

# Adrenal Crisis

Yi Ling Dai MD

Orthobullets Team

Orthobullets Team

 Topic Podcast

EXPERTS

BULLETS

70

VIDEO/PODS

1

## IMAGES



## SNAPSHOT

- A 26-year-old woman is brought to the emergency room after collapsing at her workplace. Per her coworker, the patient caught a cold yesterday and was complaining of a headache all day. The coworker mentions that she stopped taking her medication for her rheumatoid arthritis because of this. Her temperature is 103°F (39.4°C), blood pressure is 86/54 mmHg, pulse is 124/min, and respirations are 12/min. A physical examination demonstrates an unconscious patient with a positive Brudzinski sign. (Infection-induced adrenal crisis)

## INTRODUCTION

- Clinical definition
  - acute, life-threatening medical emergency characterized by the loss of adrenal function (e.g., low levels of cortisol)

## EPIDEMIOLOGY

- Demographics
  - most commonly occur in patients with primary adrenal insufficiency due to the characteristic volume depletion and hypotension resulting mainly from mineralocorticoid deficiency ▶
- Risk factors
  - primary adrenal insufficiency
  - chronic glucocorticoid use

## ETIOLOGY

- Pathogenesis
  - there is always an acute stressor or cause of adrenal insufficiency in patients with adrenal crisis
  - chronic primary adrenal insufficiency
    - occurs in patients with serious infection or other major stress (e.g., surgery)
  - glucocorticoid and/or mineralocorticoid insufficient dosing
    - may occur in patients with known primary/secondary adrenal insufficiency

- can be due to
  - insufficient doses
  - failure to take more glucocorticoid during infection or major illness
  - persistent vomiting/diarrhea leading to decreased absorption
- acute glucocorticoid withdrawal
  - includes oral and inhaled medications
  - occurs in patients who are abruptly withdrawn from glucocorticoid therapy
- acute adrenal gland destruction
  - bilateral hemorrhage (e.g., Waterhouse-Friderichsen syndrome associated with meningococcemia) 📷
  - bilateral infarction (e.g., heparin-induced thrombocytopenia)
  - trauma
- acute causes of secondary/tertiary adrenal insufficiency
  - pituitary infarctions

---

## PRESENTATION



- Symptoms
  - fever
  - abdominal or flank pain
  - anorexia, nausea, or vomiting
  - confusion or disorientation
  - severe lethargy
  - syncope
- Physical exam
  - skin and mucosal hyperpigmentation (if Addison disease) 📷
  - hypotension or shock

---

## IMAGING



- Computed tomography (CT)
  - may demonstrate bilateral adrenal injury, hemorrhage, or infarction

---

## STUDIES



- Diagnostic testing
  - diagnostic approach
    - diagnosis is based on clinical presentation and confirmed (following initial treatment) with an endocrine evaluation
  - studies
    - serum cortisol concentration (e.g., morning serum cortisol)
      - best initial test
      - low serum cortisol (e.g., < 5 ug/dL) strongly suggests adrenal insufficiency
    - plasma ACTH concentration and stimulation test
      - indicated following initial treatment for differentiating the cause of adrenal insufficiency
      - levels will vary depending on the type of adrenal insufficiency
    - plasma aldosterone and renin levels
      - will have low aldosterone levels, renin levels will vary depending on the cause
    - chemistry panel
      - hyperkalemia
      - hyponatremia

---

## DIFFERENTIAL



- Sepsis ►
  - distinguishing factors
    - will not have the significant electrolyte imbalances seen in adrenal crisis

---

## TREATMENT



- Treatment of patients should not be delayed while diagnostic tests are performed
- First-line
  - **IV fluids**
    - volume replacement as patients are hypovolemic
    - 1-3L of 0.9% saline or 5% dextrose in 0.9% saline within the first 12-24 hours
  - **glucocorticoid replacement**
    - e.g., dexamethasone or hydrocortisone
    - to give initial bolus, then maintenance dose of 50 mg every 8 hours
  - **mineralocorticoid replacement**
    - not indicated in the acute setting as its effects take several days
    - in patients with known primary adrenal insufficiency or significant hyperkalemia, hydrocortisone can be given for its mineralocorticoid activity

---

## COMPLICATIONS



- Coma
- Death

Login

Please Login to add comment