Hi-yo silver, away with infection!

The use of silver for medicinal purposes is increasing as more research is done on multiple microbial systems, there being a marked decline in the use of silver as well as research on its medicinal properties.

Recently renewed emergence of antibiotic-resistant strains of pathogens (bacteria, viruses, and fungi) along with the severely slowed development of novel antibiotics has led to a renewed interest in some of the old remedies. Silver, in particular, is enjoying a strong comeback.

Properties of silver

Silver exists in a number of forms. Elemental silver is the primary metal ion and has limited medical use since it is too large to pass through cell membranes. Silver compounds, such as silver nitrate, can be fairly effective topically but are dangerous due to potentially toxic side effects. Collidal silver is a solution in which microscopic silver particles are produced from a pure silver electrode and these charged silver ions are kept in suspension. The medical efficacy of a colloid depends on the quality of the silver used to produce it, the consistency of the electric charge during production, and the eventual size of the particles. All of these forms of silver carry potential toxicity risks at high enough concentrations as well as contamination risks as they can leak into the environment.

Collodial silver products are generally stable, though chloride salts will disrupt the ions, and are best suited to topical application for burns and surface wounds where they work quite well. The bonding of a chelator (generally a citrate) to a metal atom produces a chelate. It is proposed that chelators are treated as desirable molecules by the recognition systems in cell walls and that they serve to carry metal ions into the body in larger amounts than would usually be allowed. Chelated silver is exceptionally stable, nonreactive, and less of a threat to the environment.

In my research and clinical use, I have found chelated silver to achieve better tissue penetration and to be a more stable compound,” said Mike Cavey, D.V.M., a veterinarian and trainer who has been researching the uses of silver for decades.

Silver exerts its effect on microbes by blocking the enzymatic use of oxygen, by inhibiting DNA replication, and by interfering with microbial cellular energy production. Because silver acts in multiple ways on multiple microbial systems, there is far less chance of resistance development, and current research has shown that nearly 650 types of bacteria, viruses, and fungi are affected by silver, with most eliminated within minutes of contact.

This potent antimicrobial activity, even against some viruses and bacteria that resist the strongest antibiotics currently available, has attracted the attention of leading scientists and researchers around the world who are looking into the efficacy and applications of silver products. Veterinarians are applying that same scientific curiosity to equine health issues and silver’s possible benefits.

“I've been using products for equine burns and wounds and have been in use for years,” said Mickey Ballew, founder of EquiSilver, a company pioneering uses of chelated silver in equine medicine, “and while we are interested in this aspect of treatment, we started to get excited about other areas where we thought silver could help horses.”

For the past few years, Ballew, in conjunction with various veterinarians and researchers, has been investigating the treatment of throat and respiratory conditions in racehorses.

“A major limiting factor in equine performance is low-grade respiratory tract infection,” said Thomas Tobin, D.V.M., Ph.D., a pharmacologist at the Gluck Equine Research Center at the University of Kentucky. “Silver inhalation eliminates infections in the respiratory tract and is active against all types of microorganisms. This translates into improved performance and meets the criteria for therapeutic medication.”

Initially chelated silver solution (20 to 30 cubic centimeters via catheter) was flushed up the nasal passage as a “head spray,” Ballew said. “We quickly found that we achieved much better concentration within minutes of contact. Silver vaporization kills microbes in the airways and lungs and reduces respiratory inflammation.”

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