



Acute Poisoning due to Heavy Metals: A Silent Threat to Public Health

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INTRODUCTION

Heavy metals are naturally occurring elements that, in small quantities, are essential for various physiological functions in the human body. However, when these metals accumulate in excessive amounts, they can pose serious health risks. Acute poisoning due to heavy metals is a significant public health concern, with devastating consequences for individuals and communities. This article explores the sources, symptoms, diagnosis, and treatment of acute poisoning caused by heavy metals.

DESCRIPTION

Lead poisoning remains a pervasive issue, especially in older homes with lead-based paint and in communities near industries that release lead into the environment. Children are particularly vulnerable, as even low levels of lead exposure can lead to cognitive and behavioral problems. Mercury exposure can occur through the consumption of contaminated fish, dental amalgams, or exposure to certain industrial processes. Methylmercury, the organic form of mercury found in some fish, can accumulate in the body and cause severe neurological damage. Arsenic contamination of drinking water and food is a significant concern in various parts of the world. Chronic exposure to arsenic can lead to skin lesions, cancer, and other health issues. Acute arsenic poisoning can result from intentional or accidental ingestion of high doses. Cadmium exposure is often associated with smoking and industrial activities like battery manufacturing and mining. Acute cadmium poisoning can cause severe abdominal pain, vomiting, and lung injury. Chromium poisoning is linked to industrial processes and can occur through inhalation or ingestion. Hexavalent chromium, a highly toxic form, can dam-

age the respiratory system and cause kidney and liver problems. Nausea, vomiting, diarrhoea, and abdominal pain are often early signs of heavy metal poisoning. Many heavy metals, such as lead and mercury, can damage the nervous system, leading to symptoms like headaches, confusion, memory problems, and seizures. Exposure to certain heavy metals like cadmium and chromium can result in respiratory distress, including coughing, shortness of breath, and lung damage. Arsenic poisoning may cause skin lesions, while other heavy metals can lead to rashes and dermatitis. Some heavy metals, like cadmium, can accumulate in the kidneys and liver, causing organ damage and dysfunction. Blood and Urine tests can detect the presence of heavy metals in the body and assess the extent of exposure. Chest X-rays or other imaging studies may be used to assess lung damage in cases of metal inhalation. A thorough physical examination and medical history review are essential for identifying symptoms and potential sources of exposure. Chelating agents are administered to bind with heavy metals in the body, facilitating their excretion through urine. Common chelating agents include dimercaprol, EDTA, and succimer. Patients may require supportive treatment such as intravenous fluids, pain management, and treatment of specific symptoms.

CONCLUSION

In conclusion, acute poisoning due to heavy metals is a serious and often preventable health issue. Awareness, early diagnosis, and appropriate treatment are essential to mitigate the impact of heavy metal poisoning on individuals and communities. By addressing the sources of contamination and promoting safe practices, we can work towards a healthier and safer environment for all.

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