Adrenal Insufficiency Testing

**INDICATIONS FOR TESTING**
Suspected adrenal insufficiency, small cardiac size, Na<130 mEq/L, K>5 mEq/L, dehydration, cold intolerance, orthostatic hypotension

**ORDER**
Cortisol by LC-MS/MS, Serum or Plasma

- **<5 μg/dL**
  - **ORDER**
    - Adrenocorticotropic Hormone (ACTH)
      - ACTH >300 pg/mL: Adrenal failure likely
      - ACTH <10 pg/mL: Pituitary failure likely
      - ACTH ≥10 pg/mL, but ≤300 pg/mL: MRI/CT of adrenal gland

- **≥5 μg/dL**
  - Primary adrenal insufficiency unlikely

**PERFORM**
Cosyntropin stimulation test (250 μg of cosyntropin IM or IV)

**ORDER**
Cortisol by LC-MS/MS, Serum or Plasma @ 0, 30 and 60 minutes

- **<5 μg/dL**
  - Primary severe adrenal insufficiency

- **>20 μg/dL**
  - Normal

- **≤20 μg/dL but ≥5 μg/dL**
  - Secondary adrenal insufficiency likely; evaluate for pituitary failure

**ORDER**
- Cortisol by LC-MS/MS, Serum or Plasma
- 11-Deoxycortisol Quantitative by HPLC-MS/MS, Serum or Plasma
  Take ratio of the 2 tests

- **>1:2 ratio and 11-Deoxycortisol >7 μg/dL**
  - Adrenal failure unlikely
  - MRI/CT of adrenal glands

- **<1:2 ratio and 11-Deoxycortisol ≤7 μg/dL**
  - This testing is generally not necessary

  **ORDER**
  - Adrenocorticotropic Hormone
    - <10 pg/mL
      - Pituitary failure likely
      - MRI/CT of pituitary

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