

Name	: WC12 WC12 WC12	Collected	: 10/2/2017 11:13:00AM
Lab No.	: 134312180	Received	: 10/2/2017 11:19:47AM
Age:	Unknown	Reported	: 10/2/2017 12:55:29PM
Gender:	Male	Report Status	: Final
A/c Status	: P	Ref By	: Unknown

Test Name	Results	Units	Bio. Ref. Interval
SWASTH PLUS ADVANCE & VITAMIN PANEL			

LIVER & KIDNEY PANEL, SERUM (Spectrophotometry, Indirect ISE)			
Bilirubin Total	0.50	mg/dL	0.20 - 0.90
Bilirubin Direct	0.20	mg/dL	<0.20
Bilirubin Indirect	0.30	mg/dL	<1.10
AST (SGOT)	25	U/L	<50
ALT (SGPT)	25	U/L	<50
GGTP	55	U/L	<55
Alkaline Phosphatase (ALP)	100	U/L	30 - 120
Total Protein	7.90	g/dL	6.40 - 8.10
Albumin	4.00	g/dL	2.90 - 4.50
A : G Ratio	1.03		0.90 - 2.00
Urea	20.00	mg/dL	17.00 - 43.00
Creatinine	0.60	mg/dL	0.67 - 1.17
Uric Acid	7.00	mg/dL	3.50 - 7.20
Calcium, Total	8.90	mg/dL	8.20 - 9.60
Phosphorus	4.00	mg/dL	2.20 - 3.90
Sodium	137.00	mEq/L	136.00 - 146.00
Potassium	4.50	mEq/L	3.50 - 5.10
Chloride	105.00	mEq/L	101.00 - 109.00

THYROID PROFILE,TOTAL, SERUM (CLIA)			
T3, Total	1.00	ng/mL	0.60 - 1.81
T4, Total	10.00	ug/dL	5.01 - 12.45
TSH	5.00	uIU/mL	0.35 - 5.50

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

LPL - LPL-ROHINI (NATIONAL REFERENCE
LAB)
SECTOR - 18, BLOCK -E ROHINI
DELHI 110085

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Test Name	Results	Units	Bio. Ref. Interval
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			

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Test Name	Results	Units	Bio. Ref. Interval
URINE EXAMINATION, ROUTINE; URINE, R/E (Automated Strip Test, Microscopy)			
Physical			
Colour	Lemon Yellow		Pale yellow
Specific Gravity	1.010		1.001 - 1.030
pH	7		5.0 - 8.0
Chemical			
Proteins	Nil		Nil
Glucose	Nil		Nil
Ketones	Nil		Nil
Bilirubin	Nil		Nil
Urobilinogen	Normal		Normal
Leucocyte Esterase	Negative		Negative
Nitrite	Negative		Negative
Microscopy			
R.B.C.	Negative		Negative
Pus Cells	Negative		0-5 WBC / hpf
Epithelial Cells	Nil		Few
Casts	Nil		Nil /lpf
Crystals	Negative		Nil
Others	Nil		-

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Test Name	Results	Units	Bio. Ref. Interval
HbA1c (GLYCOSYLATED HEMOGLOBIN), BLOOD (HPLC, NGSP certified)	5.5	%	

Interpretation

As per American Diabetes Association (ADA)	
Reference Group	HbA1c in %
Non diabetic adults >=18 years	<5.7
At risk (Prediabetes)	5.7 - 6.4
Diagnosing Diabetes	>= 6.5
Therapeutic goals for glycemic control	Age > 19 years . Goal of therapy: < 7.0 . Action suggested: > 8.0 Age < 19 years . Goal of therapy: <7.5

- 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.

Comments

HbA1c provides an index of average blood glucose levels over the past 8 - 12 weeks and is a much better indicator of long term glycemic control as compared to blood and urinary glucose determinations.

ADA criteria for correlation between HbA1c & Mean plasma glucose levels

HbA1c(%)	Mean Plasma Glucose (mg/dL)
6	126
7	154
8	183

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A/c Status	:	P	Ref By : Unknown		Reported : 10/2/2017 12:55:29PM
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Test Name		Results	Units	Bio. Ref. Interval
	9	212		
	10	240		
	11	269		
	12	298		

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Test Name	Results	Units	Bio. Ref. Interval
HEMOGRAM (Electrical Impedance & VCS, Capillary photometry, Photometry)			
Hemoglobin	13.50	13.00 - 17.00 g/dL	
Packed Cell Volume (PCV)	45.00	% 40.00 - 50.00	
RBC Count	4.60	4.50 - 5.50/mm ³	
MCV	90.00	80.00 - 100.00 fL	
MCH	28.00	27.00 - 32.00 pg	
MCHC	33.00	32.00 - 35.00 g/dL	
Red Cell Distribution Width (RDW)	12.00	% 11.50 - 14.50	
Total Leukocyte Count (TLC)	8.00	thou/mm ³ 4.00 - 10.00	
Differential Leucocyte Count (DLC)			
Segmented Neutrophils	70.00	%	40.00 - 80.00
Lymphocytes	30.00	%	20.00 - 40.00
Monocytes	0.00	%	2.00 - 10.00
Eosinophils	0.00	%	1.00 - 6.00
Basophils	0.00	%	<2.00
Absolute Leucocyte Count			
Neutrophils	5.60	thou/mm ³	2.00 - 7.00
Lymphocytes	2.40	thou/mm ³	1.00 - 3.00
Monocytes	0.00	thou/mm ³	0.20 - 1.00
Eosinophils	0.00	thou/mm ³	0.02 - 0.50
Basophils	0.00	thou/mm ³	0.01 - 0.10
Platelet Count	355.0	150.00 - 450.00/mm ³	
ESR	10	0.00 - 30.00 mm/hr	

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
BUN; BLOOD UREA NITROGEN, SERUM (Urease UV)	9.34	mg/dL	10.00 - 31.00
GLUCOSE, FASTING (F), PLASMA (Hexokinase)	80.00	mg/dL	70.00 - 100.00
CARDIO C-REACTIVE PROTEIN (hsCRP), SERUM (Immunoturbidimetry)	1.00	mg/L	<1.00

Interpretation

CARDIO CRP IN mg/L	CARDIOVASCULAR RISK
<1	Low
1-3	Average
3-10	High
>10	Persistent elevation may represent Non cardiovascular inflammation

Note: To assess vascular risk, it is recommended to test hsCRP levels 2 or more weeks apart and calculate the average

Comments

High sensitivity C Reactive Protein (hsCRP) significantly improves cardiovascular risk assessment as it is a strongest predictor of future coronary events. It reveals the risk of future Myocardial infarction and Stroke among healthy men and women, independent of traditional risk factors. It identifies patients at risk of first Myocardial infarction even with low to moderate lipid levels. The risk of recurrent cardiovascular events also correlates well with hsCRP levels. It is a powerful independent risk determinant in the prediction of incident Diabetes.

LIPID SCREEN, SERUM (Spectrophotometry)			
Cholesterol, Total	180.00	mg/dL	<200.00
Triglycerides	100.00	mg/dL	<150.00
HDL Cholesterol	30.00	mg/dL	>40.00
LDL Cholesterol, Calculated	130.00	mg/dL	<100.00
VLDL Cholesterol, Calculated	20.00	mg/dL	<30.00

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Test Name	Results	Units	Bio. Ref. Interval
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Interpretation

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

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. ATP III recommends a complete lipoprotein profile as the initial test for evaluating cholesterol.
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.

FERRITIN, SERUM (CLIA)	200.00	ng/mL	22.00 - 322.00
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Note: Increase in serum ferritin due to inflammatory conditions (Acute phase response) can mask a diagnostically low result

Comments

Serum ferritin appears to be in equilibrium with tissue ferritin and is a good indicator of storage iron in normal subjects and in most disorders. In patients with some hepatocellular diseases, malignancies and inflammatory diseases, serum ferritin is a disproportionately high estimate of storage iron because serum ferritin is an acute phase reactant. In such disorders iron deficiency anemia may exist with a normal serum ferritin concentration. In the presence of inflammation, persons with low serum ferritin are likely to respond to iron therapy.

Increased Levels

Iron overload - Hemochromatosis, Thalassemia & Sideroblastic anemia

Malignant conditions - Acute myeloblastic & Lymphoblastic leukemia, Hodgkin's disease & Breast

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Test Name	Results	Units	Bio. Ref. Interval
carcinoma			
Inflammatory diseases - Pulmonary infections, Osteomyelitis, Chronic UTI, Rheumatoid arthritis, SLE, burns			
Acute & Chronic hepatocellular disease			

Decreased Levels

Iron deficiency anemia

IRON STUDIES, SERUM (Spectrophotometry)			
Iron	80.00	µg/dL	65.00 - 175.00
Total Iron Binding Capacity	360.00	µg/dL	250.00 - 425.00
Transferrin Saturation	22.22	%	20.00 - 50.00

Comments

Iron is an essential trace mineral element which forms an important component of hemoglobin, metallocompounds and Vitamin A. Deficiency of iron, leads to microcytic hypochromic anemia. The toxic effects of iron are deposition of iron in various organs of the body and hemochromatosis.

Total Iron Binding capacity (TIBC) is a direct measure of the protein Transferrin which transports iron from the gut to storage sites in the bone marrow. In iron deficiency anemia, serum iron is reduced and TIBC increases.

Transferrin Saturation occurs in Idiopathic hemochromatosis and Transfusional hemosiderosis where no unsaturated iron binding capacity is available for iron mobilization. Similar condition is seen in congenital deficiency of Transferrin.

VITAMIN B12; CYANOCOBALAMIN, SERUM (CLIA)	300.00	pg/mL	211.00 - 911.00
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Note: To differentiate vitamin B12 & folate deficiency, measurement of Methyl malonic acid in urine & serum Homocysteine level is suggested

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

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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

VITAMIN D, 25 - HYDROXY, SERUM (CLIA)	55.00	nmol/L
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Interpretation

LEVEL	REFERENCE RANGE IN nmol /L	COMMENTS
Defi ci ent	< 50	Hi gh ri sk for devel opi ng bone di sease
Insuffi ci ent	50-74	Vi ta min D concentration which normal izes Parathyroi d hormone concentration
Suffi ci ent	75-250	Opti mal concentration for maximal heal th benefi t
Potential i ntoxi cati on	>250	High ri sk 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.

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	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

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

Increased levels

Vitamin D intoxication



Dr. Anil Arora
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-----End of report -----