

Patient Name **Mr Y. SRINIVASA RAO**

Age : 52 Year(s) Gender : Male

Sample ID :17464671 - Serum

Patient ID :686714

Ref. Doctor :

Ref. Customer :NANI LAB

Lab Code :CPC-AP-113

Sample Drawn Date :2022-05-25 11:04

Registration Date :2022-05-25 11:04

Approved Date :2022-05-25 13:25



CLINICAL BIOCHEMISTRY

Test Description	Result	Units	Biological Reference Ranges
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Vitamin D Total-25 Hydroxy	28.77	ng/mL	20 - 50
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(Method: Chemiluminescence)

INTERPRETATION

LEVEL	Reference range in ng/mL	Comments
Severe deficiency	< 10	Could be associated with osteomalacia or rickets
Mild to moderate deficiency	10-19	May be associated with increased risk of osteoporosis or secondary hyperparathyroidism
Optimum levels	20-50	Optimum levels in the healthy population; patients with bone disease may benefit from higher levels within this range
Increased risk of hypercalciuria	51-80	Sustained levels 25OH-VitD along with prolonged calcium supplementation may lead to hypercalciuria and decreased renal function
Toxicity possible	> 80	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 50 ng/mL.
- It shows seasonal variation, with values being 40-50% lower in winter than in summer.
- Levels vary with age and are increased in pregnancy.

Decreased Levels

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

Increased levels

Vitamin D intoxication

M Ramesh Babu
Manager Lab Operations



Dr. Mallika Boyapati MD
Consultant Pathologist

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CLINICAL BIOCHEMISTRY

Test Description	Result	Units	Biological Reference Ranges
Vitamin B12 - Cyanocobalamin (Method: Chemiluminescence)	>2000	pg/mL	200-911

INTERPRETATION

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.

Note:

To differentiate vitamin B12 & folate deficiency, measurement of Methyl malonic acid in urine & serum Homocysteine level is suggested.

Calcium, Serum

(Method: Spectrophotometry)

10.3

mg/dL

8.6 - 10.3

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CLINICAL BIOCHEMISTRY

Test Description	Result	Units	Biological Reference Ranges
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Thyroid Profile I

T3-Total, Tri Iodothyronine (TT3)

(Method: Chemiluminescence)

142.7

ng/dL

60 - 200

T4-Total, Thyroxine (TT4)

(Method: Chemiluminescence)

8.02

µg/dL

4.6 - 10.5

Thyroid Stimulating Hormone, (TSH)

(Method: Ultrasensitive Chemiluminescence TSH3rd generation)

0.868

µIU/mL

0.37-5.50

Thyroid Function Test Interpretation

The thyroid gland is not functioning properly due to one of a variety of disorders, then increased or decreased amounts of thyroid hormones may result. When TSH concentrations are increased, the thyroid will make and release inappropriate amounts of T4 and T3 and the person may experience symptoms associated with hyperthyroidism. If there is decreased production of thyroid hormones, the person may experience symptoms of hypothyroidism.

The following table summarizes some examples of typical test results and their potential meaning.

TSH	Total T4	Total T3	Conditions
Normal	Normal	Normal	None
Low	High	High	Hyperthyroidism
High	Normal	Normal	Mild (subclinical) hypothyroidism
High	Low	Low or normal	Hypothyroidism
Low	Normal	Normal	Mild (Subclinical) hyperthyroidism
Low	High or normal	High or normal	Hyperthyroidism
Low	Low or normal	Low or normal	pituitary (secondary) hypothyroidism
Normal	High	High	Thyroid hormone resistance syndrome

Note:

- The above test results alone are not diagnostic but will prompt a health practitioner to perform additional testing to investigate the cause of the excess or deficiency and thyroid disorder. As examples, the most common cause of hyperthyroidism is Graves disease and the most common cause of hypothyroidism is Hashimoto thyroiditis.
- Recommended test for T3 and T4 is unbound fraction or free levels as it is metabolically active.
- Physiological rise in Total T3 / T4 levels is seen in pregnancy and in patients on steroid therapy.

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