



PATHOPHYSIOLOGY

- Acquired primary adrenal insufficiency
- Decreased production of adrenocortical hormones:
 - Glucocorticoid: Cortisol has a wide range of essential functions in the body including metabolism, immune, and blood pressure regulation
 - Mineralocorticoid: Aldosterone is primarily responsible for regulating fluid status via Na and K excretion
 - Androgen: DHEA

ETIOLOGY

- Autoimmune destruction
- Infection
- Adrenal hemorrhage/infarction
- Metastatic infiltration
- Drugs
- Infiltrative Disease

PRESENTATION

SYMPTOMS

- Fatigue
- Weakness
- Weight Loss
- Salt Craving
- Postural Dizziness
- Myalgia/Arthralgia
- Nausea & Vomiting
- Abdominal Pain

PHYSICAL EXAM

- Signs of dehydration
- Orthostatic hypotension
- Hyperpigmentation

INVESTIGATIONS & DIAGNOSIS

- Low AM Cortisol suggests adrenal (glucocorticoid) insufficiency
- Elevated ACTH indicates a primary cause
- **ACTH stimulation test with cosyntropin for definitive diagnosis**
 - An inadequate rise in cortisol indicates adrenal insufficiency – should typically rise to >500 nmol/L
- Elevated renin indicative of mineralocorticoid deficiency
- Electrolyte imbalance due to mineralocorticoid deficiency
 - K+: elevated
 - Na+: low to normal

MANAGEMENT

- Glucocorticoid replacement (e.g. hydrocortisone, prednisone)
 - Hydrocortisone (t.i.d. or q.i.d.) is the preferred choice as it more closely mimics natural production of cortisol and has less risk of growth suppression
 - Monitor for cortisol excess – poor growth, obesity, striae, hypertension, ↓ bone mineral density, and glucose intolerance
- Mineralocorticoid replacement (e.g. fludrocortisone) to maintain fluid and electrolyte balance
- Patient education with yearly review of sick days, emergency contact information, and written instructions

URGENT/IMPORTANT:

- Ensure patients are **stress dosing** their glucocorticoid appropriately:
 - **2-3x their normal dose when experiencing acute stress** – e.g. fever, vomiting, diarrhea
 - When under critical stress (e.g. sepsis, trauma, OR) stress dosing will be >3x normal dose
- All patients should wear a Medical Alert bracelet
- All patients should be prescribed and taught how to use IM hydrocortisone



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Morgan Lapierre (Medical Student, University of Alberta) and Dr. Elizabeth Rosolowsky (Pediatric Endocrinologist, University of Alberta) for www.pedscases.com