
# P K R JAIN HEALTHCARE INSTITUTE

NASIRPUR, Hissar Road, AMBALA CITY- (Haryana)

A PIONEER DIAGNOSTIC CENTRE

0171-2532620, 8222896961 pkrjainhealthcare@gmail.com




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|---|---|---|---|
| **NAME** | **: Mrs. RITU SAKHUJA** | | |
| **AGE/ GENDER** | : 43 YRS/FEMALE | **PATIENT ID** | : 1608179 |
| **COLLECTED BY** | : | **REG. NO./LAB NO.** | **: 122409100024** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 10/Sep/2024 11:28 AM |
| **BARCODE NO.** | : 12504606 | **COLLECTION DATE** | : 10/Sep/2024 11:31AM |
| **CLIENT CODE.** | : P.K.R JAIN HEALTHCARE INSTITUTE | **REPORTING DATE** | : 10/Sep/2024 02:31PM |
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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## HAEMATOLOGY

### GLYCOSYLATED HAEMOGLOBIN (HBA1C)

| | | | |
|---|---|---|---|
| GLYCOSYLATED HAEMOGLOBIN (HbA1c): WHOLE BLOOD<br>*by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)* | 5.4 | % | 4.0 - 6.4 |
| ESTIMATED AVERAGE PLASMA GLUCOSE<br>*by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)* | 108.28 | mg/dL | 60.00 - 140.00 |

***INTERPRETATION:***

| AS PER AMERICAN DIABETES ASSOCIATION (ADA): | | |
|---|---|---|
| **REFERENCE GROUP** | **GLYCOSYLATED HEMOGLOGIB (HBAIC) 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** | |
| | Goals of Therapy: | < 7.0 |
| | Actions Suggested: | >8.0 |
| | **Age < 19 Years** | |
| | Goal of therapy: | <7.5 |

**COMMENTS:**

1.Glycosylated hemoglobin (HbA1c) test is three monthly monitoring done to assess compliace with therapeutic regimen in diabetic patients.

*2.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 HbAlc. Converse is true for a diabetic previously under good control but now poorly controlled.*

*3.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, targetting a goal of < 7.0% may not be appropiate.*

4.High HbA1c (>9.0 -9.5 %) is strongly associated with risk of development and rapid progression of microvascular and nerve complications

5.Any condition that shorten RBC life span like acute blood loss, hemolytic anemia falsely lower HbA1c results.

6.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 gycemic control.

7.Specimens from patients with polycythemia or post-splenctomy may exhibit increse 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<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 1.28 | ng/mL | 0.35 - 1.93 |
| THYROXINE (T4): SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 7.98 | µgm/dL | 4.87 - 12.60 |
| THYROID STIMULATING HORMONE (TSH): SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 1.92 | 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 trilodothyronine (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:-**

1. 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.
2. 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).
3. Serum T4 levles in neonates and infants are higher than values in the normal adult , due to the increased concentration of TBG in neonate serum.
4. TSH may be normal in central hypothyroidism , recent rapid correction of hyperthyroidism or hypothroidism , 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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|---|---|---|---|---|---|
| 6 - 12 Months | 0.74 - 2.40 | 6 - 12 Months | 7.10 – 16.16 | 6 – 12 Months | 0.70 - 7.00 |
| 1 - 10 Years | 0.92 - 2.28 | 1 - 10 Years | 6.00 - 13.80 | 1 – 10 Years | 0.60 - 5.50 |
| 11- 19 Years | 0.35 - 1.93 | 11 - 19 Years | 4.87- 13.20 | 11 – 19 Years | 0.50 – 5.50 |
| > 20 years (Adults) | 0.35 - 1.93 | > 20 Years (Adults) | 4.87 - 12.60 | > 20 Years (Adults) | 0.35– 5.50 |
| RECOMMENDATIONS OF TSH LEVELS DURING PREGNANCY ( µIU/mL) | | | | | |
| 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 harmone in treatment of hypothyroidism.
3.Autonomously functioning Thyroid adenoma
4.Secondary pituatary or hypothalmic 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

*** End Of Report ***

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