

Promising Cure for URTI Pandemics, Including H5N1 and SARS: Has the Final Solution to the Coming Plagues Been Discovered? (Part II)

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Abstract

BACKGROUND: Recently Rentz (2003) published a convincing retrospective, peer-reviewed treatise on a highly advanced, effective and safe virotoxic oligodynamic silver (Ag^+) hydrosol, making the case that it is the agent of choice to combat SARS.¹ The works of Goetz (1940),² Berger *et al* (1976),³ Simonetti *et al* (1992),⁴ Russel *et al* (1994),⁵ and Crocker and Grier (1998)⁶ collectively established that electrolytically produced oligodynamic Ag^+ hydrosol provides the ideal speciation of bioactive Ag^+ completely harmless to mammals in contrast to other colloidal silver or silver salt speciations^a that are predominantly inactive and potentially toxic to mammals. They also established that oligodynamic Ag^+ hydrosol possesses fabulous virotoxic properties. Comprehensive studies conducted by NASA (circa 1970) on a crude oligodynamic Ag^+ hydrosol preparation offer a compelling argument that today's highly advanced oligodynamic Ag^+ hydrosols may be the solution to lessening the impact of viral plagues. With today's advancement in Ag^+ processing technology, at least one commercially available, cost-effective oligodynamic Ag^+ hydrosol is (a) proven to be over 95% bioactive per volume, with (b) an unprecedented surface area of activity (i.e., $\geq 6 \text{ km}^2$ per gram Ag), that provides (c) an ideal concentration factor of < 25 ppm, in (d) an ideal liquid medium. **CONCLUSION:** The pharmacology of advanced oligodynamic Ag^+ hydrosol shows great promise to easily overwhelm key defensive mechanisms of URTI resistance in general, including H5N1. Additional clinical studies are warranted to further demonstrate the efficacy and compatibility of *per os* virotoxic oligodynamic Ag^+ hydrosol, as well as investigational intravenous and nebulized (aerosol) protocols.

Key words: URTI pandemics, H5N1, oligodynamic Ag^+ hydrosol pharmacology, microbial defenses, microbial resistance, conventional treatments, effective protocol development, hyposmolarity, sorbitol.

Introduction

During the past 300 years, humanity has suffered 10 pandemics and several epidemic scares. Could the solution to pandemics have a simple answer? Has Nature always held the key to defeating pathogens in a simple Ag^+ molecule?

Commonly known as the flu or the gripe, influenza is a contagious disease of the upper respiratory tract caused by viruses from the orthomyxoviridae family, all RNA viruses.⁷ Generally, human Influenzavirus starts with direct human contact with sick poultry and other animals.^{8, 9}

The orthomyxoviridae family is divided into three types - Influenzavirus A, B, and C. Each type is differentiated by its respective "antigenic" nucleoprotein and matrix protein dissimilarities.¹⁰ Due to two main "antigenic" surface glycoproteins of Influenzavirus A being prone to significant mutation, this virus requires further classification into subtypes. The influenza A virus is a species of the genus influenza virus A. There are multiple subtypes of Influenza A. The H5N1 virus is a direct

^a The term speciation is central to medical toxicology as it precisely describes and differentiates the fate, transport and toxicity of differing compounds of the same metal. For example, chromium is essential in one form (Cr III), yet toxic in the same elemental amount when present in another form (Cr VI). This is especially true with differing silver compounds as well.

descendent of the Spanish Flu virus, a subtype of Influenza A. Influenzavirus B and C do not have subtypes. However, Influenzavirus B and the subtypes of Influenzavirus A are further classified into strains.¹¹ The H5N1 subtype alone has more than 400 different strains.¹² Only Influenzavirus A may cause pandemics within the Influenzavirus types.

Influenzavirus A infects people, wild birds, domestic poultry, horses, pigs, and other animals. Wild birds are the viruses' natural hosts.¹³ Influenzaviruses B and C only infect humans.¹⁴ Influenzavirus B may cause epidemics, and Influenzavirus C is not capable of causing either, and typically causes only mild infections.¹⁵ Global pandemics of Influenzavirus A typically occur when three conditions are met:

1. A new type of influenza A virus is introduced into the human population.
2. The new subtype causes serious human illness.
3. The virus sustains itself when it develops the means to easily spread from person to person (i.e., goes airborne or "sheds" easily from person to person).

History

Influenza was coined as the name of a predictable/seasonal disease in 15th century Italy. It derives its name from people who associated it with unfavorable astrological *influences*. The term was adopted by the medical community in the 18th century into "influenza di freddo" (meaning "influence of the cold"). Influenza reaches a peak in the winter months consistently six months after the maximum of solar radiation. It is unclear why the phenomenon of Influenza is so consistently seasonal in nature.¹⁶

Three pandemics have taken place over the last 100 years. The Spanish Flu (a subtype of Influenza A known as H1N1) of 1918 to 1919 was the worst recorded human disaster in history. Over 500 million people suffered morbidity, and up to 100 million may have died, including over 500,000 Americans. In subsequent decades, two more pandemics arose. In 1957, the Asian flu broke out, a subtype of Influenza A known as H2N2. Up to 1.5 million may have died, including approximately 70,000 Americans. In 1968, the Hong Kong Flu broke out. A subtype of Influenza A known as H3N2, the virus killed up to a million people, including around 34,000 Americans.^{17, 18}

Despite the Swine Flu (1976), Russian Flu (1977) and the Hong Kong Flu (1997) causing world-wide scares of a looming pandemic, no pandemic has occurred since 1968.¹⁹ This suggests that the world may be overdue for an Influenza pandemic.

In any given year, up to 20% of Americans suffer from the flu, with over 100,000 requiring hospitalization. On average, 36,000 people per year die from the viral infection, predominately from a resulting pneumonia. Many would argue that it is not about *if* the next pandemic is coming, but when. And, when it comes, what are we going to do about it? Deal with it conventionally, or intervene with a highly effective and safe, virotoxic oligodynamic Ag⁺ hydrosol?²⁰

We will see shortly that the pharmacology of picoscalar oligodynamic Ag⁺ hydrosol make it an excellent candidate to thwart pandemics.

Impact

We are currently in Phase 3 of a H5N1 Pandemic Alert. This is the half-way mark to a full blown pandemic.²¹ To date, there have been a total of 135 deaths from H5N1.²² So far, two cases involved documented human to human transmission. Due to the specific histology of the Influenza A virus, plus the compounding issue of air-travel and rapid transit that facilitates contagion, it is expected that future pandemics will more easily infect numbers equivalent to or greater than the Spanish Flu of 1918.²³ The CDC predicts that should H5N1 go pandemic, a *medium-pandemic* would infect up to 35% of the U.S. population, and up to 207,000 would die.²⁴ Should H5N1 evolve into a *severe-pandemic*, up to 90 million Americans are expected to contract the disease, and 2 million could die.²⁵

The symptoms of Influenza may include acute respiratory distress, arthralgia, diarrhea, eye irritation, extreme chills, fatigue, fever, gastrointestinal pain, myalgia, nasal congestion, sneezing, sore throat and unproductive cough.²⁶ The course of Influenza is much more substantial than the common cold, and typically occurs over one to two weeks or more. Although healthy people will contract the flu, the young, old and chronically ill are the most prone to complications and death. Complications include pneumonia, bronchitis, conjunctivitis, sinusitis, otitis media, and also exacerbation of other chronic illness present, such as asthma.²⁷

Essentially the dynamics of influenza mutation evolve the viruses' proteinaceous antigenic profile. Two key mutagenic mechanisms involve "antigenic drift" (the most common) and "antigenic shift" (the least common). Antigenic drift describes "point mutations" that induce small, gradual changes in antigens on the surface of the virus that create new viral strains. In contrast, antigenic shift describes a substantial "genetic reassortment" between human and animal influenza genes that abruptly create novel viral subtypes. Only antigenic shift creates an environment for pandemics relative to Influenza viruses. While Influenza A may undergo either form of mutation, Influenza B only undergoes antigenic drift. This is the reason why only Influenza A has the potential to generate pandemics. Even though both forms of mutations *may* produce novel antigens unrecognizable to antibodies conditioned by contact with previous influenza strains, antigenic shift virtually *assures* non-recognition by conditioned or naive antibodies.²⁸

Antigenic shift also virtually assures vaccine failure until the new subtype can be collected and successfully manufactured into an updated vaccine, typically realizable only after four to six months post-pandemic onset.²⁹

Discussion

Influenza viruses have envelopes to their outer surface that contain from 18 to 37% lipids by weight. This is a critical aspect of viral defenses. Crude oligodynamic Ag⁺ preparations have a difficult time penetrating these waxy envelopes as discovered by a NASA commissioned study.³⁰ Picoscalar oligodynamic Ag⁺ hydrosol, which is over 95% bioactive, would not suffer the same handicap as did NASA's 1970 technologically crude Ag⁺ hydrosol preparation. There is an exchange between host cells and the virus of both lipids and proteins. The virus incorporates host cell lipids from plasma membranes into its envelope. The envelope may be either pleomorphic or filamentous and ranges from 20 to 300 nm in length. Influenza projects roughly 500 distinct surface projections of hemagglutinin and neuraminidase in a ratio of approximately 4.5 to 1

Contrarily, host membranes will acquire viral proteins in their own membranes post-infection.^{31, 32} This illustrates an important and likely cause of autoimmune sequelae and may be a key etiology underlying post-viral syndromes in general. Picoscalar silver ions may easily defeat viral adsorption mechanisms by denaturing surface/envelope proteins as recently reported in *The Journal of Nanotechnology*.³³ Conceptually, if oligodynamic Ag⁺ hydrosol were given early during the course of infection, the powerful denaturing actions upon viral proteins might block host membranes from incorporating the Ag⁺ cleaved/highly fragmented protein residues rendered inert. Some day in the future, oligodynamic silver hydrosol may be recognized as a preventative for certain autoimmune sequelae that would otherwise manifest in ever-escalating anti-self antibody production over many years and decades post infection.

Influenza viruses are composed of nucleocapsids containing nucleoproteins. The nucleocapsids have a helical symmetry.³⁴ The nucleic acid is composed of 7 to 8 linear negative-sense stranded RNA segments.³⁵ These related genes and their transcriptional end-products are prime targets for the denaturing activity of oligodynamic Ag⁺ hydrosol for all microbial life. Specifically for H5N1 these targets are as follows:³⁶

- 8 Genes;

- Hemagglutinin;
- Neuraminidase;
- Nucleoprotein;
- Matrix proteins M1 and M2; and
- RNA polymerase.

Amantadine, oseltamivir (Tamiflu®)^b, ribavirin, rimantadine, and zanamivir are the central conventional drug treatments proven effective in influenza. The majority of these drugs are expensive, and insurance coverage is often determined by whether or not the physician can successfully make the case that their use would make a significant difference, such as in an immune-compromised individual.³⁷

Drug side reactions for typical dosages of amantadine and rimantadine in young healthy adults include CNS and gastrointestinal disturbances, which are typically mild and cease upon drug discontinuation. Serious delirium, hallucinations, agitation, seizures and renal failure may occur as well, especially in the elderly and the sick.³⁸ Twenty percent of people taking amantadine and 2% of those taking rimantadine suffer from adverse CNS events.³⁹

Side reactions for oseltamivir include nausea and vomiting.⁴⁰

Side effects of ribavirin may be among the most serious of the five drugs. Significant numbers of patients, especially infants, experienced serious lung sequelae such as apnea, atelectasis, bacterial pneumonia, bronchospasm, cyanosis, dyspnea, pulmonary edema, hypoventilation, pneumothorax, and dependency upon a ventilator. Equally alarming were cardiovascular events that included arrhythmia, bradycardia, cardiac arrest, digitalis toxicity, and exacerbation of congenital heart disease.⁴¹

In patients with COPD, zanamivir has a significant record of inducing bronchospasm and deteriorating respiratory function. For these reasons, the drug is contraindicated in patients with underlying airway disease.⁴²

Several reports substantiating Influenza multiple drug resistance (MDR) are documented. The CDC reports that high rates of resistance to amantadine and rimantadine occur in the H3N2 strain of influenza A: China 74%, Hong Kong (70%), Taiwan (23%), and South Korea (15%). The overall resistance rate for the U.S. is 4%.⁴³ This has caused the international community to stockpile oseltamivir. However, oseltamivir resistant H5N1 was isolated from a Vietnamese girl in Feb. 2005.⁴⁴ Alarming, a recent publication by de Jong from Oxford University has shown these stockpiles could be powerless to stop an H5N1 pandemic. When oseltamivir was given in its current proper dose within the first 48 hours of flu onset, it still failed to prevent death!⁴⁵ Over time, the pharmacodynamics of these drugs makes them less able to affect the newly mutated proteins of the latest version of the influenza virus.

Prevention with vaccinations is mired by similar difficulties. Even when an effective vaccine is developed, it is typically effective for a single year at best, due to the high rate of influenza mutation.⁴⁶ In fact, the CDC lists the flu vaccine as being only 16% to 63% effective in general. In 2003, the flu vaccine's effectiveness was virtually nil.⁴⁷ Other complications stemming from vaccination programs can sometimes be quite embarrassing. For example, during the U.S. Swine Flu scare of 1976, 24% of the U.S. population became inoculated, resulting in 25 deaths nationwide. This iatrogenic mortality rate exceeded the death rate from the Swine Flu itself. Additionally, a significant number of those inoculated were maimed with Guillian-Barre Syndrome (GBS).⁴⁸

The results of Influenza virus mutation and the limitations of conventional treatment clearly illustrate why oligodynamic Ag⁺ hydrosol may be the medicine of choice to thwart pandemics. All current scientific evidence supports that oligodynamic Ag⁺ hydrosol will denature virtually any protein

^b Tamiflu® is a registered trade mark of Roche-Holding.

or nucleic acid^{49, 50, 51} that lacks sufficient antioxidant protection or lacks sufficient surveillance by metallothioneins.⁵² Viruses possess neither system of defense and their endlessly evolving cycle of viral *protein* mutations cannot shield their recurrent vulnerability to the denaturing action of oligodynamic Ag⁺. The evidence is quite compelling that over the past century that the Orthomyxoviridae family [e.g., Influenza (species unidentified),^{53, 54, 55} Influenza A (strains not identified),^{56, 57} Influenza A (Okuda strain),⁵⁸ and Influenza B (*Haemophilus influenzae*)⁵⁹] has been unable to outwit the virotoxic effects of oligodynamic Ag⁺.

Picoscalar oligodynamic Ag⁺ hydrosol may be the safest and durable denaturing agent of lower life forms' essential proteins.⁶⁰ Comprehensive evidence suggests that the fate of spent picoscalar silver in humans is easily and harmlessly eliminated.⁶¹

In view of all of the above, it would be prudent for physicians to consider using oligodynamic Ag⁺ hydrosol to treat influenza, and especially MDR influenza cases.

Part II: Pharmacology, Therapeutic Index, Case Histories; Protocol Proposal and Procedure for Follow-on Studies; JHE Management; Jurisprudence; and Adjunctive CAM Prevention and Treatment.

Correspondence

The two authors have significant clinical experience using picoscalar oligodynamic silver hydrosol. Neither author has any financial ties to commercial or proprietary silver hydrosol products. Eric Gordon, MD, is medical director for Gordon Medical Associates in Santa Rosa, CA. He may be contacted at: gordonmd@sonic.net. Kent Holtorf, MD, is medical director for the Hormone and Longevity Medical Center, Inc at 23441 Madison St. #215, Torrance, CA 90505 pH. 310-375-2705. He may also be reached through www.hormoneandlongevitycenter.com.

References

- ¹ Rentz E, Viral Pathogens and severe acute respiratory syndrome: Oligodynamic Ag⁺ for direct immune intervention. *Journal of Nutritional and Environmental Medicine* June 2003; 13(2):109-18.
- ² Goetz A, Tracy RL, Harris FS, The oligodynamic effect of silver. In: *Silver In Industry*, Chapter 16, edited by Lawrence Addicks, Reinhold Publishing Corp., NY, 1940; p. 401-2.
- ³ Berger TJ, Spadaro JA, Chapin SE, Becker RO, Electrically generated silver ions: Quantitative effects on bacterial and mammalian cells. *Antimicrob Age Chemother* 1976; 9:357-8.
- ⁴ Simonetti N, *et al.*, Electrochemical oligodynamic Ag⁺ for preservative use. *Applied and Environmental Microbiology* Dec 1992; 58(12):3834-6.
- ⁵ Russell AD, Path FR, Hugo WB, Antimicrobial activity and action of silver. *Prog Med Chem* 1994;31:352.
- ⁶ Crocker JC, Grier DG, Interactions and Dynamics in Charge-Stabilized Colloid. *MRS Bull* 1998; 23:24-31.
- ⁷ See http://en.wikipedia.org/wiki/Influenzavirus_A.
- ⁸ See <http://www.cdc.gov/flu/avian/gen-info/flu-viruses.htm>.
- ⁹ See <http://en.wikipedia.org/wiki/Influenza>.
- ¹⁰ Ibid.
- ¹¹ See <http://www.cdc.gov/flu/avian/gen-info/flu-viruses.htm>.
- ¹² See <http://en.wikipedia.org/wiki/Orthomyxoviridae>.
- ¹³ Ibid.
- ¹⁴ See <http://en.wikipedia.org/wiki/Influenza>.
- ¹⁵ See <http://www.cdc.gov/flu/avian/gen-info/flu-viruses.htm>.
- ¹⁶ See <http://en.wikipedia.org/wiki/Influenza>.
- ¹⁷ See <http://www.cdc.gov/flu/pandemic/keyfacts.htm>.
- ¹⁸ See <http://en.wikipedia.org/wiki/Influenza>.
- ¹⁹ See <http://www.cdc.gov/flu/pandemic/keyfacts.htm>.
- ²⁰ Ibid.
- ²¹ See <http://www.cdc.gov/flu/pandemic/phases.htm>.
- ²² See http://www.who.int/csr/disease/avian_influenza/country/cases_table_2005_12_07/en/index.html.
- ²³ Quoting from Sec. Mike Leavitt, Health & Human Services, Fox News, December 5, 2005.
- ²⁴ See <http://www.cdc.gov/flu/pandemic/keyfacts.htm>.
- ²⁵ Fox News, December 10, 2005.
- ²⁶ See <http://www.cdc.gov/flu/avian/gen-info/avian-flu-humans.htm>.
- ²⁷ See <http://en.wikipedia.org/wiki/Influenza>.
- ²⁸ See <http://www.cdc.gov/flu/avian/gen-info/flu-viruses.htm>.
- ²⁹ See http://en.wikipedia.org/wiki/Flu_vaccine.
- ³⁰ Rentz E, Viral pathogens and severe acute respiratory syndrome: Oligodynamic Ag for direct immune intervention. *Journal of Nutritional and Environmental Medicine* June 2003; 13(2):112-3.
- ³¹ See <http://www.ncbi.nlm.nih.gov/ICTVdb/ICTVdB/46000000.htm>.
- ³² See <http://www.kcom.edu/faculty/chamberlain/Website/Lects/VIRAL.HTM>.
- ³³ See <http://www.physorg.com/news7264.html>.
- ³⁴ See <http://en.wikipedia.org/wiki/Orthomyxoviridae>.
- ³⁵ Ibid.
- ³⁶ See <http://en.wikipedia.org/wiki/Influenza>.
- ³⁷ See <http://www.cdc.gov/flu/pandemic/keyfacts.htm>.
- ³⁸ See <http://www.cdc.gov/flu/professionals/treatment/side-effects.htm>.
- ³⁹ *Arch Intern Med* 2000;160:1485-8.
- ⁴⁰ See <http://www.cdc.gov/flu/pandemic/keyfacts.htm>.
- ⁴¹ See http://www.rxlist.com/cgi/generic2/ribavirin_ad.htm.
- ⁴² See <http://www.cdc.gov/flu/professionals/treatment/side-effects.htm>.
- ⁴³ See <http://www.washingtonpost.com/wp-dyn/content/article/2005/06/17/AR2005061701214.html>.
- ⁴⁴ See http://en.wikipedia.org/wiki/Influenzavirus_A. (Also see: *Nature* 437:1108 and the November 2005 issue of *JAMA*).
- ⁴⁵ Chang A, Avian flu claims 2 who took Tamiflu. *The Seattle Times* Thursday, December 22, 2005; p. A-7.
- ⁴⁶ See http://en.wikipedia.org/wiki/Flu_vaccine.
- ⁴⁷ See <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5301a3.htm>.
- ⁴⁸ See http://en.wikipedia.org/wiki/Swine_Flu.
- ⁴⁹ Feng QL, *et al.*, A mechanistic study of the antibacterial effect of silver ions on *Escherichia coli* and *Staphylococcus aureus*. *J Biomed Mater Res* March 2000; 52:662.
- ⁵⁰ Oka H, *et al.*, Inactivation of enveloped viruses by a silver-thiosulfate complex. *Metal-Based Drugs* 1994; 1(5-6):511.

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- ⁵¹ Zhang-Yin Z, et al. Zinc inhibition of renin and the protease from human immunodeficiency virus type 1. *Biochemistry* 1991, Sept 10; 30(36):8717-21.
- ⁵² Shinogi M, Maeizumi S, Effect of pre-induction of metallothionein on tissue distribution of silver and hepatic lipid peroxidation. *Biol Pharm Bull* 1993; 16:372-4.
- ⁵³ Mahnel H, Schmidt M, Effect of silver compounds on viruses in water. *Zentralbl Bakteno Parasitenk Infektionskr Hyg Abt Orig Reihe B* 1986; 182:381.
- ⁵⁴ Septacrol, Merck's Index, 4th ed., Rahway, NJ, Merck & Co., 1930; p. 456.
- ⁵⁵ Searle, AB, *The Use of Colloids in Health and Disease*, E.P. Dutton, New York, 1919; p. 86.
- ⁵⁶ Thurman RB, Gerba CP, The molecular mechanisms of copper and silver ion disinfection of bacteria and viruses. A paper presented in the *First International Conference on Gold and Silver in Medicine*. The Silver Institute, Washington, DC, 1989; 18(4):295, 299-302.
- ⁵⁷ Cliver DO, et al., Biocidal effects of silver. Contract NAS 9-9300 Final Technical Report. University of Wisconsin, Accession Number N70 23888, NASA CR Number CR-108338, February 1970; 4-2, 4-4.
- ⁵⁸ Oka H, et al.,, *U.S. Patent Number 5,516,519*. Antiviral composition. May 14th, 1996.
- ⁵⁹ Brigham Young University, Microbiology Department, May 13th, 1999. Ron W. Leavitt, PhD., Professor of Microbiology; ref: ASAP 1.25 ppm to 10 ppm concentrate of Ag⁺.
- ⁶⁰ Berger TJ, Spadaro JA, Chapin SE, Becker RO, Electrically generated silver ions: Quantitative effects on bacterial and mammalian cells. *Antimicrob Age Chemother* 1976; 9:357-8.
- ⁶¹ Agency for Toxic Substance and Disease Registry (ATSDR), U.S. Public Health Service, Clement International Corporation, Under Contract No. 205-88-0608. Toxicological profile for silver. CAS# 7440-22-4, Section 2.5.1, December 1990; p. 40-1.