

HEAVY METAL POISONING IN MINING AND ITS IMPACT ON HUMAN HEALTH

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ABSTRACT

Mining can result in adverse impacts to natural ecosystems and human health. The objective is to demonstrate the possible effects of heavy metals, as protagonist agents of pathologies in human health, with worrying irreversibility in the long term. The current work is an integrative review, in which the use of electronic databases were applied: Scientific Electronic Online Library (SCIELO), PUBMED, Latin American and Caribbean Literature on Health Sciences (LILACS). From the search carried out, articles on the proposed topic were found, published in national journals, present in the aforementioned databases. The period of publications found was 2018-2022. It is important to emphasize that soil pollution by heavy metals affects the quality of the environment and constitutes an eminent risk of intoxication to man. Thus, the increase in concentrations of heavy metals in soil and water near mining areas may be related to chemical and biological processes that control the solubility, availability and mobility of these metals, resulting in adverse impacts to the ecosystem and the human health. The toxic effects of heavy metals on humans are associated with the organic and inorganic compounds formed by them. The determination of the concentration of these elements in the body is related to the amount and time of exposure to toxic substances. According to researcher Sérgio Peixoto, in 2022, a study was carried out that evaluated the living, health and working conditions of the population of Brumadinho, after the disaster caused by the rupture of the dam of the mining company Vale, in January 2019. The results showed that, among adolescents, some metals are above the reference limits, especially total arsenic in the urine (28.9% with more than 10 µg/g creatinine), manganese in the blood (52.3% with more than 15 µg /L) and blood lead (12.2% with more than 10 µg/dL). In adults, high proportions of increased levels of total arsenic in the urine (33.7%) and of manganese in the blood (37%) were found. Mining has played an important role in society since ancient times. However, this exploration, when carried out in an unplanned way, can affect the quality of life of future generations. Once animals or humans are exposed to these pollutants, it is imperative to understand the toxicity of these compounds, to avoid known historical disasters. However, the development of new methods must be implemented in order to establish a causal relationship between heavy metal intoxication and the epidemiological situation present in the exposed populations, establishing the bases for determining the evaluation of preventive, corrective and/or mitigating measures.

Keywords: Intoxication; Heavy Metals; Human Health; Mining.

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