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<b>NAME</b>	: Mr. P.K JAIN	<b>PATIENT ID</b>	: 1591810
<b>AGE/ GENDER</b>	: 72 YRS/MALE	<b>REG. NO./LAB NO.</b>	: 012408260053
<b>COLLECTED BY</b>	: SURJESH	<b>REGISTRATION DATE</b>	: 26/Aug/2024 02:00 PM
<b>REFERRED BY</b>	: CENTRAL PHOENIX CLUB (AMBALA CANTT)	<b>COLLECTION DATE</b>	: 26/Aug/2024 02:01PM
<b>BARCODE NO.</b>	: 01515761	<b>REPORTING DATE</b>	: 26/Aug/2024 03:49PM
<b>CLIENT CODE.</b>	: KOS DIAGNOSTIC LAB		
<b>CLIENT ADDRESS</b>	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
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**HAEMATOLOGY**

**GLYCOSYLATED HAEMOGLOBIN (HBA1C)**

<b>GLYCOSYLATED HAEMOGLOBIN (HbA1c):</b>	7.8 <sup>H</sup>	%	4.0 - 6.4
<b>WHOLE BLOOD</b>			
<i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>			
<b>ESTIMATED AVERAGE PLASMA GLUCOSE</b>	177.16 <sup>H</sup>	mg/dL	60.00 - 140.00
<i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>			

**INTERPRETATION:**

**AS PER AMERICAN DIABETES ASSOCIATION (ADA):**

REFERENCE GROUP	GLYCOSYLATED HEMOGLOBIN (HBA1C) in %	
Non diabetic Adults >= 18 years	<5.7	
At Risk (Prediabetes)	5.7 – 6.4	
Diagnosing Diabetes	>= 6.5	
	<b>Age &gt; 19 Years</b>	
Therapeutic goals for glycemic control	Goals of Therapy:	< 7.0
	Actions Suggested:	>8.0
	<b>Age &lt; 19 Years</b>	
	Goal of therapy:	<7.5

**COMMENTS:**

- Glycosylated hemoglobin (HbA1c) test is three monthly monitoring done to assess compliance with therapeutic regimen in diabetic patients.
- Since Hb1c reflects long term fluctuations in blood glucose concentration, a diabetic patient who has recently under good control may still have high concentration of HbA1c. Converse is true for a diabetic previously under good control but now poorly controlled.
- 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.
- High HbA1c (>9.0 -9.5 %) is strongly associated with risk of development and rapid progression of microvascular and nerve complications
- Any condition that shorten RBC life span like acute blood loss, hemolytic anemia falsely lower HbA1c results.
- HbA1c results from patients with HbSS, HbSC and HbD must be interpreted with caution, given the pathological processes including anemia, increased red cell turnover, and transfusion requirement that adversely impact HbA1c as a marker of long-term glycemic control.
- Specimens from patients with polycythemia or post-splenectomy may exhibit increase in HbA1c values due to a somewhat longer life span of the red cells.



  
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**ENDOCRINOLOGY**

**THYROID FUNCTION TEST: TOTAL**

TRIIODOTHYRONINE (T3): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i>	1.201	ng/mL	0.35 - 1.93
THYROXINE (T4): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i>	4.93	µgm/dL	4.87 - 12.60
THYROID STIMULATING HORMONE (TSH): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i>	3.724	µIU/mL	0.35 - 5.50

3rd GENERATION, ULTRASENSITIVE

**INTERPRETATION:**

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.TSH stimulates the production and secretion of the metabolically active hormones, thyroxine (T4)and triiodothyronine (T3).Failure at any level of regulation of the hypothalamic-pituitary-thyroid axis will result in either underproduction (hypothyroidism) or overproduction(hyperthyroidism) of T4 and/or T3.

CLINICAL CONDITION	T3	T4	TSH
Primary Hypothyroidism:	Reduced	Reduced	Increased (Significantly)
Subclinical Hypothyroidism:	Normal or Low Normal	Normal or Low Normal	High
Primary Hyperthyroidism:	Increased	Increased	Reduced (at times undetectable)
Subclinical Hyperthyroidism:	Normal or High Normal	Normal or High Normal	Reduced

**LIMITATIONS:-**

- T3 and T4 circulates in reversibly bound form with Thyroid binding globulins (TBG),and to a lesser extent albumin and Thyroid binding Pre Albumin so conditions in which TBG and protein levels alter such as pregnancy, excess estrogens, androgens, anabolic steroids and glucocorticoids may falsely affect the T3 and T4 levels and may cause false thyroid values for thyroid function tests.
- Normal levels of T4 can also be seen in Hyperthyroid patients with :T3 Thyrotoxicosis, Decreased binding capacity due to hypoproteinemia or ingestion of certain drugs (eg: phenytoin , salicylates).
- Serum T4 levels in neonates and infants are higher than values in the normal adult , due to the increased concentration of TBG in neonate serum.
- TSH may be normal in central hypothyroidism , recent rapid correction of hyperthyroidism or hypothyroidism , pregnancy , phenytoin therapy.

TRIIODOTHYRONINE (T3)		THYROXINE (T4)		THYROID STIMULATING HORMONE (TSH)	
Age	Refferance Range (ng/mL)	Age	Refferance Range ( µg/dL)	Age	Reference Range ( µIU/mL)
0 - 7 Days	0.20 - 2.65	0 - 7 Days	5.90 – 18.58	0 - 7 Days	2.43 - 24.3
7 Days - 3 Months	0.36 - 2.59	7 Days - 3 Months	6.39 - 17.66	7 Days - 3 Months	0.58 - 11.00
3 - 6 Months	0.51 - 2.52	3 - 6 Months	6.75 – 17.04	3 Days – 6 Months	0.70 - 8.40



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Test Name	Value	Unit	Biological Reference interval
6 - 12 Months	0.74 - 2.40	6 - 12 Months	7.10 - 16.16
1 - 10 Years	0.92 - 2.28	1 - 10 Years	6.00 - 13.80
11- 19 Years	0.35 - 1.93	11 - 19 Years	4.87- 13.20
> 20 years (Adults)	0.35 - 1.93	> 20 Years (Adults)	4.87 - 12.60
<b>RECOMMENDATIONS OF TSH LEVELS DURING PREGNANCY ( <math>\mu</math>IU/mL)</b>			
1st Trimester		0.10 - 2.50	
2nd Trimester		0.20 - 3.00	
3rd Trimester		0.30 - 4.10	

**INCREASED TSH LEVELS:**

- 1.Primary or untreated hypothyroidism may vary from 3 times to more than 100 times normal depending upon degree of hypofunction.
- 2.Hypothyroid patients receiving insufficient thyroid replacement therapy.
- 3.Hashimotos thyroiditis
- 4.DRUGS: Amphetamines, idonie containing agents & dopamine antagonist.
- 5.Neonatal period, increase in 1st 2-3 days of life due to post-natal surge

**DECREASED TSH LEVELS:**

- 1.Toxic multi-nodular goitre & Thyroiditis.
- 2.Over replacement of thyroid hormone in treatment of hypothyroidism.
- 3.Autonomously functioning Thyroid adenoma
- 4.Secondary pituitary or hypothalamic hypothyroidism
- 5.Acute psychiatric illness
- 6.Severe dehydration.
- 7.DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.
- 8.Pregnancy: 1st and 2nd Trimester



  
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**TUMOUR MARKER**

**PROSTATE SPECIFIC ANTIGEN (PSA) - TOTAL**

PROSTATE SPECIFIC ANTIGEN (PSA) - TOTAL: SERUM	2.96	ng/mL	0.0 - 4.0
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by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)

**INTERPRETATION:-**

Expected Values for the PSA	
Smokers	< 4 ng/ml
Non-smokers	< 4 ng/ml

- 1.Prostate-specific antigen (PSA) is a glycoprotein that is produced by the prostate gland, the lining of the urethra, and the bulbourethral gland.
- 2.Normally, very little PSA is secreted in the blood.

**INCREASED :-**

- 1.Increased in glandular size and tissue damage caused by benign prostatic hypertrophy.
- 2.Prostatitis.
- 3.Prostate cancer may increase circulating PSA levels.
- 4.In patients with previously diagnosed prostate cance,PSA testing is advocated as an early indicator of tumor recurrence and as an indicator of response to therapy.

**The test is also useful for initial screening for prostate cancer:-**

- 1.Total PSA levels < 2 ng/ml almost rule out the possibility of prostatic malignancy.
- 2.Total PSA levels between 2 and 10 ng/ml lie in the grey zone. Such values may be obtained in prostatitis, benign hyperplasia and malignancy. Further testing including a free PSA/PSA ratio and prostate biopsy is recommended for these patients for confirmation of the diagnosis.
- 3.Total PSA values >10 ng/ml are highly suspicious for prostate cancer but further testing, such as prostate biopsy, is needed to diagnose the exact pathology.

\*\*\* End Of Report \*\*\*



  
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