ADRENAL INSUFFICIENCY

เอกสารประกอบการเรียนการสอนนักศึกษาแพทย์

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Adrenal insufficiency.....

- Adrenal cortex is decreasing function than normal physiological status
- Then product hormone from this gland will be decrease level in the serum (glucocorticoid, mineralocorticoid, adrenal androgen)
- Primary & secondary cause

Symptoms & Sign…

- ***Glucocorticoid deficit***: fatigue, N/V, anorexia, weight loss, hypotension, hypoglycemia
- ***Minerralocorticoid deficit***: deficit of water & electrolyte, postural hypotension, increase salt oral intake
- ***Adrenal androgen deficit***: alopecia of axilla (mons pubis in female)

Primary Cause...

- Loss of all hormones
- Hyperpigmentation skin especially in palmar crease, knuckle, oral mucosa, and scar because of low level of glucocorticoid --->then negative feedback to increase ACTH (ACTH same as MSH)

Secondary Cause...

- Loss of glucocorticoid and adrenal androgen but mineralocorticoid is normal (because of mineralocorticoid is under influence by RAAS, is not ACTH)
- Not clinical of dehydrate or electrolyte imbalance
- Hypotension same primary cause because of loss of glucocorticoid (function on vasopressure via beta agonist & inotropic on myocardial)
- Pallor skin (but no anemic cause), hypopigmentation in areolar region

Indirect Investigations…

- Low FBS
- Prerenal azotemia
- Eosinophilia, relative
- Lymphocytosis
- Hyponatremia, hyperkalemia and metabolic acidosis
- Hypercalcemia from dehydration

***IN 2* CAUSE: no prerenal azotemia, no hyperK, no metabolic acidosis

Direct Investigations...

- **Serum cortisol :in the morning**
  :normal range 5-25 mcg/dl
  :if <3 mcg/dl can be diagnosis
  :if > 19 mcg/dl can be exclude
  :if 4-19 mcg/dl can be further investigate
- **ACTH level :highly in primary cause**
  :normal or lowly in secondary cause

ETIOLOGY….

- CHRONIC & ACUTE
- Primary & Secondary adrenal insufficiency

ETIOLOGY….

- **Chronic primary adrenal insufficiency**
  - **-idiopathic or autoimmune**
  - **-infection(TB, histoplasmosis, CMV)**
  - **-malignancy**
  - **(metastasis from CA lung or CA breast)**
  - **-congenital adrenal hyperplasia**
  - **-adrenoleukodystrophy and**
  - **adrenomyeloneuropahty**

Chronic 2° adrenal insufficiency cause….

- **Pituitary disease**

-Sheehan's syndrome

-tumor

-infection; TB, histoplasmosis

-autoimmune lymphocytic hypophysitis

-post-operative

- **Hypothalamic disease**

-prolong steroid abuse

-post -treatment of Cushing's syndrome

-craniopharyngioma

-radiation

-infiltrative disease;sarcoidosis

MISCELLINEOUS...

- **ACUTE CAUSE;**

Adrenal hemorrhage from meningococcemia, anticoagulant therapy (for prevention PE)

:presenting in low back pain 2-3 days before symptoms & signs of adrenal insufficiency is presenting

In secondary cause...

- **Most common cause is <u>EXOGENOUS STEROID</u> is suppression of CRH & ACTH**
- **48 hour after stop of steroid**
- **Effect is prolong than 1 year**
- **Topical steroid is may be to adrenal suppression**

Investigation for differential cause..

- Plain abdomen; adrenal calcification 50% found in TB
- CT abdomen
  - increase gland in early TB or malignancy
  - decrease gland in autoimmune Addison's disease
- Chest x-ray; infiltration in TB
- Antiadrenal antibody ;positive 30-50% in autoimmune Addison's disease

TREATMENT….

STEROID SUPPLEMENT

- Cortisone acetate 25 mg in a.m. and 12.5 mg in p.m. (in patient is present in clinical of mineralocorticoid deficiency =fludrocortisone 0.1 mg/tab is 1/2 to 1 tab/day
- Definite treatment ; anti TB, tumor
- IN ACUTE; surgery, sepsis, accident
  - ⇨ hydrocortisone 100 mg iv ever 8 hour

THANK YOU….