Adreno Corticotropic Hormone – ACTH (AFB Tuberculosis) – [Plasma] Analysis

Objective

The objective of this test is to measure plasma adrenocorticotropic hormone (ACTH) levels in the context of tuberculosis (AFB-positive cases). It helps evaluate pituitary-adrenal axis function and detect adrenal insufficiency or hyperactivity associated with chronic infections like tuberculosis.

Materials and Methods

Materials:
- Plasma sample from patient
- Immunoassay kits (e.g., chemiluminescent or ELISA) for ACTH
- EDTA tubes and cold storage equipment
- Standard laboratory equipment (centrifuge, pipettes)

Methods:
1. Sample Collection: Collect venous blood in pre-chilled EDTA tubes early in the morning (8 AM).
2. Plasma Separation: Centrifuge immediately at 4°C and freeze plasma to preserve ACTH integrity.
3. ACTH Measurement: Use chemiluminescent immunoassay or ELISA for quantification.
4. Correlation with AFB Testing: Combine ACTH results with tuberculosis (acid-fast bacilli) diagnostic findings for clinical interpretation.
5. Quality Control: Run controls and calibrators provided with the assay kit to ensure accuracy.
6. Interpretation: Compare with reference range and correlate with adrenal function and TB-related endocrine effects.

Results

- Normal range: 10–50 pg/mL (varies by laboratory)
- Elevated levels: Suggest adrenal insufficiency (e.g., Addison’s disease) or ectopic ACTH secretion
- Decreased levels: May indicate pituitary dysfunction or exogenous corticosteroid administration

Conclusion

ACTH measurement in plasma provides valuable information on pituitary-adrenal axis function, especially in patients with tuberculosis-related adrenal involvement. It aids in the diagnosis of Addison’s disease, secondary adrenal insufficiency, and monitoring endocrine complications in chronic infections.