L38 - FPSC SHARANPUR CHOWK DHERADUN
78, Arhat Bazar, Near Shivaji Dharamshal
Saharanpur Road, Dehradun-248001

Name	: **Mr. DAVINDER**			**Collected**	: **30/6/2020 8:15:00AM**
Lab No.	: **283280071**	**Age: 50 Years**	**Gender: Male**	**Received**	: **30/6/2020 11:39:35AM**
				Reported	: **30/6/2020 5:36:27PM**
A/c Status	: **P**	**Ref By : Dr. SELF**		**Report Status**	: **Final**

Test Name	Results	Units	Bio. Ref. Interval
SWASTHFIT SUPER 4 PACKAGE			
LIVER & KIDNEY PANEL, SERUM (Spectrophotometry, Indirect ISE)			
Bilirubin Total	0.60	mg/dL	0.30 - 1.20
Bilirubin Direct	0.13	mg/dL	<0.30
Bilirubin Indirect	0.47	mg/dL	<1.10
AST (SGOT)	25	U/L	<50
ALT (SGPT)	36	U/L	<50
GGTP	23	U/L	<55
Alkaline Phosphatase (ALP)	88	U/L	30 - 120
Total Protein	7.50	g/dL	6.40 - 8.30
Albumin	4.50	g/dL	3.50 - 5.20
A : G Ratio	1.50		0.90 - 2.00
Urea	25.10	mg/dL	17.00 - 43.00
Creatinine	0.78	mg/dL	0.67 - 1.17

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Test Name	Results	Units	Bio. Ref. Interval
Uric Acid	**8.04**	mg/dL	3.50 - 7.20
Calcium, Total	9.36	mg/dL	8.80 - 10.60
Phosphorus	3.10	mg/dL	2.40 - 4.40
Sodium	137.68	mEq/L	136.00 - 146.00
Potassium	3.96	mEq/L	3.50 - 5.10
Chloride	101.60	mEq/L	101.00 - 109.00

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Test Name	Results	Units	Bio. Ref. Interval
COMPLETE BLOOD COUNT;CBC (Electrical Impedance & Flow)			
Hemoglobin	15.00	g/dL	13.00 - 17.00
Packed Cell Volume (PCV)	44.90	%	40.00 - 50.00
RBC Count	5.35	mill/mm3	4.50 - 5.50
MCV	83.90	fL	80.00 - 100.00
MCH	28.00	pg	27.00 - 32.00
MCHC	33.40	g/dL	32.00 - 35.00
Red Cell Distribution Width (RDW)	14.40	%	11.50 - 14.50
Total Leukocyte Count (TLC)	5.95	thou/mm3	4.00 - 10.00
Differential Leucocyte Count (DLC)			
Segmented Neutrophils	52.00	%	40.00 - 80.00
Lymphocytes	36.10	%	20.00 - 40.00
Monocytes	8.90	%	2.00 - 10.00
Eosinophils	2.00	%	1.00 - 6.00
Basophils	1.00	%	<2.00
Absolute Leucocyte Count			
Neutrophils	3.09	thou/mm3	2.00 - 7.00
Lymphocytes	2.15	thou/mm3	1.00 - 3.00
Monocytes	0.53	thou/mm3	0.20 - 1.00
Eosinophils	0.12	thou/mm3	0.02 - 0.50
Basophils	0.06	thou/mm3	0.01 - 0.10
Platelet Count	**135.0**	thou/mm3	150.00 - 450.00

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Test Name	Results	Units	Bio. Ref. Interval
Platelets are mildly reduced **Advised:** Follow up and Review. Result rechecked			
Mean Platelet Volume (MPV)	**12.50**	fL	6.50 - 12.00

Note

1. As per the recommendation of International council for Standardization in Hematology, the differential leucocyte counts are additionally being reported as absolute numbers of each cell in per unit volume of blood

2. Test conducted on EDTA whole blood

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Test Name	Results	Units	Bio. Ref. Interval
HbA1c (GLYCOSYLATED HEMOGLOBIN), BLOOD (HPLC)			
HbA1c	**5.7**	%	
Estimated average glucose (eAG)	117	mg/dL	

Interpretation

As per American Diabetes Association (ADA)	
Reference Group	HbA1c in %
Non diabetic adults >=18 years	4.0 - 5.6
At risk (Prediabetes)	5.7 - 6.4
Diagnosing Diabetes	>= 6.5
Therapeutic goals for glycemic control	< 7.0

Note

1. Since HbA1c reflects long term fluctuations in the blood glucose concentration, a diabetic patient who is recently under good control may still have a high concentration of HbA1c. Converse is true for a diabetic previously under good control but now poorly controlled
2. Target goals of < 7.0 % may be beneficial in patients with short duration of diabetes, long life expectancy and no significant cardiovascular disease. In patients with significant complications of diabetes, limited life expectancy or extensive co-morbid conditions, targeting a goal of < 7.0 % may not be appropriate
3. Presence of Hemoglobin variants and/or conditions that affect red cell turnover must be considered, particularly when the A1C result does not correlate with the patient's blood glucose levels
4. In patients with HbA1c level between 7-8%, Glycemark (1,5 Anhydroglucitol) test may be done to identify those with more frequent and extreme hyperglycemic excursions

Comments

HbA1C reflects average glycemia over approximately 3 months, the test is the major tool for assessing glycemic control and has strong predictive value for diabetes complications. Thus, HbA1C testing should be performed routinely in all patients with diabetes - at initial assessment and as part of continuing care.

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Test Name	Results	Units	Bio. Ref. Interval

Measurement approximately every 3 months determines whether patients' glycemic targets have been reached and maintained. The frequency of A1C testing should depend on the clinical situation, the treatment regimen, and the clinician's judgement.

ADA Recommendations for HbA1c testing

1. Perform the A1C test at least two times a year in patients who are meeting treatment goals (and who have stable glycemic control)
2. Perform the A1C test quarterly in patients whose therapy has changed or who are not meeting glycemic goals

Factors that Interfere with HbA1c Measurement: Hemoglobin variants, elevated fetal hemoglobin (HbF) and chemically modified derivatives of hemoglobin (e.g. carbamylated Hb in patients with renal failure) can affect the accuracy of HbA1c measurements

Factors that affect interpretation of HbA1c Results: Any condition that shortens erythrocyte survival or decreases mean erythrocyte age (e.g., recovery from acute blood loss, hemolytic anemia, HbSS, HbCC, and HbSC) will falsely lower HbA1c test results regardless of the assay method used. Iron deficiency anemia is associated with higher HbA1c

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Test Name	Results	Units	Bio. Ref. Interval
THYROID PROFILE,TOTAL, SERUM (ECLIA)			
T3, Total *	0.86	ng/mL	0.80 - 2.00
T4, Total *	5.62	ug/dL	5.10 - 14.10
TSH *	3.22	uIU/mL	0.27 - 4.20

Note

1. TSH levels are subject to circadian variation, reaching peak levels between 2 - 4.a.m. and at a minimum between 6-10 pm . The variation is of the order of 50%, hence time of the day has influence on the measured serum TSH concentrations.
2. Recommended test for T3 and T4 is unbound fraction or free levels as it is metabolically active.
3. Physiological rise in Total T3 / T4 levels is seen in pregnancy and in patients on steroid therapy.

Clinical Use

- Primary Hypothyroidism
- Hyperthyroidism
- Hypothalamic - Pituitary hypothyroidism
- Inappropriate TSH secretion
- Nonthyroidal illness
- Autoimmune thyroid disease
- Pregnancy associated thyroid disorders
- Thyroid dysfunction in infancy and early childhood

***** Not in NABL scope

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Test Name	Results	Units	Bio. Ref. Interval
LIPID SCREEN, SERUM (Spectrophotometry)			
Cholesterol, Total	**201.00**	mg/dL	<200.00
Triglycerides	97.00	mg/dL	<150.00
HDL Cholesterol	52.63	mg/dL	>40.00
LDL Cholesterol, Calculated	**128.97**	mg/dL	<100.00
VLDL Cholesterol,Calculated	19.40	mg/dL	<30.00
Non-HDL Cholesterol	**148**	mg/dL	<130

Interpretation

REMARKS	TOTAL CHOLESTEROL in mg/dL	TRIGLYCERIDE in mg/dL	LDL CHOLESTEROL in mg/dL	NON HDL CHOLESTEROL in mg/dL
Optimal	<200	<150	<100	<130
Above Optimal	-	-	100-129	130 - 159
Borderline High	200-239	150-199	130-159	160 - 189
High	>=240	200-499	160-189	190 - 219
Very High	-	>=500	>=190	>=220

Note

1. Measurements in the same patient can show physiological & analytical variations. Three serial samples 1 week apart are recommended for Total Cholesterol, Triglycerides, HDL& LDL Cholesterol.
2. NLA-2014 recommends a complete lipoprotein profile as the initial test for evaluating cholesterol.

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3. Friedewald equation to calculate LDL cholesterol is most accurate when Triglyceride level is < 400 mg/dL. Measurement of Direct LDL cholesterol is recommended when Triglyceride level is > 400 mg/dL
4. NLA-2014 identifies Non HDL Cholesterol(an indicator of all atherogeniclipoproteins such as LDL , VLDL, IDL, Lpa, Chylomicron remnants)along with LDL-cholesterol as co- primary target for cholesterol lowering therapy. Note that major risk factors can modify treatment goals for LDL &Non HDL.
5. Apolipoprotein B is an optional, secondary lipid target for treatment once LDL & Non HDL goals have been achieved
6. Additional testing for Apolipoprotein B, hsCRP,Lp(a) & LP-PLA2 should be considered among patients with moderate risk for ASCVD for risk refinement

Treatment Goals as per Lipid Association of India 2016

RISK CATEGORY	TREATMENT GOAL		CONSIDER THERAPY	
	LDL CHOLESTEROL (LDL-C)(mg/dL)	NON HDL CHLOESTEROL (NON HDL-C) (mg/dL)	LDL CHOLESTEROL (LDL-C)(mg/dL)	NON HDL CHLOESTEROL (NON HDL-C) (mg/dL)
Very High	<50	<80	>=50	>=80
High	<70	<100	>=70	>=100
Moderate	<100	<130	>=100	>=130
Low	<100	<130	>=130*	>=160*

*In low risk patient, consider therapy after an initial non-pharmacological intervention for at least 3 months

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Test Name	Results	Units	Bio. Ref. Interval
VITAMIN B12; CYANOCOBALAMIN, SERUM * (ECLIA)	225.60	pg/mL	197.00 - 771.00

Notes

1. Interpretation of the result should be considered in relation to clinical circumstances.
2. It is recommended to consider supplementary testing with plasma Methylmalonic acid (MMA) or plasma homocysteine levels to determine biochemical cobalamin deficiency in presence of clinical suspicion of deficiency but indeterminate levels. Homocysteine levels are more sensitive but MMA is more specific
3. The concentration of Vitamin B12 obtained with different assay methods cannot be used interchangeably due to differences in assay methods and reagent specificity

Comments

Vitamin B12 performs many important functions in the body, but the most significant function is to act as co-enzyme for reducing ribonucleotides to deoxyribonucleotides, a step in the formation of genes. Inadequate dietary intake is not the commonest cause for cobalamine deficiency. The most common cause is malabsorption either due to atrophy of gastric mucosa or diseases of terminal ileum. Cobalamine deficiency leads to Megaloblastic anemia and demyelination of large nerve fibres of spinal cord. Normal body stores are sufficient to last for 3-6 years. Sources of Vitamin B12 are liver, shellfish, fish, meat, eggs, milk, cheese & yogurt.

Decreased Levels

- **Lack of Intrinsic factor:** Total or partial gastrectomy, Atrophic gastritis, Intrinsic factor antibodies
- **Malabsorption**: Regional ileitis, resected bowel, Tropical Sprue, Celiac disease, pancreatic insufficiency, bacterial overgrowth & achlorhydria
- **Loss of ingested vitamin B12:** fish tapeworm
- **Dietary deficiency:** Vegetarians
- **Congenital disorders:** Orotic aciduria & transcobalamine deficiency
- **Increased demand**: Pregnancy specially last trimester

Increased Levels

Chronic renal failure, Congestive heart failure, Acute & Chronic Myeloid Leukemia, Polycythemia vera, Carcinomas with liver metastasis, Liver disease, Drug induced cholestasis & Protein malnutrition

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Test Name	Results	Units	Bio. Ref. Interval
VITAMIN D, 25 - HYDROXY, SERUM * (ECLIA)	**57.03**	nmol/L	75.00 - 250.00

Interpretation

LEVEL	REFERENCE RANGE IN nmol/L	COMMENTS
Deficient	< 50	High risk for developing bone disease
Insufficient	50-74	Vitamin D concentration which normalizes Parathyroid hormone concentration
Sufficient	75-250	Optimal concentration for maximal health benefit
Potential intoxication	>250	High risk for toxic effects

Note

- The assay measures both D2 (Ergocalciferol) and D3 (Cholecalciferol) metabolites of vitamin D.
- 25 (OH)D is influenced by sunlight, latitude, skin pigmentation, sunscreen use and hepatic function.
- Optimal calcium absorption requires vitamin D 25 (OH) levels exceeding 75 nmol/L.
- It shows seasonal variation, with values being 40-50% lower in winter than in summer.
- Levels vary with age and are increased in pregnancy.
- A new test Vitamin D, Ultrasensitive by LC-MS/MS is also available

Comments

Vitamin D promotes absorption of calcium and phosphorus and mineralization of bones and teeth. Deficiency in children causes Rickets and in adults leads to Osteomalacia. It can also lead to Hypocalcemia and Tetany. 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).

Decreased Levels

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Test Name	Results	Units	Bio. Ref. Interval

- Inadequate exposure to sunlight
- Dietary deficiency
- Vitamin D malabsorption
- Severe Hepatocellular disease
- Drugs like Anticonvulsants
- Nephrotic syndrome

Increased levels

Vitamin D intoxication

Dr Pritika Uniyal
MD, Pathology
Chief of Lab

----------End of report ----------

IMPORTANT INSTRUCTIONS

*Test results released pertain to the specimen submitted.*All test results are dependent on the quality of the sample received by the Laboratory. *Laboratory investigations are only a tool to facilitate in arriving at a diagnosis and should be clinically correlated by the Referring Physician .*Sample repeats are accepted on request of Referring Physician within 7 days post reporting.*Report delivery may be delayed due to unforeseen circumstances. Inconvenience is regretted.*Certain tests may require further testing at additional cost for derivation of exact value. Kindly submit request within 72 hours post reporting.*Test results may show interlaboratory variations.*The Courts/Forum at Delhi shall have exclusive jurisdiction in all disputes/claims concerning the test(s) & or results of test(s).*Test results are not valid for medico legal purposes. *Contact customer care Tel No. +91-11-39885050 for all queries related to test results.
(#) Sample drawn from outside source.

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