damage and preserve liver function.**Alanine aminotransferase (ALT)** A very high level of ALT is frequently seen with acute hepatitis. Moderate increases may be seen with chronic hepatitis. People with blocked bile ducts, cirrhosis, and liver cancer may have ALT concentrations that are only moderately elevated or close to normal. **Aspartate aminotransferase (AST)** A very high level of AST is frequently seen with acute hepatitis. AST may be normal to moderately increased with chronic hepatitis. In people with blocked bile ducts, cirrhosis, and liver cancer, AST concentrations may be moderately increased or close to normal. When liver damage is due to alcohol, AST often increases much more than ALT (this is a pattern seen with few other liver diseases). AST is also increased after heart attacks and with muscle injury.AST is a less sensitive and less specific marker of liver injury than ALT. AST is more elevated than ALT in alcohol-induced liver injury. AST could elevated more than ALT like: (i) alcoholic liver disease results in mitochondrial toxicity and pyridoxal phosphate, which is a co-factor for AST; (ii) Wilson disease results in subclinical haemolysis and release of AST; (iii) the presence of liver cirrhosis; once liver cirrhosis is established, AST remains higher than ALT because of destroyed sinusoidal architecture, which results in impaired clearance of AST. **Alkaline phosphatase (ALP)** may be significantly increased with obstructed bile ducts, cirrhosis, liver cancer, and also with bone disease.. Albumin is often normal in liver disease but may be low due to decreased production, especially in liver cirrhosis.**Total protein (TP)** is typically normal with liver disease. **Gamma-glutamyl transferase (GGT)** test may be used to help determine the cause of an elevated ALP. Both ALP and GGT are elevated in bile duct and liver disease, but only ALP will be elevated in bone disease. Increased GGT levels are also seen with alcohol consumption and with conditions, such as congestive heart failure.

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BIOCHEMISTRY & IMMUNOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
KIDNEY PROFILE (KFT), Serum			
Urea GLDH KINETIC METHOD	**90.44**	**High**	17.0-44.0 mg/dL
Creatinine ,Serum Enzymatic Pap Method	**8.12**	**High**	0.5-1.2 mg/dL
Uric Acid Uricase/ Pap Method	5.01	Normal	3.5-7.2 mg/dL
Blood Urea Nitrogen (BUN) Automated/Calculated	**42.26**	**High**	6.0 - 20.0 mg/dL
BUN/Creatinine Ratio Automated/Calculated	5.20	Normal	0.00 - 23.0 mg/dL
Urea/Creatinine Ratio Automated/Calculated	11.14	Normal	0.00 - 45.0 mg/dL
Calcium Total	9.31	Normal	8.6 - 10.5 mg/dL
ELECTROLYTE PROFILE (*)			
Sodium	**132.50**	**Low**	135-145 mmol/L
Potassium	**5.69**	**High**	3.5-5.2 mmol/L
Chloride Serum	**113.70**	**High**	97.0–110 mmol/L

COMMENTS: KINDLY CORRELATE WITH CLINICAL FINDINGS.

CLINICAL COMMENTS **UREA:** High urea levels suggest poor kidney function, congestive heart failure, shock, stress, recent heart attack or severe burns; bleeding from the gastrointestinal tract; conditions that cause obstruction of urine flow or dehydration. Low urea levels can be seen in severe liver disease or malnutrition but are not used to diagnose or monitor these conditions. Low urea levels are also seen in normal pregnancy. **CREATININE:** Increases in any renal functional impairment (intrinsic renal lesions, decreased perfusion of the kidney, or obstruction of the lower urinary tract), acromegaly and hyperthyroidism. Decreases in pregnancy, muscle wasting. **URIC ACID:** Increases in case of renal failure, disseminated neoplasms, pregnancy toxaemia, psoriasis, liver disease, sarcoidosis etc. Decrease is reported in Wilson's disease, Fanconi's syndrome, xanthinuria. **SODIUM:** Increases due to water loss (severe diarrhea profuse sweating, polyuria or vomiting), hypergluco- or mineralo-corticoidism, and inadequate water intake. Decreases due to intake of free water or hypotonic solutions. Dilutional hyponatremia (liver failure, cardiac failure, nephrotic syndrome, malnutrition, renal tubular abnormalities). **POTASSIUM:** Increases due to excess destruction of cells, redistribution of K^+ from the intra- to the extracellular compartment (crush injuries, massive haemolysis, malignant hyperpyrexia and hyperkinetic activity). Decreased renal K^+ excretion (acute renal failure, some cases of chronic renal failure, Addison's disease, and other sodium-depleted states). Decreases due to excess K^+ loss (vomiting, diarrhea, renal tubular defects,villous adenoma of the colorectum, hypercorticoidism, etc), Redistribution hypokalemia (glucose/insulin therapy, alkalosis and periodic paralysis). **CHLORIDE:** Increases in case of dehydration, acute renal failure, renal tubular acidosis, diabetes insipidus, prolonged diarrhoea, respiratory alkalosis, salicylate toxicity, , hypothalamic lesions, and adrenocortical hyperfunction. Decreases in case of excessive sweating, prolonged vomiting, adrenocortical deficiency, salt-losing nephropathy, acute intermittent porphyria, various acid base disturbances, expansion of extracellular fluid volume etc. **Urea nitrogen (BUN):** Increases in case of acute & chronic intrinsic renal disease, post renal obstruction of urine, high protein intake. Decreases with high carbohydrate/low protein diets, increased anabolic demand (late pregnancy, infancy, acromegaly), malabsorption and severe liver damage. **CALCIUM:** Increases in case of malignant neoplasms (with or without bone involvement), vit-D intoxication, primary and tertiary hyperparathyroidism, sarcoidosis, Paget's disease of bone (with immobilization), thyrotoxicosis, acromegaly, diuretic phase of renal acute tubular necrosis

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BIOCHEMISTRY & IMMUNOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
eGFR, Serum			
eGFR	**8.12**	**High**	0.50 - 1.30 mg/dL
ESTIMATED GFR BY CKD	**8.34**	**Low**	>60 mL/min/1.73m2
ESTIMATED GFR BY MDRD	**8.70**	**Low**	>60 mL/min/1.73m2

INTERPRETATION:

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

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 .
3. Recalculation of estimated GFR is required for African American race.

INTERPRETATION:

CKD STAGE	DESCRIPTION	GFR (mL/min/1.73m^2)	ASSOCIATED FINDINGS
0	Normal kidney function	>90	No proteinuria
1	Kidney damage with normal or high GFR	>90	Presence of Protein, albumin, cells or casts in urine
2	Mild decrease in GFR	60-89	-
3	Moderate decrease in GFR	30-59	-
4	Severe decrease in GFR	15-29	-
5	Kidney failure	<15	-

COMMENTS:
Modification of diet in renal disease (MDRD) equation is most thoroughly validated and superior to all the other methods for estimation of GFR. It does not require weight as a variable and yields an estimated GFR normalized to 1.73m2 body surface area. Using serum creatinine alone gives a poor inference of GFR because they are inversely related and effects of age, sex and race on creatinine production complicate interpretation. For African American races a modified formula is used for calculation of GFR.

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IMMUNOLOGY

HS1.1

TestName	Result	Flag	Biological Ref. Range/Unit
Thyroid Function Test (TFT), Serum			
Tri-Idothyronine (TT3) Electro Chemiluminescence Immunoassay (ECLIA)	1.49	Normal	0.80–2.0 ng/mL
Thyroxine Total (TT4) Electro Chemiluminescence Immunoassay (ECLIA)	8.73	Normal	4.0–12 ug/dL
Thyroid Stimulating Hormone (TSH) (CMIA), ULTRA SENSITIVE Electro Chemiluminescence Immunoassay (ECLIA)	1.650	Normal	Non-Pregnant 0.38-5.33 pregnant female 1st trimester 0.05-3.70 2nd trimester 0.31-4.35 3rd trimester 0.41-5.18 mU/L

Comments:

T3 is physiologically more active than T4 & plays an important role in maintaining euthyroidism. T3 circulates in free form (0.3 %) and in bound form (99.7%).

T4 is predominantly bound to carrier protein - thyroid binding globulin (TBG-99.9%). T4 assay aids in diagnosis of hyperthyroidism - primary or secondary hypothyroidism & thyroid hormone resistances. T4 tre must also be associated with the other tre of the thyroid assessment, such as TSH & T3 as well as with the clinical examina on to the patient TSH levels are subject to circadian varia on, reaching peak levels between 2am to 4am and at a minimum between 6pm to 10pm. The varia on is of the order of 50%; hence time of the day has influence on the measured serum TSH concentrations.

Significant numbers of parents particularly those above 55 years of age have a serum TSH level between 4.68 & 10 µIU/ml. This borderline eleva on may be due to presence of SUBCLINICAL HYPOTHYROIDISM. Thyroid profile and an -thyroid (an TPO & TG) an bodies es ma on is suggested in all such cases.

Very low serum TSH values are observed in patients who are being treated for hypothyroidism. In such pa ents Serum Free T3 & Free T4 estimation may also be performed.

In Pregancy as per American Thyroid Association Reference range for TSH is as follows:-

Level	Total T3(ng/ml)	Total T4(ug/dl)	TSH(uIU/ml)	Free T3(pmol/L)	Free T4(ng/dl)
1st Trimester	1.25-2.93	4.60-10.50	0.3-4.5	3.2-6.8	0.7-2.0
2nd Trimester	1.54-4.00	6.92-12.38	0.5-4.6	3.1-5.9	0.5-1.60
3rd Trimester	1.54-4.00	5.98-12.98	0.8-5.2	3.1-5.9	0.6-1.60

All reports must be interpreted by treating physician only.

********** End of Report **********

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