Acute Adrenal Insufficiency

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Adrenal Glands

- Located bilaterally at the superior pole of each kidney
- Known as a gland within a gland
- The Cortex secretes hormones
- The Medulla secretes epinephrine
- Only the Cortex will be discussed

Hormones

- Glucocorticoids like Cortisol
- Mineralcorticoids like Aldosterone
- Sex hormones like Dehydroepiandosterone
- Only the Glucocorticoids will be discussed

Glucocorticoids

- They Regulate the carbohydrate, fat, and protein Metabolism
- They inhibit Inflammation
- They maintain Homeostasis during Stress
- Synthetics of Glucocorticoids are used to treat many Inflammatory Diseases

Types

- Primary Disease which is uncommon is called Addison’s Disease which is progressive destruction of the gland and 90% of the gland has to be destroyed before there are symptoms
- Secondary Disease which is the most common and of most concern is caused by the Administration of Exogenous Synthetic Corticosteroids

Pathophysiology

- Patient takes synthetic steroids for any number of inflammatory diseases
- Since the body has the normal doses of steroids the adrenal gland does not produce any and stagnates
- When the body needs more for stress the gland cannot produce more
### Glucocorticoids
- **Hydrocortisone (Cortisone)** is an example of Short acting
- **Prednisone (Deltasone)** is an example of Intermediate acting
- **Dexamethasone (Decadron)** is an example of Long acting

### Equivalents
- 25 mg of Cortisone
- 20 mg of Hydrocortisone
- 5 mg of Prednisone
- 0.75 mg of Dexamethasone

### Rule of Twos
- Very conservative Rule
- Patient taking Cortisone 20 mg or more or it’s Equivalent
- For Two weeks or longer
- Within a Two year period
- Then consult their physician

### Consultation
- The patient’s physician will determine the dose necessary for augmentation if it is necessary.
- He or she will use the current daily dose, length of time, and level of stress associated with the procedure to determine this.

### Examples
- Routine procedure with little stress may require current dose or doubling of dose.
- Whereas more major procedures may require quadrupling the dose or more and may need to be multiple days depending on post-op period.

### Facts
- You do not want to treat this emergency
- You will probably never see a primary (Addison’s)
- Be very careful with patients taking steroids and always consult their physician
- Injected joints or Topicals are not a problem
Adrenal Insufficiency and Differential

**Signs and Symptoms**
- Weakness and Fatigue
- Anorexia and Weight Loss
- Hyperpigmentation of the Skin and Mucous Membranes (only in Addison’s)
- Nausea and Vomiting
- Dehydration and Fever
- Hypotension and Hypoglycemia

**Management**
- If patient is conscious but showing signs and you know from history that it may be adrenal insufficiency.
- Place patient in comfortable position and give them hydrocortisone 100 mg IM.
- This may avert the emergency.

**Unconsciousness**

**Differential Diagnosis**

**Management**
- **P** - Supine with Legs Elevated
- **A** - Head Tilt and Chin Lift
- **B** - (LLF) Give Oxygen
- **C** – (Signs of) it - will be very weak

**Management**
- **D** - Definitive Treatment - Call 911 because patient will not regain consciousness, monitor vital signs and can give Hydrocortisone 100 mg I.M. if available. However patient needs hospitalization and massive doses of steroids I.V. and sugar.
Age

- Child - Hypoglycemia, Epilepsy
- Teen - 40 - Psychogenic Reactions (Vasodepressor Syncope), Hypoglycemia (Diabetes), Epilepsy
- Over 40 - Postural Hypotension, Cardiovascular Problems (Heart Attack, Stroke, Arrhythmia)

Stress Related

- Vasodepressor Syncope
- Hypoglycemia (Diabetes)
- Epilepsy
- Cardiovascular Problems (Heart Attack and Stroke)

Duration of Unconsciousness

- Postural Hypotension
- Vasodepressor Syncope
- Seizure
- Hypoglycemia
- Adrenal Insufficiency
- If not short and ammonia does not work then Call 911

Pallor, Feeling Hot, Perspiration, and Nausea

- Vasodepressor Syncope
- Hypoglycemia
- Myocardial Infarction (cold)
- Adrenal Insufficiency
- (Hypotension - Hypoxia)

One Mo Time Unconsciousness

- P - Supine with Feet Elevated
- A - Head Tilt - Chin Lift
- B - (LLF) - Give Oxygen
- C - (Signs of) Check Pulse
- D - Continue Oxygen, Try Spirits of Ammonia, and if Still Unconscious - Call 911

Questions?