ADVANCE DIAGNOSTICS CENTRE
C1-C2/17A, NEAR NIHARIKA TALKIES
KORBA- 495677
PH-09228333 MOBILE-9300888178

NAME	: MS SMRITI PATEL	20	Years / Female	Reg No.	: 24846
Ref. By	: DR. HEMANT PATEL, B.A.M.S.			Reg. Date	: 03/10/2022 10:53AM
Address	:			Collected At	: MedZone Center

INVESTIGATION REPORT

CLINICAL BIOCHEMISTRY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
Calcium (arsenazo III)				
Sample Type	: SERUM			
Calcium (arsenazo III)	: 8.89	mg/dL	8.6 - 10.3	Fully Automated Roche E311

Calcium plays an essential role in many cell functions: intracellular in muscle contraction and glycogen metabolism, extracellular in bone mineralization, in blood coagulation and in transmission of nerve impulses. Calcium in plasma exists in three forms: free, bound to proteins or bound to anions such as phosphate, citrate and bicarbonate in a complex reaction. Decreased total calcium levels can be associated with diseases of the bone apparatus (especially osteoporosis), kidney diseases (especially under dialysis), defective intestinal absorption and hypoparathyroidism. Increased total calcium can be measured in hyperparathyroidism, malignant diseases with metastases and sarcoidosis. Calcium measurements also help in monitoring of calcium supplementation mainly in the prevention of osteoporosis.

METHOD: Spectrophotometry

INSTRUMENT: A-25 Biosystem (Spain) Fully Automated Chemistry Analyser

Iron					
Sample Type	: SERUM				
Iron	: **50**	µg/dl	100-250 40-100 50-120 35-145	: 0 - 6 weeks : 7 wks - 11 mon : 1 yr - 10 yrs : Adults	Fully Automated Roche E311

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CLINICAL BIOCHEMISTRY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
Vitamin - B12 (Cyanocobalamin)				
Sample Type	: SERUM			
Vitamin - B12 (Cyanocobalamin)	: **182.6**	pg/mL	200 - 911	Fully Automated Roche E411 (ECL)

Nutritional and macrocytic anemias can be caused by a deficiency of vitamin B12. This deficiency can result from diets devoid of meat and bacterial products, from alcoholism, or from structural/functional damage to digestive or absorptive processes (forms of pernicious anemia). Malabsorption is the major cause of this deficiency through pancreatic deficiency, gastric atrophy or gastrectomy, intestinal damage, loss of intestinal vitamin B12 binding protein (intrinsic factor), production of autoantibodies directed against intrinsic factor, or related causes. This vitamin is necessary for normal metabolism, DNA synthesis and red blood cell regeneration. Untreated deficiencies will lead to megaloblastic anemia and vitamin B12 deficiency results in irreversible central nervous system degeneration. Vitamin B12 or folate are both of diagnostic importance for the recognition of vitamin B12 or folate deficiency, especially in the context of the differential diagnosis of megaloblastic anemia. Radioassays were first reported for vitamin B12 in 1961. All utilize co-cyanocobalamin radiolabeled tracers and intrinsic factor for binding vitamin B12. The various commercial assays differ in their free versus bound separation techniques and choice of specimen pretreatment. The presence of endogenous serum binding proteins for cyanocobalamin (transcobalamins including R-protein) and of immunoglobulins directed against intrinsic factor require that specimens are either boiled or treated at an alkaline pH to release the vitamin B12 and destroy the binding proteins. In the late 1970's, radioassays using serum binding proteins or partially purified intrinsic factor measured levels of vitamin B12 which exceeded those determined by microbiological methods. This was caused by the presence of the serum binding protein or R-proteins in the assay. R-protein specificity is poor compared to that of intrinsic factor and vitamin B12 analogs were being measured in addition to vitamin B12 itself. Since that time, recommendations have been established for the use of highly purified intrinsic factor throughout the industry. Roche Cobas Vitamin B12 employs a competitive test principle using intrinsic factor specific for vitamin B12. Vitamin B12 in the sample competes with the added vitamin B12 labeled with biotin for the binding sites on the ruthenium-labeled intrinsic factor complex**.

METHOD: ELECTRO CHEMILUMINESCENCE ASSAY

INSTRUMENT: ROCHE COBAS e411

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CLINICAL BIOCHEMISTRY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
LFT (Liver Function Test)				
Sample Type	: SERUM			
Bilirubin Total	: 0.76	mg/dl	Adults : 0.1 - 1.2 New born : 0.1 - 12.6	Diazoted Sulfanilic
Bilirubin Direct	: 0.30	mg/dl	Upto 0.4	Diazoted Sulfanilic
Bilirubin Indirect	: 0.46	mg/dl	0.3 - 1.0	
Aspartate Amino Transferase (SGOT)	: 16.0	U/L	Upto 41	IFCC without pyridoxal phosphate
Alanine Amino Transferase (SGPT)	: 15.8	U/L	Upto 40	IFCC without pyridoxal phosphate
Alkaline Phosphatase	: 72.8	U/L	1 month to 9 yrs : 82 - 383 10 yrs to 15 yrs : 42 - 390 16 yrs to 18 yrs : 52 - 171 Adults : 53 - 141	Diethanolamine buffer
Serum Protein	: 7.7	gm/dl	6.0 - 8.3	Biuret
Serum Albumin	: 4.8	gm/dl	3.5 - 5.2	Bromocresol green
Serum Globulin	: 2.9	gm/dl	2.5 - 3.5	
Alb/Glo Ratio	: 1.66		1-2	

LFT: Liver Function tests are a measurement of blood components that provide a lead to the existence, the extent and the type of liver damage.

BILIRUBIN: Bilirubin levels may rise due to hemolysis, failure of conjugating mechanism in the liver, obstruction in the biliary system.

ALKALINE PHOSPHATASE: *Increase in ALP activity is an index of cholestasis, a blockage of bile flow. *Increase may also occur in infiltrative diseases of the liver and cirrhosis

TRANSAMINASES (AST & ALT): *The serum transaminases activities are a measure of the integrity of liver cells. *They are elevated in acute damage to hepatocytes irrespective of etiology. *The causes include – hepatitis, toxic injury, drug overdose, shock, severe hypoxia.

SERUM TOTAL PROTEINS: A decrease in serum total proteins indicates a decrease in the liver's synthetic capacity and thus indicates the severity of the liver disease.

METHOD: Spectrophotometry

INSTRUMENT: BS-400 Fully Automated Chemistry Analyser

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CLINICAL BIOCHEMISTRY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
Lipid Profile				
Sample Type	: SERUM			
Cholesterol Total	: 124.2	mg/dl	Desirable : < 200 Moderate Risk : 200 - 239 High Risk : > 240	CHOD-PAP
Cholesterol HDL	: **42.5**	mg/dl	Desirable : > 37 Moderate Risk : 25 - 37 High Risk : < 12 - 18	Direct Clearance
Cholesterol LDL	: 67	mg/dl	Desirable : < 130 Moderate Risk : 130 - 159 High Risk : > 160	Direct Clearance
Cholesterol VLDL	: 14.7	mg/dl	6 - 40	
Triglycerides	: 73.5	mg/dl	< 160 : Normal 160 – 400 : Slightly Elevated 400 – 600 : Elevated > 600 : Highly Elevated	GPO
T.Chol / HDL Chol Ratio	: 2.92		2.9 - 5.1	
LDL / HDL Ratio	: **1.58**		1.7 - 3.5	

NOTE : Lipid Profile RANGES AS PER NCEP-ATP III are:

Serum cholesterol (Total) :
Desirable : < 200 mg/dl, Borderline : 200 - 239 mg/dl, Elevated : >/= 240 mg/dl
Serum high density lipoprotein cholesterol(HDL) :
Desirable : > 60 mg/dl, Borderline : 40- 60 mg/dll, Elevated : 40 mg/dl
Total cholesterol : HDL cholesterol ratio :
Low risk : 3.3-4.4, Average risk : 4.4-7.1, Moderate risk : 7.1-11.0, High risk : >11.0
Serum low density lipoprotein (LDL) cholesterol :
Desirable : 100 mg/dl, Borderline : 100- 159 mg/dll, Elevated : >/= 160 mg/dl
Triglycerides :
Desirable : 150 mg/dl, Borderline : 150- 199 mg/dll, High : 200 - 499 mg/dl, Very High : >/= 500 mg/dl
HDL measurement done by Direct HDL clearance method (CDC approved).
As per the Friedwald Equation, VLDL & LDL values are not applicable for triglyceride values above 400 mg/dl.

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INVESTIGATION REPORT

CLINICAL BIOCHEMISTRY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
Thyroid Profile				
Sample Type	: SERUM			
Tri Iodothyronine (T3)	: 1.06	ng/mL	0.6-2.7 : 1 - 10 Years 0.6-1.81 : Adults Pregnancy 0.9 - 3.0 : Ist Trimester 0.9 - 3.6 : 2nd & 3rdTr	ECL
Total Thyoxine (T4)	: 8.31	µg/dL	7.8 - 16.5 : 1 - 12 Months 4.6 - 11.6 : Adults 9.1 - 14.0 : Pregnancy (15 - 40 Weeks)	ECL
Thyroid Stimulating Hormone (TSH)	: 1.72	µIU/mL	0.52 - 16.0 : 1 - 30 Days 0.46 - 8.10 : 1 Mn - 5 Yrs 0.37 - 4.8 : Adults Cord blood : 2.3 - 13.2	ECL

Three common ways in which there may be inadequate amounts of the thyroid hormone for normal metabolism. **1.** Primary hypothyroidism, in which there is a raised TSH and a low T4 and low T3. This is due to failure of the thyroid gland, possibly due to autoantibody disease, possibly due to toxic stress or possibly due to iodine deficiency. **2.** The second, the most common cause of thyroid failure, occurs at the pituitary level. In this condition there is inadequate thyroid stimulating hormone (TSH) produced from the pituitary and so one tends to see low or normal TSH, low T4s and variable T3s. This condition is most common in many patients with chronic fatigue syndrome, where there is a general suppression of the hypothalamic-pituitary-adrenal axis. **3.** The third type of under-functioning is due to poor conversion of T4 to T3. This requires enzymes and co-factors, in particular selenium, zinc and iron. In this condition there are normal or possibly slightly raised levels of TSH, normal levels of T4 but low levels of T3. This requires micronutrients and also T3 to correct.

Therefore, in any patient suspecting of thyroid problem routinely TSH, a Free T4 and a Free T3 are also advisable. Any patients who are taking T3 as part of their thyroid supplement need to have their T3 levels monitored as well as T4. T3 is much more quickly metabolized than T4 and blood tests should be done between 4-6 hours after their morning dose.

METHOD: One-step sandwich and competitive FEIA
INSTRUMENT: TOSHO AIA-360 JAPAN

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CLINICAL BIOCHEMISTRY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
RENAL FUNCTION TEST				
Sample Type	: SERUM			
Blood urea	: 16.6	mg/dl	10-40	Urease UV
Serum Creatinine	: 0.71	mg/dl	0.5-1.1	Alkaline Picrate
Blood Urea Nitrogen	: 7.75	mg/dl	7-21	
Serum Sodium	: 140	mmol/L	136-145	ISE
Serum Potassium	: 4.89	mmol/L	3.5-5.1	ISE
chloride	: 104.1	Meq/L	96-106	

--- End Of Report ---

Sample Registered On : 03/10/2022 10:53AM
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Report Released On : 03/10/2022 05:13PM
Sample Barcode :

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HAEMATOLOGY

TEST	RESULT	UNIT	BIOLOGICAL REF RANGE	TEST METHOD
CBP (Complete Blood Picture)				
Sample Type	: WB - EDTA			
Haemoglobin	: 12.9	gm%	11.5 - 16.0	
Total Erythrocyte Count	: 4.31	M/cmm	4.0 - 6.2	Cell Counter
Hemotocrit (PCV)	: 41.0	Vol %	35.0 - 50.0	
Mean Corpuscular Volume	: 95.1	fL	80 - 100	
Mean Corpuscular Hemoglobin	: 29.9	PG	26 - 34	
MCHC	: 31.5	g/L	31 - 35	
RDW	: 12.9	%	11.5 - 14.5	
Total Leucocyte Count.	: 5570	/cumm	4000 - 11000	
DIFFERENTIAL COUNT :				
Neutrophils	: 45	%	40 - 75	
Lymphocytes.	: **49**	%	20 - 40	Cell Counter
Monocytes.	: 05	%	2 - 10	Cell Counter
Eosinophils	: 01	%	1 - 6	Cell Counter
Basophils	: 0	%	0 - 1	Cell Counter
Platelet Count	: 259000	/cmm	150000 - 450000	
ESR (Erythrocyte Sedimentation Rate)				
Sample Type	: PLASMA -Na Citrate			
ESR (Erythrocyte Sedimentation Rate)	: 15	mm/hr	0 - 20 :1st Hour	Sedimentation me

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