Hydrogen Sulfide (H_2S)

Lab 9

Assist. Lecturer:

WATBAN ABDULLAH AHMED

Hydrogen Sulfide (H2S)

- **Is highly toxic flammable colorless gas, it produced naturally by decay organic matter. Hazardous levels may found in petroleum refineries.**

Mechanism of toxicity:

- **H_2S cause cellular asphyxia by inhibition cytochrome oxidase system, similar to the action of CN.**
- **H_2S sulfide is mucous membrane irritant.**

  Note: because it is rapidly absorbed by inhalation, symptoms occur nearly immediately after exposure cause unconsciousness.

Clinical signs & symptoms:

- **Irritant effects: upper airway irritation, burning eyes, skin exposure can cause painful dermatitis.**

  Chemical pneumonitis & pulmonary edema may occur after a delay of several hrs.

- **Acute systemic effects: include headache, nausea, vomiting, dizziness, confusion, seizure & coma. Severe exposure may cause cardiovascular collapse, respiratory arrest & death.**

Diagnosis

- **Is based on history of exposure & rapidly progressive manifestation of the airway irritation & cellular asphyxia.**
- **The victim or worker may exhibit the smell of rotten eggs but because of refractory nerve paralysis the absence of this smell does not rule out exposure.**

Treatment

- **Supportive measure: like that of cyanide poisoning.**
- **Antidote: hyperbaric O2 may be helpful if provided early after exposure.**
- **Decontamination: remove the victim from exposure site & give supplemental O2.**

Notes: At low conc., H_2S induce methemoglobinemia, forming a complex (sulf-met-Hb) which is analogous to cyano-met-Hb; therefore induced methemoglobinemia provide equivocal protection against death from acute sulfide poisoning in animals.