UHID	CIMS-18807	Visit Type/No	OP/EPD-28140/EPD-28140
Name	Mr Dev Dutt	Order No	OR-58946
Age/Gender	54 Y,2 M,20 D/Male	Order Date/Time	28-09-2024
Accession Number	OPAC-6085	Collection Date/Time	28-09-2024 09:50 AM
Treating Doctor	Dr Self	Acknowledge Date/Time	28-09-2024 01:34 PM
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Pathology

Service Name	Result	Unit	Reference Range	Method
PSA (Prostate Specific Antigen) Total, **Serum**	0.526	ng/mL	0.27-3.42	CLIA

Note

:1. This is recommended test for detection of prostate cancer along with digital rectal examination(DRE) in males above 50 years of age.
2. False negative / positive results are observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy
3. PSA Total and Free levels may appear consistently elevated / depressed due to interference by heterophilic antibodies & nonspecific protein binding,
4. Immediate testing following digital rectal examination, ejaculation, prostatic massage, indwelling catheterization, ultrasonography and needle biopsy of prostate is not recommended as they falsely elevate levels
5. Total and Free PSA values regardless of levels should not be interpreted as absolute evidence for the presence or absence of disease. All values should be correlated with clinical findings and results of other investigations

Clinical Use

- An aid in the early detection of Prostate cancer in males 50 years or older with Total PSA values between 4.0 and 10.0 ng/mL and nonsuspicious digital rectal examination.
- An aid in discriminating between Prostate cancer and Benign Prostatic disease. Patients with benign conditions have a higher proportion of Free PSA compared with Prostate cancer

URINE ANALYSIS/ URINE ROUTINE EXAMINATION, Urine				
Physical Examination				
COLOUR	Pale Yellow			Manual method
TRANSPARENCY	Clear			Manual
SPECIFIC GRAVITY	1.020		1.001-1.03	Strip
PH URINE	6.5		5-8	Strip
DEPOSIT	Absent			Manual
BIOCHEMICAL EXAMINATION				
ALBUMIN	Absent			Strip
SUGAR	Absent			Strip
BILE SALTS (BS)	Absent			Manual
BILE PIGMENT (BP)	Absent			Manual
MICROSCOPIC EXAMINATION				
PUS CELLS	1-2	/ hpf		Microscopy
EPITHELIAL CELLS	0-1	/ hpf		Microscopy
RBC'S	Absent	/hpf		Microscopy
CASTS	Absent			Microscopy
CRYSTALS	Absent			Macroscopy
BACTERIA	Absent			Macroscopy
FUNGUS	Absent			Microscopy
SPERMATOZOA	Absent			Microscopy
OTHERS	Absent			Microscopy
Thyroid Profile -T3, T4, TSH, Blood				
Triiodothyronine (T3)	2.09	ng/mL	0.69-2.15	CLIA
Thyroxine (T4)	85.0	ng/mL	52-127	CLIA
Thyroid Stimulating Hormone (TSH)	**5.81 H**	uIU/mL	0.3-5.0	CLIA

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Service Name	Result	Unit	Reference Range	Method
Interpretation				

: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

Haematology

Service Name	Result	Unit	Reference Range	Method
BLOOD GROUP (ABO)				
BLOOD GROUP (ABO)-	"AB'			
RH TYPING	POSITIVE			
The upper agglutination test for grouping has some limitations.				
ESR (Erythrocyte Sedimentation Rate), **Blood**	**32 H**	mm 1st Hr.	0-10	Wintrobe
CBC (Complete Blood Count), Blood				
Hemoglobin (Hb)	15.2	gm/dl	13-17	Spectrophotometry
TLC (Total Leukocyte Count)	7560	/cumm	4000-11000	Cell Counter & Microscopy
DIFFERENTIAL LEUCOCYTE COUNT				
Neutrophils	57	%	40-80	Cell Counter & Microscopy
Lymphocytes	31	%	20-45	Cell Counter & Microscopy
Monocytes	05	%	4-10	Cell Counter & Microscopy
Eosinophils	**07 H**	%	1-6	Cell Counter & Microscopy
Basophils	00	%	0-1	Cell Counter & Microscopy
RBC Count	4.84	millions/cumm	4.5-5.5	Impedance
PCV / HCt (Hematocrit)	44.3	%	40-45	Calculated
MCV	91.5	fl	76-96	Impedance
MCH	31.4	pg	27-32	Impedance
MCHC	34.3	g/dL	30-35	Impedance
Platelet Count	1.86	lakh/cumm	1.5-4.5	Cell Counter & Microscopy
RDW	13.4	%	1-15	Impedance

Clinical Biochemistry

Service Name	Result	Unit	Reference Range	Method
KFT (Kidney Profile) -II, Serum				
Urea, Blood	25.43	mg/dL	15-50	Urease-uv
Creatinine, Serum	1.04	mg/dL	0.6-1.2	Enzymatic
Blood Urea Nitrogen (BUN)	11.87	mg%	7.5-22.0	Calculated

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Service Name	Result	Unit	Reference Range	Method
BUN-CREATININE RATIO	11.41		10-20	Calculated
Sodium,Serum	149.2	mmol/L	135-150	ISE
Potassium, Serum	4.56	mmol/L	3.5-5.5	ISE
Calcium, Serum	10.24	mg/dL	8.7-11.0	ISE
Chloride, Serum	98.0	mmol/L	94-110	ISE
Uric acid, Serum	4.48	mg/dL	3.4-7.0	Uricase
Magnesium, Serum	1.82	mg/dL	1.6-2.8	XYLIDYL BLUE
Phosphorus, Serum	3.79	mg/dL	2.4-5.0	MOLYBDATE UV
Alkaline phosphatase, Serum	88.73	U/L	53-165	IFCC
Albumin, Serum	3.86	g/dL	3.5-5.4	BCG
Glucose (Fasting), **Plasma**	103.37	mg/dL	60-110	GOD/POD
Lipid Profile, Serum				
Cholestrol, serum	181.33	mg%	Optimal: < 200 mg/dl Boder LIne High Risk: 150 -240 mg/dl High Risk: > 250 mg/dl	
Triglycerides, serum	141.44	mg%	Optimal: < 150 mg/dl Border Line High Risk: 150 - 199 mg/dl High Risk: 200 - 499 mg /dl Very High Risk: > 500 mg /dl	
HDL Cholesterol	48.68	mg%	Optimal: 70 mg/dl Border Line High Risk: 80 - 100 mg/dl High Risk: > 120 mg/dl	
LDL Cholesterol	104.36	mg%	Optimal: < 100 mg/dl Border Line High Risk: 100 - 129 mg/dl High Risk: > 160 mg/dl	
VLDL Cholestrol	28.29	mg%	Male : 10 - 40 mg/dl Female : 10 - 40 mg/dl Child : 10 - 40 mg/dl	
LDL / HDL Cholesterol ratio	2.14		0.0-3.5	

Interpretation :

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

LFT (Liver Function Test) Profile, Serum

Bilirubin Total, Serum	0.50	mg/dL	0.1-1.0	DMSO
Conjugated (Direct), Serum	0.20	mg%	0.0-0.3	DMSO

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Service Name	Result	Unit	Reference Range	Method
Unconjugated (Indirect)	0.30	mg%	0.0-0.75	Calculated
SGOT/AST	24.49	U/L	0-40	IFCC
SGPT/ALT	25.78	U/L	0-48	IFCC
AST/ALT Ratio	0.95		0-1	Calculated
Gamma GT,Serum	19.61	U/L	10-45	IFCC
Alkaline phosphatase, Serum	88.73	U/L	53-165	IFCC
Total Protein, serum	7.15	gm/dl	6.0-8.4	Biuret
Albumin, Serum	3.86	g/dL	3.5-5.4	BCG
Globulin	3.29	g/dL	2.3-3.6	Calculated
A/G Ratio	1.17		1.0-2.3	Calculated
VITAMIN B12 CYANOCOBALAMIN, Serum	**126.0 L**	pg/mL	200-1100	CLIA

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 coenzyme 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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Service Name	Result	Unit	Reference Range	Method
HbA1c				
GLYCOSYLATED HAEMOGLOBIN (HbA1c)				
Method- Immunofluorescence Assay				
Glycosylated Hemoglobin (HbA1c)	6.40	%	<6.5 : Non Diabetic 6.5-7 : Good Control 7-8 : Weak Control > 8 : Poor Control	
Estimated average blood glucose (eAG)	136.98	mg/dl	90-120: Excellent Control 121-150: Good Control 151-180: Average Control 181-210: Action Suggested	

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.

Glucose (Post Prandial), **Plasma**	**155.5 H**	mg/dL	80-150	GOD/POD
VITAMIN D3, Cholecalciferol, **Serum**	38.9	ng/mL	30-100	CLIA

Interpretation :

Deficiency	<10 ng/mL
Insufficiency	10-29 ng/mL
Toxicity	>100 ng/mL

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Note

:**Note** 1. Reference ranges represent clinical decision values and are established only for 25-Hydroxy Vitamin D, Total.

2. Conventional Immunoassays may have sample-specific interferences that can lead to variable performance. These interferences include other vitamin D metabolites (e.g. 24,25-dihydroxyvitamin D3, 3-epi 25 hydroxy vitamin D3) and certain lipid.

3. Physiologically inactive epimers of Vitamin D2 & D3 are separated chromatographically with Vitamin D metabolites as they may result in overestimation of Total Active Vitamin D levels. This can create therapeutic errors since patients who are deficient or insufficient may appear sufficient and toxicity may be reported in patients with high normal levels.

COMMENT:

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 hyroxy vitamin D, as it is the major circulating form and has longer half life (2-3 weeks) than 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

----------End of the Report----------

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