MERCURY POISONING: CLINICAL SIGNS AND SYMPTOMS

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Introduction

- Only metal in liquid state at room temperature.

- Toxic to humans in both liquid and vaporized state.
HUMAN EXPOSURE

- Aquatic food chain

- Fungicides used on seeds
Human exposure………contd

○ **Inhalation** ---- from working environment
  
  Burning waste
  Burning coal in power plants
  Industries:
    Chlor alkali
    Cathodes in distilleries
    Making of scientific instruments
    Hat, Fur, Felt industry
Human exposure ……contd

- Dentistry--- amalgams
- Drinking water & atmosphere---min
- Broken fluorescent bulbs & thermometers
- Skin whitening creams
- Thiomersal---preservative in vaccines (still used in flu, tetanus & other non-childhood vaccines in U.S)
Human screening tests for mercury

1. **URINE TEST:**
   - 24 hr collection better than spot test
   - normal value---- less than 5ugm/g of creatinine
   - occupational limit----less than 35ug/g creatinine

2. **BLOOD TEST:**
   - normal value----less than 8ug/L
   - occupational limit-----less than 15ug/L
Human Screening…….contd

3. HAIR ASSAY:
  Most reliable if properly performed
  Normal value-----less than 15 ug /g
TOXICOKINETICS

Liquid mercury

- slow absorption from gut.
Vapors

Absorbed in lungs
Dissolves in blood
Diffuses in all tissues
Accumulates in blood, kidney, brain, CNS
Excretion mainly through stool
EFFECTS IN PREGNANCY

- Mercury crosses placenta to reach fetus
- Concentration in fetal tissues is twice that of maternal tissue
- It is 30% higher in fetal RBCs

LACTATION:
Mercury is secreted in mothers milk. Its concentration is 5% of maternal blood.
BIRTH DEFECTS
CAUSED BY
MERCURY

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CLASSICAL CASE OF ACRODYNNIA
ACUTE MERCURY POISONING

- INGESTION
  - Burning sensation in throat
  - Discoloration/swelling mouth
  - Severe abdominal pain
  - Vomiting
  - Bloody Diarrhea

  - Acute renal failure / shut down

  - Tremors & excitability

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INHALATION

Ac. corrosive bronchitis and pneumonitis
CHRONIC MERCURY POISONING

- MAINLY CNS SYMPTOMS (asthenic vegetative syndrome)
  - Tremors
  - Gingivitis
  - Excitability
  - Behavior changes
  - Memory Loss

- Demographism
- Thyroid enlargement
- Blood changes
- Catastrophic birth defects
MANAGEMENT

- Remove patient from toxin site.

- Remove ingested mercuric salts by stomach washing & activated charcoal.
Pharmacological Management:

- Diamercaprol ---- at once
- DMSA --- 10 mg/kg orally for 5 days then every 12 hrs for 2 weeks
- UNITHIOL ---- Not freely available
- Maintain good kidney function.
LAST BUT NOT THE LEAST

PREVENT MERCURY POISONING
BEFORE IT OCCURS