Thallium, The Slow and Silent Killer

Among the most notorious of poisons is Thallium. Once commonly referred to as “Inheritance Powder”, it was the assassin’s poison of choice since it is odorless, tasteless, colorless, dissolves in water, and can kill in anywhere from a few hours to a couple days creating a mystery as to what the true cause of death was. Even to this day, despite the fact that symptoms of poisoning are better known and there are a number of effective antidotes available, thallium is being used to intentionally poison people. Not just by murderers and assassins, but also by corporations who are knowingly poisoning the environment, yet refusing to act responsibly.

The United States has not directly manufactured thallium for commercial use since the 1980s, but instead has imported it from other countries predominantly for use in certain sensitive electronic devices. This purpose, however, has little impact on the environment and human health. The fact of the matter is that our drinking water, food, and air are being contaminated with thallium from certain industries, namely cement manufacturers, petroleum refineries, ore smelters, and coal-fired power plants.

Because thallium is a naturally occurring element in the soil and certain ores, the above-mentioned industries produce thallium contamination as an unintentional by-product. For the people who live near these regions there are serious health consequences that can occur from long-term exposure to thallium.

While thallium can be absorbed through the skin and enter the body through various paths, the most common source of contamination comes from consuming foods that have been grown on contaminated soils. Soil can become contaminated either from thallium dust from emissions or from industrial wastewater that enters the groundwater table and is then used to irrigate crops.

Another major source of thallium exposure comes from tobacco products. Both first-hand and second-hand smoke contain thallium and is another reason on top of a great mountain of reasons to give up the smoking habit and reduce our exposure to second-hand smoke.

While the acute effects of thallium poisoning are well understood, only recently has serious research been conducted to study the long-term effects of chronic thallium exposure. Individuals who have been poisoned with large doses will have symptoms of strong abdominal pain, vomiting, and eventually heart failure and death. If the dosage is significant but not large enough to kill within a few hours, the symptoms of suffering can include neurological symptoms like numbness or tingling in the hands and legs, and mental symptoms like hallucinations, delirium, lethargy, and sometimes the victim falls into a coma.

The most commonly used antidote for acute thallium poisoning is medical grade Prussian Blue. Prussian Blue is a pigment that is used to dye clothing, but is also used

by prescription to bind to thallium in the intestines and facilitate fecal excretion.

Long-term exposure to low-dose thallium creates a whole new set of symptoms. While they may not be as severe as acute symptoms, they still decrease quality of life and can eventually lead to serious medical conditions that possibly include cancer.

One of the tell-tale signs of thallium poisoning is hair-loss. In fact, alopecia is one of the three main signs of chronic thallium toxicity, along with polyneuropathic degeneration and gastroenteritis. Sometimes darkening of the roots occurs as well.

Other symptoms of thallium toxicity may include:

- Insomnia
- Nerve pain
- Mental aberrations
- Gastric anacidity
- Lack of appetite
- Hypertension
- Irregular pulse
- Visual disturbances
- Encephalitis
- Blood in the urine
- Endocrine disorders
- Mee's lines (white lines in fingernails)

While it has not been conclusively proven, because thallium has very similar properties to potassium, the body may absorb it through potassium pathways, and may even act as a "potassium-mimic" similar to the way that certain pesticides and plastic residues can mimic estrogen and cause hormonal and developmental problems in the body.

Thallium seems to have an affinity for sulfur-based substances and will often target amino acids like cysteine in the body. Another indicator of thallium poisoning is elevated sulfur content in the urine, such as albumin.

Thallium is of great concern to pregnant women because thallium is known to penetrate the placenta and increasing the risk of birth defects, miscarriage, and possibly still birth, depending on the severity of exposure. Even nursing mothers should be aware of thallium exposure since it is also known to pass through breast milk and into the nursing child.

The process of toxicity for thallium is first in the intestinal tract. From there it goes to the brain, and then from the brain it disperses to the other tissues. This explains the progression of symptoms from first causing gastrointestinal discomfort, then neuropathic symptoms, and then affecting the rest of the body.

Testing for thallium toxicity typically falls into three categories, urine, blood, and hair. Urine and blood tests will usually give strong indicators to very recent exposure. Hair will typically give a stronger indication of severity of chronic exposure, but is not an accurate indicator of the actual intracellular body burden of thallium that may be entrenched in the brain and other body tissues.

A more accurate method of determining the real body burden of thallium toxicity is to conduct a challenge test using a provoking agent like DMPS that will draw thallium and other heavy metals out of the body tissues and cause them to be excreted though the urine.

Depending on the degree of exposure and total body burden of accumulated thallium, it can sometimes be difficult to detoxify. The majority of safe and effective chelating agents, like DMPS/DMSA do not have a high affinity for thallium when compared to other common heavy metals like lead, mercury, and tin. This means that before the chelating agent will remove large amounts of thallium it will first target the heavy metals it has the highest affinity for. This is not to say that chelation therapy is ineffective, far from it. Only that if your body burden of certain other heavy metals is significant, thallium may have to “take a number”. Conversely, if thallium is present in significant quantities in the absence of certain other heavy metals, chelation will remove it from the body.

While cilantro and chlorella are capable of binding to and excreting thallium, their ability to detoxify the body of its body burden is very limited. Recently absorbed thallium that is localized in the blood stream and intestines is easily dealt with by chlorella and cilantro, but once it has progressed into the brain and into other tissues, cilantro and chlorella are limited.

This means that the best defense is to gain an understanding of the thallium contamination in your local environment. Contact your municipal water supplier or have your well water tested for thallium. Find out if there are cement plants, coal-fired power stations, or smelting facilities in your area. Find out where the fruits and produce you eat are grown, even if they are grown organically, their water and soil may have thallium depending on the industries in their areas.

While it may seem like a hassle to have to research the food you eat and the industries in your area, it is the only way to know. Knowledge is power.

The most important thing is to get tested early. If your body has a genetic susceptibility to thallium it is important to discover this information before it can do harm, or greater harm, especially for women who intend to have children. Both genetic testing and testing for thallium toxicity are the best preventative steps that you can take to protect yourself.

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