

Using Silver Solutions and The Risk of Argyria

Introduction

Humanity has had a love affair with silver for thousands of years. Historically the precious metal was used in medicine, eating utensils, plates, cups, food containers, jewelry, money/coins, clothes, building materials, and as a disinfectant for water and human infection. Silver has historically touched almost every facet of life for those who could afford it. Now, after hundreds of years of study and significant gains in knowledge, science and technology, silver is still used for medicine, eating utensils, plates, cups, food containers, jewelry, money/coins, clothes, building materials, and as a disinfectant. It remains an important part of our lives because of the extensively time tested utility of the metal. It is safe to say that silver is being used in some way every day by almost every man, woman, or child in the civilized world.

Can Silver Cause Heavy Metal Poisoning Or Toxic Nephropathy?

As of late, many doctors, scientists, and now the media, have been claiming that silver is a problem because it is a heavy metal, and as such can poison the body. The problem is not with the silver but with the misinformation and inaccurate knowledge being spread by the people speaking about silver. The real answer is that silver is not toxic when used at reasonable levels and quantities. Any substance, even water, in excessive amounts can be fatal. Toxic nephropathy or heavy metal poisoning is defined as, “*Any functional or morphologic change in the kidney produced by an ingested, injected, inhaled, or absorbed drug, chemical, or biological agent.*” The MERCK Manual is sometimes referred to as the “Scientific Bible of Diagnosis and Therapy” by many scientists and doctors. Silver is **not** listed in the manual for causing heavy metal poisoning, because it does not cause it. (See MERCK manual (17th Edition, Pg 1880, table 226-1, third item listed, for the full list of heavy metals that cause toxic nephropathy)).

In a peer-reviewed paper “**Ultradilute Ag-Aquasols with extraordinary bactericidal properties: the role of the system Ag-O-H₂O.**” (Materials Research Innovations, vol. 11, no. 1, (2007) pages 3-18) on the subject of **the safety of consuming metallic silver**, the paper states (page 1, first paragraph of the introduction), “*A recent paper by Das et al. Provides the remarkable datum that some 275,000 kg [(605,000 pounds)] of edible metallic silver foil are consumed every year (in food) in India. No known adverse health effects have ever been recorded. This epidemiological evidence that silver as a metal is not toxic in any way needs no further comment. Further support for the obvious safety of consuming metallic silver (Ag₀) is in the worldwide consumption of (so called) silver colloids, often made at home in primitive electrochemical cells by probably some millions of citizens, again with no ill effects.*”

What Is Argyria?

What is Argyria and will I get it if I use silver products? These are two very common questions. They are important because each of us needs to know that any product we are using or giving to our families will not do them any harm.

Silver products alone generally have no negative side effects if used in reasonable amounts. However, the extreme misuse of some silver salt compounds may cause a condition called argyria. Argyria has no known negative side effects except that it causes a greying or blueing of the skin color. The condition is non-toxic and only cosmetic in nature (U.S. EPA RED Document on Silver, Page 3, Paragraph 3).

What Causes Argyria?

Put simply, argyria can result if there is so much chemical or ionic silver in the body at one time that the body cannot dispose of it fast enough through its normal excretion systems. In order to get rid of this excess silver, the body walls it off in the cells, as it does with all of the products it doesn't have time to get rid of. In most cases the discoloration is permanent. It is the equivalent of getting a tattoo by misusing silver products in an extreme way. The condition is very rare, even in people who consume large amounts of ionic or chemical silver products at high levels, over years of use.

Argyria has resulted from the extreme misuse of very strong silver solutions usually consisting of silver salts, including silver nitrate, silver arsenamine, silver chloride and possibly silver iodide. These products were sold until about 1975 under various labels with solutions containing levels of silver ranging from 5-30%. That means that these products were used at levels as high as 50,000 - 300,000 ppm (parts per million)(Federal Register, FDA-21CFR Part 310, pg. 53685). That is the equivalent of 5,000 to 30,000 times more silver than is used in most silver supplement products sold today, which would be from 10-30 ppm depending on the use. Argyria has also been known to result from the extreme misuse of some homemade products (usually small machine - battery produced products) where they are consumed daily in large quantities (8-24 ounces daily) over years of time.

Minimum Amount Of Silver Intake Known To Cause Argyria Historically

The minimum amount of silver ever known to cause argyria in adults from the use of any silver compound (including salts) is 900 mg of silver taken orally within one year. In order to reach this level of silver intake, an individual would have to consume at least 380 - 8 oz. bottles of a 10 PPM silver product within a year. A recommended dose would be 3 teaspoons daily. This means that an individual would have to consume over 50 times the normal adult dosage every day for a year, to even reach the lowest level ever known to cause argyria. It should be noted that **EPA standards** for the amount of silver that can be safely consumed in drinking water is about the amount contained in a fluid ounce of 10 ppm silver solution (Rfd of .005 mg/kg, daily - EPA

RED document page 2, 4th paragraph). It is also important to note that even during the years from 1918 to 1940 when silver was a government permitted product for use in the medical field, and millions of people using these very strong (high content) silver products at thousands of ppms, there were only about 7-12 people a year who developed generalized Argyria.

Only Ionic Or Chemical Forms Of Silver Can Cause Argyria

A peer-reviewed report from Pennsylvania State University was released after years of studying a number of colloidal silver and silver aquasol or nano products purchased from the U.S. market. The paper was authored by Professor Rustum Roy, along with seven other professors and scientists from leading universities. In the report cited on page 1, on the subject of **ionic vs. metallic silver** for human use, Dr. Roy states (page 2, fourth paragraph): *“In spite of this enormous range of data, it is extraordinary that no major effort has been made to confirm and expand on the role of metallic silver in human health—especially in light of its huge advantage in lack of side effects. (Ingestion of excessive amounts of ionic (soluble) silver, not metallic solid particles is reported to have resulted in a very rare condition labeled argyria, an (irreversible?) darkening of the skin. No one has died of this condition. The safety of metallic silver sols is firmly established by the data cited above.)”*

Silver Washes Out Of The System Quickly

According to the EPA IRIS Report on silver (Integrated Risk Information Systems, 5th page, 1st paragraph) it states that a number of tests were completed to test the absorption and retention of ingested silver in a number of animals, including primates (we are primates). In its conclusion, the test work indicated that between 90-99% of ingested silver was excreted on the second day after ingestion, and greater than 99% was excreted in less than a week. So, in other words, almost all of the ingested silver was out of the body in only two days, and most of the rest was out of the body in a week.

Homemade Silver Products

There is no simple way to accurately control or measure the product that is made in the home-made silver product machines. Recent tests on a number of those machines have shown that the product that they make is usually of very poor quality. Also it was found that the homemade products are made up of mostly ionic or soluble silver particles, not metallic particles. There are also a number of other minor problems associated with these machines. The first problem is that many of the particles that these machines produce can be too big to be useful in the human system, and thus, are mostly ineffective. The second problem is that because the products are so ineffective, the people who use them usually have to drink a lot of the product to get a positive reaction. Third, the increased amount of product needed to receive a positive benefit can be way above what a person should drink by government guidelines. When people drink large amounts of homemade silver products, they potentially expose themselves to argyria. However, even

among the hundreds of thousands of homemade silver product makers, the argyria condition is very rare. The news media seems to love to find one of them every few years or so, like the guy they called Papa Smurf, and put them on TV as part of a shock treatment for ratings. Extensive testing was completed on the “blue man” of a few years ago and it was found that he suffered no ill conditions from argyria, except his bluish skin color.

Argyria Causes No Known Negative Effects Other Than Pigmentation

In an EPA report on drinking water (report ECAO-CIN-026 revised Jan.1991- Section VI, pages VI-1) states that silver has been used therapeutically for centuries. Two doctors in the report were injecting silver into people for various extreme health ills. Having injected silver into patients over a period of years the doctors stated, (Hill and Pillsbury 1939, page VI-2) “the ordinary clinical use of silver compounds practically never gives rise to any gross untoward effect other than argyria.” The paper also states (bottom of page VI-11), “There is no evidence that argyria alone is associated with any adverse effects other than the pigmentation.” In other words, the only known potential side effect from the extreme misuse of medicinal silver products is the rare condition called argyria.

Conclusion

There is no question about the amount of data that exists on the safety and general non-toxicity of using silver in its many human uses, especially when considering the fact that millions of people use the metal daily. It has been used in almost every facet of human life. Metallic silver causes no nephropathy or heavy metal poisoning in the body. Silver is naturally one of the most broad-spectrum disinfectant and healing agents that exists. According to the EPA (who are in charge of defining safe levels of any mineral in water which is used for ingestion, drinking, or disinfecting), the oral consumption of small amounts of silver in water on a daily basis poses no significant degree of risk. According to historical published information on silver, unless an individual were consistently consuming (every day for over a year) over 50 times the recommended daily dosage of a 10-30 ppm product, there would be no possibility of that individual contracting argyria. Those people who use hundreds or even thousands of times the recommended daily dosages run a risk of turning their skin blue or grey, but even then, the condition is very rare. There have been no reported deaths from the medicinal use of silver.