

Awareness and current Knowledge of Lead

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Abstract:

There are still major health dangers associated with lead poisoning in the world, both to the environment and to human health. One can get lead poisoning from contaminated air, water, soil, and consumer goods, among other sources. Lead is a hazardous heavy metal. Lead, once ingested, mostly builds up in soft tissues, blood, and bones where it disrupts vital biological functions and has a variety of detrimental consequences on health.

Key words: lead poisoning; heavy metal toxicity; neurotoxicity; blood lead levels; chelation therapy; environmental exposure; occupational exposure

Introduction

The atomic number 82 and symbol Pb (derived from the Latin word "plumbum") denote lead, a heavy metal that occurs naturally. Its low melting point, malleability, and resistance to corrosion have allowed humanity to use it for thousands of years despite its recognized hazardous characteristics. Nonetheless, exposure to lead is detrimental to both the environment and human health (Winecker et al., 2002). Contamination of lead-contaminated water is still a major worldwide public health concern. It is imperative to safeguard human health and provide clean drinking water for all populations to undertake measures to mitigate exposure, such as infrastructure upgrades, routine monitoring, public education, and regulatory enforcement.

Managing environmental health and reducing lead's effects on ecosystems and human populations require an understanding of the process of lead bioaccumulation (Ahamed and Siddiqui., 2007). Minimizing bioaccumulation, safeguarding the environment, and promoting safe resource management methods are all critical to preserving the environment and public health. Lead emissions must also be strictly controlled. Many variables, including location, socioeconomic status, industrial activity, and laws and regulations, influence the frequency of lead exposure and its toxicity. Following is a summary of important information on the prevalence of lead. Initiatives aimed at educating the public about the dangers of lead exposure and encouraging preventative measures are crucial. Safe disposal of products containing lead, industry promotion of

lead-safe procedures, and advocacy for safer housing practices are some examples of interventions (Loh et al., 2016).

Lead and Kidney damage

Proximal renal tubule damage from lead exposure can occur through a variety of mechanisms, which can impair kidney function and, in severe cases, result in chronic kidney disease. It takes early detection, avoiding exposure, and prompt treatment to reduce the detrimental effects of lead poisoning on kidney health (Brewster et al., 2004).

Hepatic Metabolism/Excretion

Urine is the main excretion of inorganic lead since it is not digested. An estimated one-third of the total excretion of absorbed lead occurs through secretion into bile, stomach fluid, and saliva. The mechanisms underlying the fecal excretion of absorbed lead remain unclear. Triethyl and trimethyl lead, two extremely neurotoxic metabolites of organic or alkyl lead (leaded gasoline, also known as tetraethyl and tetramethyl lead), are produced via oxidative dealkylation. A cytochrome p450-dependent monooxygenase system in the liver catalyzes the process. Sweat and fingernails are two further ways that lead can be eliminated. Two studies have found that patients receiving sauna therapy lost a substantial amount of lead in their sweat when compared to their urine levels (Sodhi et al., 2021).

Conclusion

Lead poisoning is a serious health risk that can be avoided, particularly for young children and expectant mothers. Protecting human health and fostering safe living conditions need actions to minimize lead exposure through regulation, public awareness campaigns, and environmental cleanup.

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