Dr. Vinay Chopra
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Chairman & Consultant Pathologist

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CEO & Consultant Pathologist

NAME	**: Mrs. KAMLA DEVI**		
AGE/ GENDER	: 96 YRS/FEMALE	**PATIENT ID**	: 1591355
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012408260033**
REFERRED BY	:	**REGISTRATION DATE**	: 26/Aug/2024 10:29 AM
BARCODE NO.	: 01515741	**COLLECTION DATE**	: 26/Aug/2024 10:57AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 26/Aug/2024 01:06PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

CLINICAL CHEMISTRY/BIOCHEMISTRY

CALCIUM

CALCIUM: SERUM ***by ARSENAZO III, SPECTROPHOTOMETRY***	**7.69**^{L}	**mg/dL**	**8.50 - 10.60**

INTERPRETATION:-

1.Serum calcium (total) estimation is used for the diagnosis and monitoring of a wide range of disorders including diseases of bone, kidney, parathyroid gland, or gastrointestinal tract.
2. Calcium levels may also reflect abnormal vitamin D or protein levels.
3.The calcium content of an adult is somewhat over 1 kg (about 2% of the body weight).Of this, 99% is present as calcium hydroxyapatite in bones and <1% is present in the extra-osseous intracellular space or extracellular space (ECS).
4. In serum, calcium is bound to a considerable extent to proteins (approximately 40%), 10% is in the form of inorganic complexes, and 50% is present as free or ionized calcium.
NOTE:-Calcium ions affect the contractility of the heart and the skeletal musculature, and are essential for the function of the nervous system. In addition, calcium ions play an important role in blood clotting and bone mineralization.

HYPOCALCEMIA (LOW CALCIUM LEVELS) CAUSES :-
1.Due to the absence or impaired function of the parathyroid glands or impaired vitamin-D synthesis.
2. Chronic renal failure is also frequently associated with hypocalcemia due to decreased vitamin-D synthesis as well as hyperphosphatemia and skeletal resistance to the action of parathyroid hormone (PTH).
3.***NOTE:-*** A characteristic symptom of hypocalcemia is latent or manifest tetany and osteomalacia.

HYPERCALCEMIA (INCREASE CALCIUM LEVELS) CAUSES:-
1.Increased mobilization of calcium from the skeletal system or increased intestinal absorption.
2.Primary hyperparathyroidism (pHPT)
3.Bone metastasis of carcinoma of the breast, prostate, thyroid gland, or lung.
NOTE:-Severe hypercalcemia may result in cardiac arrhythmia.

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Test Name	Value	Unit	Biological Reference interval

MAGNESIUM

MAGNESIUM: SERUM *by XYLIDYL BLUE, SPECTROPHOTMETRY*	2.28	mg/dL	1.6 - 2.6

INTERPRETATION:-

1.Magnesium along with potassium is a major intracellular cation.
2.Magnesium is a cofactor of many enzyme systems. All adenosine triphosphate (ATP)-dependent enzymatic reactions require magnesium as a cofactor. 3.Approximately 70% of magnesium ions are stored in bone. The remainder is involved in intermediary metabolic processes; about 70% is present in free form while the other 30% is bound to proteins (especially albumin), citrates, phosphate, and other complex formers. The serum magnesium level is kept constant within very narrow limits. Regulation takes place mainly via the kidneys, primarily via the ascending loop of Henle.

INCREASD (HYPERMAGNESIA):-Conditions that interfere with glomerular filtration result in retention of magnesium and hence elevation of serum concentrations.
1.Acute and chronic renal failure.
2.magnesium overload.
3.Magnesium release from the intracellular space.
4.Mild-to-moderate hypermagnesemia may prolong atrioventricular conduction time. Magnesium toxicity may result in central nervous system (CNS) depression, cardiac arrest, and respiratory arrest.

DECREASED (HYPOMAGNESIA):-
1.Chronic alcoholism.
2.Childhood malnutrition.
3.Malabsorption.
4.Acute pancreatitis.
5.Hypothyroidism.
6.Chronic glomerulonephritis.
7.Aldosteronism.
8.Prolonged intravenous feeding.

NOTE:-
Numerous studies have shown a correlation between magnesium deficiency and changes in calcium-, potassium-, and phosphate-homeostasis which are associated with cardiac disorders such as ventricular arrhythmias that cannot be treated by conventional therapy, increased sensitivity to digoxin, coronary artery spasms, and sudden death. Additional concurrent symptoms include neuromuscular and neuropsychiatric disorders.

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Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

PROCALCITONIN (PCT)

PROCALCITONIN (PCT): SERUM ***by ELFA (ENZYME LINKED FLOUROSCENCE ASSAY)***	**0.69^{H}**	**ng/mL**	**< 0.50**

INTERPRETATION:

Procalcitonin, the prohormone of calcitonin is below limit of detection 500 pg/ml in healthy individuals. It rises in response to an inflammatory stimulus especially of bacterial origin. It does not rise significantly with viral or non inflammations.

PROCALCITONIN (VALUE IN ng/mL)	INFERENCE
< 0.50 ng/mL	Minor local bacterial infection is possible. Severe systemic infection (Sepsis) is not likely
0.50- < 2.0 ng/mL	Systemic infection is possible, but various conditions are known to induce PCT as well (see below). Suggest repeat after 6-24 hours for a definitive diagnosis
2.0 - < 10.0 ng/mL	Systemic infection (Sepsis) is likely, unless other causes are known
>=10.0 ng/mL	Important systemic inflammatory response, almost exclusively due to severe bacterial sepsis or septic shock

PCT levels can be elevated in non infectious causes like:

1.The first days after a major trauma, major surgical intervention, burns, treatment with OKT3 antibodies and other drugs stimulating the release of pro-inflammatory cytokines, small cell lung cancer, medullary C-cell carcinoma of thyroid.
2.Patients with prolonged or severe cardiogenic shock, prolonged severe organ perfusion anomalies.
3.Neonates < 48 hrs of life.
4.Patients with PCT values 2000 pg/mL should be closely monitored both clinically and by reassessing PCT within 6-24 hrs.

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IMMUNOPATHOLOGY/SEROLOGY

C-REACTIVE PROTEIN (CRP)

C-REACTIVE PROTEIN (CRP) QUANTITATIVE: SERUM	**48.44^{H}**	**mg/L**	**0.0 - 6.0**

by NEPHLOMETRY

INTERPRETATION:

1. C-reactive protein (CRP) is one of the most sensitive acute-phase reactants for inflammation.
2. CRP levels can increase dramatically (100-fold or more) after severe trauma, bacterial infection, inflammation, surgery, or neoplastic proliferation.
3. CRP levels (Quantitative) has been used to assess activity of inflammatory disease, to detect infections after surgery, to detect transplant rejection, and to monitor these inflammatory processes.
4. As compared to ESR, CRP shows an earlier rise in inflammatory disorders which begins in 4-6 hrs, the intensity of the rise being higher than ESR and the recovery being earlier than ESR. Unlike ESR, CRP levels are not influenced by hematologic conditions like Anemia, Polycythemia etc.,
5. Elevated values are consistent with an acute inflammatory process.

NOTE:

1. Elevated C-reactive protein (CRP) values are nonspecific and should not be interpreted without a complete clinical history.
2. Oral contraceptives may increase CRP levels.

*** End Of Report ***

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