Catecholamines (Adrenaline + Noradrenaline) – [Plasma] Analysis

Objective

The objective of this test is to measure plasma levels of catecholamines, specifically adrenaline (epinephrine) and noradrenaline (norepinephrine). These neurotransmitters and hormones are involved in the body's stress response and are used to diagnose pheochromocytoma and other neuroendocrine tumors.

Materials and Methods

Materials:
- Plasma sample from patient collected in EDTA tubes
- High-performance liquid chromatography (HPLC) or immunoassay kits
- Automated analyzers or HPLC equipment
- Standard laboratory equipment (pipettes, centrifuge)

Methods:
1. Sample Collection: Collect venous blood into EDTA tubes, place on ice, and centrifuge promptly.
2. Measurement: Quantify adrenaline and noradrenaline levels using HPLC with electrochemical detection or immunoassays.
3. Calibration: Use calibrators for accurate quantification.
4. Interpretation: Compare levels to reference ranges; elevated levels suggest catecholamine-secreting tumors.
5. Quality Control: Employ controls to validate assay performance.

Results

- Normal adrenaline: 0–100 pg/mL (varies by lab)
- Normal noradrenaline: 70–600 pg/mL (varies by lab)
- Elevated levels: May indicate pheochromocytoma, neuroblastoma, or stress response
- Low levels: May be seen in autonomic failure or certain medications

Conclusion

Plasma catecholamine measurement is critical for diagnosing neuroendocrine tumors and assessing sympathetic nervous system activity. Results should be correlated with clinical findings and imaging studies.