



# Other Endocrine Emergencies

- Alcoholic Ketoacidosis
- Hyperthyroid Emergencies
- Hypothyroid Emergencies
- Addison's Disease (Adrenal Crisis)



# Alcoholic Ketoacidosis

## Pathogenesis

- ketogenesis
  - resulting from abruptly stopping alcohol intake
  - after binge drinking and
  - no food intake



# Alcoholic Ketoacidosis

AKA symptoms

- abdominal pain
- protracted vomiting
- early withdrawal symptoms



# Alcoholic Ketoacidosis

AKA signs

- VS:  $\uparrow$  HR,  $\uparrow$  RR,  $\uparrow$  T,  $\downarrow$  BP
- ALOC
- abdomen may be tender



# Alcoholic Ketoacidosis

## AKA Treatment

- A / B
- C
  - $M_3$
  - large bore IV
  - blood draw ; D-stik
  - Thiamine  $\geq 100$  mg IV
  - $D_5$  W NS \* (or  $D_{50}$  W, push, if indicated)
    - \* add 50cc of  $D_{50}$  to 1000 cc of NS



# Thyroid Emergencies

## Thyroid storm (hyperthyroid crisis)

- Why study?
  - potentially life threatening
    - if untreated, mortality approaches 100%
    - even in treated patients, mortality  $\simeq$  15%



# Thyroid Storm

## Pathophysiology

- amphetamine- like, adrenergic hyperreactivity
- ↑ heat production
- mechanism of death
  - dehydration
  - heart failure
  - arrhythmias





# Thyroid Storm

- Epidemiology
  - Ratio of female : male is 9 : 1
- Causes
  - drug related  
(insulin / cocaine / PPA / iodide / "x-ray dye")
  - emotional stress
  - new stress in a patient who already has Graves
    - CVA, MI
    - pulmonary embolism
    - infection
      - the most common cause of storm
      - pneumonia is the most common infection





# Thyroid Storm

## Symptoms of thyroid storm

- often unobtainable from patient
  - family states:
    - “her nerves,” ... “she’s crazy”
- Fever
- Tremor
- Weakness
- “can’t sit still ”



# Thyroid Storm

Late symptoms of thyroid storm

- CHF Sx
- Marked weakness
- V, D (with dehydration)



# Thyroid Storm

## Signs of thyroid storm

- VS / M<sub>3</sub>
  - $\uparrow T^0$  ( 100-106<sup>0</sup> )
  - $\uparrow$  HR (120-300) (often irregularly irregular)
- GEN
  - agitated
  - sweaty



# Thyroid Storm

## Tx of thyroid storm

- A / B- high flow O<sub>2</sub>
- C - # 16 IV, NS, rapid drip (if + postural signs are present)
  - monitor
- D
  - Dexamethasone<sup>1</sup> 4mg IV
  - Propranolol 1mg/min IV <sup>1,2,3,4</sup> (and 1 mg q 15min, up to 10mg)
- **A**void
  - **A**SA
  - **A**tropine
  - **A**ltering LOC “sedatives” (**A**ntihistamines)



# Thyroid Storm

1,2,3,4 hormone blockade treatment

- block formation of new hormone
- block hormone's adrenergic hyperreactivity
- may be helpful in slowing uncontrolled ventricular rate in AF
- Beta blockers
  - often considered contraindicated in CHF, but here may be used cautiously



# Hypothyroid Emergencies

- Hypothyroid “crisis” (myxedema coma)
- Why study hypothyroidism?
  - early recognition and management may be life-saving



# Hypothyroid Emergencies

## Pathophysiology of hypothyroidism

- retarded metabolism
  - respiratory failure
  - ↓  $T^0$
  - ↓ glucose
  - ↓ mental status

## Clinical setting

- elderly
- infection





# Hypothyroid Emergencies

Symptoms of hypothyroid (myxedema) crisis

- Early: non-specific
- Late:
  - CNS Sx
    - disorientation  $\leftrightarrow$  coma
    - seizures
    - lethargy
  - CHF Sx



# Hypothyroid Emergencies

Signs of HYPO thyroid (myxedema) crisis

- HYPO tension
- HYPO thermia
- HYPO ventilation
- CHF signs



# Hypothyroid Emergencies

Treatment of hypothyroid (myxedema) crisis

- A / B – high flow O<sub>2</sub>
- C
  - Monitor<sub>3</sub>
  - #16 IV, NS
- D – D<sub>50</sub>W 50 cc IV (if indicated)



# Hypothyroid Emergencies

Common diagnostic errors in hypothyroid treatment

- CVA
- OD
- CHF
- depression is called malingering



# Hypothyroid Emergencies

Prehospital treatable complications of hypothyroid “crisis”

- HYPOthermia
- HYPOtension
- HYPOglycemia
- HYPOventilation
- CHF



# Adrenal “Crisis ”

Adrenal “crisis” (adrenal insufficiency),  
also called “Addisonian crisis ”

- Symptoms of adrenal crisis
  - History of Addison’s
  - Anorexia, wt. loss
  - Nausea, Vomiting
  - Salt-craving
  - Weakness
  - Infectious sx (usually the precipitating factor)



# Adrenal “Crisis ”

## Signs of an Addisonian crisis

- Brown skin
- Fever
- Shock (clinical picture)
  - VS
    - ↓ BP
    - ↓ mental status





# Adrenal “Crisis”

## Treatment of an Addisonian crisis

- A/B – high flow  $O_2$
- C
  - monitor
  - IV, #16, NS 1000 mL
- D
  - $D_{50}W$  50cc IV if indicated
  - Dexamethasone 4 mg IV