

ARSENIC POISONING

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DEPT OF FMT

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INTRODUCTION

- Arsenic is grey substance which is said to be non-poisonous as it is insoluble in water and therefore cannot be absorbed from the alimentary canal.
- Arsenic oxide or white arsenic is tasteless and very poisonous
- Arsenic causes toxicity by combining with sulphhydryl enzyme and thus interfering with cell metabolism.
- It causes irritation of the mucous membrane and remote depression of the nervous system.



Arsenic Poisoning / Arsenicosis

SOURCES OF ARSENIC

□ Arsenic is only of historical interest being very rarely used now.

1. Arsenic Oxide

- The term arsenic or white arsenic refers to arsenious oxide trioxide also known as arsenious acid and arsenic trioxide or SANKHYA and SOMALKHAR in local language.
- It has no smell or taste and is sparingly soluble in water
- Arsenic powder, in spite of its heavy weight floats on surface of water and adheres to side of the vessel.
- Therefore it is commonly given mixed with MILK, TEA, COFFEE in homicidal poisoning.

2.SULPHIDES OF ARSENIC

- These are the YELLOW ORPIMENT or ARSENIC TRISULPHIDE and RED REALGAR or DISULPHIDE.

3. COPPER COMPOUNDS OF ARSENIC

- These compounds include SCHEEL'S green or Paris green or EMERALD green and go by name HIRWA in local language

4 OTHER

- The other compounds include arsenate of lead and arsenites of sodium and potassium and organic compounds.

***ACUTE
ARSENIC
POISONING***

SYMPTOMS AND SIGN

- ❑ Symptoms in acute poisoning usually manifest within 15-30 min after the dose , but may be delayed if arsenic is taken with food.
- ❑ There is NAUSEA and BURNING PAIN in Oesophages, stomach and epigastrium. Severe continuous and persistent vomiting follows
- ❑ Vomit initially, mucous mixed with altered blood. The main effect however is DIARRHOEA accompanied by tenesmus and irritation.



□ Stool: Tinged with blood

□ watery like the rice watery stool of cholera contain

□ shreds of mucous membrane and fragments of the

□ poison in three or four hours.

- Intense thirst is a constant feature but drinking water accentuates the vomiting.
- Painful cramps in legs may developed due to dehydration and the urine may be suppressed
- Skin eruption may appears in the late stage . In may causes, remission occur during which the patients is moderately comfortable.
- Collapse seat in with cold clammy skin, pale anxious face, sunken eye and sighing respiration. Convulsion or coma may precede death
- In some causes where the patients survive the initial acute attack, the symptoms persisting in lesser degree for some time.
- The patient become progressively weak and may die of heart failure and weakness in 7-10 day
- When a large dose of arsenic is taken and symptoms of gastroenteritis may be absent and symptoms of narcotic poisoning such VERTIGO , HEADACHE, SPASMS , followed by stupor and vascular collapse may be present death occurs in 2-3 hr

FATAL DOSE: 120-200mg

FATAL PERIOD

- In the narcotic from the average fatal period is about 2-3hr
- In the gastrointestinal from it is about 12-48 hr. A patient who survives the acute attack may die 7-9 days later from sub-acute poisoning and heart failure or some weeks later from chronic poisoning with its attendant damage to liver and kidney.

TREATMENT

- Through vomiting has occurred the stomach should be repeatedly washed out with warm water and milk to remove arsenic particles adherent to mucous membrane of the stomach
- The freshly precipitated hydrated ferric oxide is administered as an antidote with the object of forming ferric arsenite a harmless salt.
- The ppt is given suspended in water spoonful dosage at short interval for 2-3 days.
- In ferric oxide cannot be quickly prepared, calcinate magnesium/charcoal may be substituted. treatment must be immediate.
- BUTTER & GREASY SUBSTANCE are useful to prevent ABORTION.
- No alkalis should be given by mouth since they increase solubility of white arsenic.
- The systemic effect should be treated by intramuscular injection DIMERCAPRAL(BAL) in oil solution.
- By virtue of its two SH radicals its combine with free arsenic and also dislodges arsenic from combination with tissue SH group.

□ PARENTERAL FLUID

- It should be administered to counteract dehydration glucose to combat liver damage
- Sodium bicarbonate to regulate acid-base balance morphine to control pain and ice control thirst .
- Blood or plasma transfusion may be needed particular attention should be given to supporting the heart .
- Anuria may require dialysis by artificial kidney treatment.

POSTMORTEM APPEARANCES

▣ Externally

In acute poisoning the body presents a dehydrated and cyanosed with sunken eyeballs. The skin is wrinkled and may be jaundiced rigor mortis lasts longer than usual.

▣ Internally

The stomach appearance is classically described as red velvet

The mucosa appears red, oedematous and swollen in patches corresponding to deposit of arsenic particles sub-mucous petechial haemorrhages are common

Petechial haemorrhages are comparatively common and may be found even when the stomach presents little sign of irritation

Liver, heart, kidney may show fatty degeneration



Thank You