

NEWS & VIEWS

All About Chelation Therapy By Staff writer

Administering chelating agents into the body via orally or intravenously for the purpose of removing the accumulated toxins from the previous exposure of heavy metals is known as chelation therapy. Heavy metal toxicity occurs in most people from prolonged exposures to heavy metals. Most common heavy metals produce toxins in humans fall in the following list of heavy metals: Aluminum, arsenic, cadmium, lead, mercury, iron, uranium, plutonium and rarely silver, copper and gold. The standard chelating agents used in the United States is Mercaptosuccinic acid (DMSA). Alpha lipoic acid (ALA) and 2,3-dimercapto-1-propanesulfonic acid (DMPS) are also used frequently by conventional and alternative medicine practitioners as chelating agents.

As the history reveals chelating agents were introduced into medicine as a result of the use of poison gas in World War I. The first widely used chelating agent, the organic dithiol compound dimercaprol (also named British Anti-Lewisite or BAL), was used as an antidote to the arsenic-based

poison gas, Lewisite. The sulphur atoms in BAL's mercaptan groups strongly bond to the arsenic in Lewisite, forming a water-soluble compound that entered the bloodstream, allowing it to be removed from the body by the kidneys and liver. BAL had severe side-effects.

After World War II, a large number of navy personnel suffered from lead poisoning as a result of their jobs repainting the hulls of ships. The medical use of EDTA as a lead chelating agent was introduced. Unlike BAL, it is a synthetic amino acid and contains no mercaptans. EDTA side effects were not considered as severe as BAL.

In the 1960s, BAL was modified into DMSA, a related dithiol with far fewer side effects. DMSA quickly replaced both BAL and EDTA, becoming the US standard of care for the treatment of lead, arsenic, and mercury poisoning, which it remains today.

Research in the former Soviet Union led to the introduction of DMPS, another dithiol, as a mercury-chelating agent. The Soviets also introduced

ALA, which is transformed by the body into the dithiol dihydrolipoic acid, a mercury- and arsenic-chelating agent. DMPS has experimental status in the US FDA, while ALA is a common nutritional supplement.

Calcium-disodium EDTA chelation is approved by the U.S. Food and Drug Administration (FDA) for treating lead poisoning and heavy metal toxicity.

Other chelating agents have been discovered. They all function by making several chemical bonds with metal ions, thus rendering them much less chemically reactive substances. The resulting complex is water-soluble, allowing it to enter the bloodstream and be excreted harmlessly.

Chelation therapy is used as a treatment for acute mercury, iron (including in cases of thalassemia), arsenic, lead, uranium, plutonium and other forms of toxic metal poisoning. The chelating agent may be administered intravenously, intramuscularly, or orally, depending on the agent and the type of poisoning.

Some common chelating agents are EDTA (ethylenediaminetetraacetic acid), DMPS (2,3-dimercaptopropanesulfonic acid), TTFD (thiamine tetrahydrofurfuryl disulfide), and DMSA (2,3-dimercaptosuccinic acid). Calcium-disodium EDTA and DMSA are only approved for the removal of lead by the Food and Drug Administration while DMPS and TTFD are not approved by the FDA.

These drugs bind to heavy metals in the body and prevent them from binding to other agents. They are then excreted from the body. The chelating process also removes vital nutrients such as vitamins C and E, therefore these must be supplemented.

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