

METAL TOXICITY

- Metal poisoning is the accumulation of metals in toxic amounts in the soft tissues of the body.
- Symptoms and physical findings associated with metal poisoning vary according to the metal accumulated.
- Many of the metals, such as zinc, copper, iron and manganese, are essential to body function in very small amounts. But, if these metals accumulate in the body in concentrations sufficient to cause poisoning, then serious damage may occur. The metals most commonly associated with poisoning of humans are lead, mercury, arsenic and cadmium.
- Metal poisoning may occur as a result of industrial exposure, air or water pollution, foods, medicines, improperly coated food containers, or the ingestion of lead-based paints.

ARSENIC POISONING

- Arsenic toxicity is a global health problem affecting many millions of people.
- Arsenic is used in the manufacture of pesticides. The gas from arsenic also has some industrial uses.
- Ingestion of herbicides, insecticides, pesticides, fungicides, or rodenticides containing arsenic may cause arsenic poisoning.
- Arsenic poisoning is due to contaminating drinking water, seafood, algae and may also occur from mining and other industrial processes.
- Inorganic arsenic accumulates in the liver, spleen, kidneys, lungs, and gastrointestinal tract. It then passes through these sites but leaves a residue in tissues such as skin, hair, and nails.

SYMPTOMS OF ARSENIC POISONING

- Overexposure may cause headaches, drowsiness, confusion, life-threatening complications.
- Neurological symptoms include brain damage (encephalopathy), damage to the nervous system, and eventually death .
- Skin problems include transverse white bands on the fingernails , and excessive accumulation of fluid in the soft layers of tissue below the skin (edema). yellowing of the skin, mucous membranes, and whites of the eyes (jaundice).
- Patients suffering from Arsenic poisoning causing Black foot disease. Gastrointestinal symptoms include a flu-like illness (gastroenteritis) that is characterized by vomiting; abdominal pain; fever; and diarrhea, which, in some cases, may be bloody.

CADMIUM POISONING

- Cadmium is used for many items, including electroplating, storage batteries, vapor lamps and in some solders.
- Cadmium poisoning may be caused by ingestion of food (e.g. grains, cereals, and leafy vegetables) and cigarette smoke. Occupational exposure to cadmium in metal plating, battery, and plastics industries may also occur.
- Patients suffering from Cadmium poisoning causing Itai-Itai disease.

SYMPTOMS OF CADMIUM POISONING

- The onset of symptoms may be delayed for two to four hours after exposure. Overexposure may cause fatigue, headaches, nausea, vomiting, abdominal cramps, diarrhea, and fever.
- In addition, progressive loss of lung function (emphysema), abnormal buildup of fluid within the lungs (pulmonary edema), and breathlessness (dyspnea) may also be present.
- In some cases, affected individuals may exhibit increased salivation; yellowing of the teeth; an unusually rapid heart beat (tachycardia); low levels of iron within the red blood cells (anemia); bluish discoloration (cyanosis) of the skin and mucous membranes due to insufficient oxygen supply to these tissues;
- improper functioning of the canals with the kidney (renal tubular dysfunction) characterized by excretion of abnormally high levels of protein in the urine (proteinuria), minor changes in liver function, and/or softening of certain bones (osteomalacia).