Androstenedione – A4 – [Serum] Analysis

Objective

The objective of this test is to measure serum androstenedione (A4) levels, a key steroid hormone involved in the synthesis of testosterone and estrogen. It aids in the evaluation of adrenal and gonadal function, diagnosis of disorders like polycystic ovary syndrome (PCOS), congenital adrenal hyperplasia (CAH), and androgen-secreting tumors.

Materials and Methods

Materials:
- Serum sample from patient
- Immunoassay kits (ELISA, RIA, or chemiluminescent)
- Standard laboratory equipment (pipettes, centrifuge, microplate reader)

Methods:
1. Sample Collection: Collect venous blood and separate serum using centrifugation.
2. Hormone Measurement: Perform immunoassay to quantify serum androstenedione levels.
3. Calibration: Use standard reference calibrators and quality control materials for accuracy.
4. Interpretation: Compare results with age- and sex-specific reference ranges; elevated levels may indicate PCOS, adrenal hyperplasia, or androgen-secreting tumors.

Results

- Normal range (adult females): 0.7–3.1 ng/mL (varies by lab)
- Normal range (adult males): 0.6–3.6 ng/mL (varies by lab)
- Elevated levels: Suggest PCOS, adrenal tumors, or CAH
- Low levels: May indicate adrenal insufficiency or hypogonadism

Conclusion

Serum androstenedione measurement is valuable for diagnosing and managing endocrine disorders involving adrenal or gonadal dysfunction. Clinical correlation and additional hormonal tests (e.g., testosterone, DHEAS) are recommended for comprehensive evaluation.