



ADVANCED MEDICINE

LECTURE TEN : HEAVY METAL POISONING

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المرحلة الرابعة

Lecture ten

Theoretical

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Heavy metal poisoning occurs when microscopic molecules of metals accumulate within your body after exposure. Heavy metals attach to your cells and prevent them from performing their functions, which causes symptoms that could be life threatening without treatment.

Several metals can be toxic to your body. The most common toxic metals are:

1. **Lead**. Contaminated water from lead pipes, batteries, paint, gasoline, construction materials.
2. **Mercury**. Liquid in thermometers, lightbulbs, **dental amalgam (“silver”) fillings**, batteries, seafood, topical antiseptics.
3. **Arsenic**. Topical creams, herbicides, insecticides, pesticides, fungicides, paints, enamels, glass, contaminated water, seafood, algae.
4. **Cadmium**. Cigarette smoke, metal plating, batteries.
5. **Thallium**. Rodenticides, pesticides, fireworks.

Heavy metal poisoning can affect anyone who has exposure to heavy metals.

This most often affects people who:

- 1. Drink water from pipes made of older metals (lead).**
- 2. Work with metals.**
- 3. Take more than the prescribed dosage of medicine or supplements that contain metal.**
- 4. Live in an environment with contaminated air or water.**
- 5. Eat a lot of foods that contain metal.**
- 6. Consume a non-edible product made with metal (paint).**

Signs and symptoms

1. **Abdominal pain.**
2. **Chills or a low body temperature.**
3. **Dehydration.**
4. **Diarrhea.**
5. **Feeling weak.**
6. **Nausea or vomiting.**
7. **A scratchy feeling in your throat.**
8. **Numbness or prickly sensation in your hands and feet.**

causes heavy metal poisoning

An accumulation of heavy metals within your body causes heavy metal poisoning. The accumulation happens after you're exposed to heavy metals. Once inside of your body, the metals reside in your blood or tissues, which spreads from your head to your toes.

Heavy metals fight with components in your cells, like enzymes and proteins. These components are important to help your organs function. If your organs aren't able to do their job because they're getting bullied by heavy metals, you experience symptoms of heavy metal poisoning that can be life threatening without treatment.

Diagnosis and tests

After a physical exam, there is several tests to check for heavy metal poisoning including:

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- 1. Heavy metal blood test.**
 - 2. Complete blood count (CBC).**
 - 3. Electrocardiogram.**
 - 4. Imaging tests like an X-ray.**
 - 5. Kidney function tests.**
 - 6. Liver function studies.**
 - 7. Urine protein test.**

treatment

Treatment for heavy metal poisoning varies based on the type of metal that accumulated in your body. The goal of treatment is to remove the metal from your body. Treatment could include:

- 1. Taking chelating agents to remove toxic metals from your body through your urine.**
- 2. Pumping your stomach (gastric lavage).**
- 3. Hemodialysis for kidney failure.**
- 4. Medicines to treat symptoms.**

Some metals, like cadmium, don't have an effective treatment to remove it from your body. Studies are ongoing to find a treatment for cadmium poisoning.

medications treat heavy metal poisoning

There are several drugs available to remove heavy metals from your body.

These drugs are chelating agents that attract the metal to the components in the medicine, then pass the metal out of your body as waste in your urine.

Common chelating agents include:

- 1. Dimercaprol.**
- 2. Dimercaptosuccinic acid (succimer).**
- 3. Ethylenediaminetetraacetic acid (EDTA).**
- 4. Penicillamine.**

Chelating agents are unsafe for people diagnosed with heart disease and kidney failure.

QUIZ



What is the symptom of metal poisoning ?

Any questions?

*Thank
You*