

MERCURY AND HUMAN HEALTH

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ABSTRACT

Mercury can have many detrimental effects and is dangerous for human health. There are now more ways to work toward minimizing and preventing the negative effects of mercury and its compounds on human health as a result of the ratification and enforcement of the Minamata Convention on Mercury. Trade of knowledge and experience are needed to assist the health sector in putting the Minamata Convention and the related decision of the Sixty-seventh World Health Assembly into practice. In order to support the training of medical students and professionals in related fields, as well as public health and healthcare workers and decision-makers in the environmental and health sectors, this instructional course was developed. It collects information on the health effects of different forms of mercury exposure on humans.

KEYWORDS: Mercury exposure, Methylmercury, Health Effects, Neurotoxicity, Minamata Disease

INTRODUCTION

Mercury poisoning, also known as mercurialism or mercury toxicity, occurs when an individual is exposed to high levels of mercury, a toxic heavy metal (FELTON et al 1972). Mercury exists in various forms, including elemental (metallic), inorganic (e.g., mercuric chloride), and organic (e.g., methyl mercury). Each form poses different risks and routes of exposure, impacting human health in distinct ways (Clarkson et al 1997). Cinnabar is often associated with hot springs, mercury-bearing hydrothermal veins, and volcanic deposits. It is produced when heated aqueous solutions release mercury into the atmosphere and can be found in many different geological environments around the world (Rytuba et al 2002). Historically, mercury has been used to treat syphilis in a number of methods, especially before the discovery of antibiotics. For several centuries,

mercury has been used to cure syphilis; nevertheless, its effectiveness was poor, and it usually caused serious adverse effects (Parascandola et al 2009). Dental amalgam fillings, also referred to as mercury dental fillings, have been utilized in dentistry for more than 150 years. A combination of metals, including liquid mercury, copper, tin, and silver, makes up dental amalgam (Haque et al 2019). This mixture creates a filling material that is tough and long-lasting and is frequently used to treat tooth cavities. Inhaling mercury vapor can cause short- and long-term respiratory issues (Wright et al 2016). Acute exposure to high amounts of mercury vapor can result in pulmonary edema, a potentially fatal build-up of fluid in the lungs, coughing fits, and difficulty breathing (Pant et al 2024). Short-term exposure to low concentrations of mercury vapor may cause symptoms like decreased respiratory function and


dyspnea (Bartzatt et al 2011). Exposure to mercury can have detrimental effects on the neurological system, whether through ingestion of methylmercury-contaminated food or inhalation of elemental mercury vapor (Bose et al 2010). Determining the sources of exposure and implementing the necessary precautions are essential to reduce the likelihood of neurological symptoms related to mercury intoxication (Caravati et al 2008).

CONCLUSION

Mercury poisoning remains a significant global health concern, affecting individuals through various exposure routes. Understanding its sources, symptoms, and health impacts is crucial for prevention, early detection, and effective management. Continued efforts in research, regulation, and public awareness are essential to mitigate the risks associated with mercury exposure and protect human health and the environment.

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