

ADRENAL INSUFFICIENCY



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Function

GLUCOCORTICOIDS

- Receptors diffusely expressed
 - Vascular tone
 - Glycemic control
 - Normal mood
 - General well being
- TYPES:**
- Cortisol

Deficiency

- Fatigue
 - Anorexia
 - Weight loss
 - **Hypotension**
 - **Hypoglycemia**
- } SEVERE**

MINERALOCORTICOIDS

- Receptors in the distal nephron
 - Sodium reabsorption
 - Potassium excretion
 - Water homeostasis
- TYPES:**
- Aldosterone
 - Cortisol - also a mineralocorticoid

Static Tests

- CBC
- BMP
- AM Cortisol
- ACTH
- Aldosterone
- Renin

LABS

Dynamic Test

- Cosyntropin / ACTH Stimulation Test
 - 250 µg bolus of ACTH-like peptide
 - Measure Cortisol before and 1h after for elevation

SUBTYPES OF ADRENAL INSUFFICIENCY

PRIMARY

Addison's disease

- Destruction / Inhibition of both adrenal cortices



- Autoimmune destruction
 - consider with other autoimmune dxs

- Infections
 - Tuberculosis
 - Disseminated Fungal

- Metastasis
- Drugs
 - Ketoconazole
- Hemorrhage / Trauma

SECONDARY

Pituitary Gland



Hyperpigmentation



- Renal Cell Carcinoma
- Melanoma
- Lung cancer
- Lymphoma

Causes:

- Hemorrhage
- Infarct
- Infection
- Mass

TERTIARY

Hypothalamus



STEROID INDUCED

MOST COMMON CAUSE



Iatrogenic:

- Exogenous Glucocorticoids suppress ACTH. Cessation of these glucocorticoids can precipitate adrenal insufficiency.

Examples:

- Intra-articular injections
 - Triamcinolone
- Inhaled Fluticasone
- Topical glucocorticoid cream



MANAGEMENT

- Consult Endocrinology



Glucocorticoid replacement therapy

- **Acute** - Large bolus IV Hydrocortisone
- **Long Term** - Hydrocortisone 15-30mg BID
 - OR: Prednisone daily if adherence is an issue.
- Personalize therapy to the patient

Body size

Habitus

Daily Activity

- Aim for lowest dose possible
- Ideally mimic diurnal rhythm



Mineralocorticoid replacement

- **Acute** - IV isotonic saline
- **Long Term** - Fludrocortisone 0.05-0.2 mg daily

Education on Volume Status Management

- Increase dietary sodium

Counseling about Illness / Stress-Dosing

- To mimic a natural increase in cortisol

Medical Alert Bracelet



Long Term Monitoring:

- Monitor for other autoimmune endocrinopathies:
 - Type 1 DM, Hyperparathyroidism, etc...

CLINICAL PEARL

Dexamethasone - A synthetic glucocorticoid not read on cortisol assay. However it DOES cause physiological interference by suppressing endogenous ACTH production. Expect low cortisol levels. When testing, no exogenous glucocorticoids for 24h.