CYREX® Laboratories

CLINICAL SPECIFICATIONS

MERCURY (saliva)

Chemical Found In:

Mercury (Hg) is a heavy chemical element that is emitted to the air by human activities, such as manufacturing or burning coal for fuel, and from natural sources, such as volcanoes. It is deposited, via ecosystem transport, into lakes and oceans, where it bioaccumulates in fish. According to the US EPA, "nearly all methylmercury exposures in the U.S. occur through eating fish and shellfish."[1] In addition, mercury is used in thermometers, barometers, float valves, mercury switches, and other devices where exposure can occur with device breakage. It is also found in dental amalgams, energy-efficient light bulbs, and is used in scientific research applications.

Associated With:

Loss of oral tolerance

Known Cross-Reactions:

Clinical Significance:

The presence of salivary antibodies to Mercury bound to human protein is an Mercury binding to human tissue and neoantigen formation between mercury and human gastrointestinal tissue. Once infiltrating the human body, Mercury or its metabolites can bind to human tissue proteins and form neo-antigens. These new antigens are comprised of the haptenic chemical plus the tissue antigen. The formation of neo-antigens initiates an immune response which may result in antibody production against the chemical and the human tissue. Continued exposure to the chemical and the subsequent production of antibodies against various tissue antigens, may result in autoimmune reactivity. Persons with antibodies to Mercury bound to human protein in saliva should avoid exposure to the substance, with special attention taken to clean up the home and work environments.

Suggested Reading:

1. http://www.epa.gov/hg/exposure.htm
2. Agha-Hosseini and Arbabi-kalati. Mercury concentration in unstimulated whole saliva in high school students in Tehran. J Islamic Dental Assoc Iran, 2010; 21(4):265-270.
3. Leistevuo, et al. Dental amalgam fillings and the amount of organic mercury in human saliva. Caries Res, 2001; 35:163-166.
4. Mortazavi, et al. Mercury release from dental amalgam restorations after magnetic resonance imaging and following mobile phone use. Pakistan J Biologic Sci, 2008; 11(8):1142-1146.
5. Pesch, et al. Mercury concentrations in urine, scalp hair, and saliva in children from Germany. J Exposure Anal Envir Epidemiol, 2002; 12:252-258.