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Antivirt® $\{Al_4(SiO_4)_3 + 3Mg_2SiO_4 \rightarrow 2Al_2Mg_3(SiO_4)_3\}$ Cures COVID-19 by Opposite Charges' Electrostatic Attraction

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Abstract

To cure COVID-19, we propounded mopping viruses/infected cells by opposite-charges electrostatic attraction as mechanism of treatment. RNA viruses (including *COVID*-19 *virus*) are positively charged while DNA viruses and abnormal (infected/tumor) cells are negatively charged but normal cells are neutral. Molecules of Aluminum-magnesium silicate (AMS), a WHO- approved medicine, consist of *Nanoparticles* that have both negatively and positively charged ends. Ultra-small size (0.96 nm thick) of the *Nanoparticles*, allows them access to cells in all organs. Nigeria does not have natural AMS-deposits but she has Aluminum silicate and Magnesium silicate, abundantly. These solid minerals which are WHO-approved medicines too were used to formulate an AMS-brand, named, ***Medicinal synthetic AMS*** (**MSAMS**, **VITUMED®**, **Antivirt®**). Dextrose monohydrate (simple sugar) is incorporated in each MSAMS-formulation to convey the electrically charged *Nanoparticles* across mucous membranes (active-transportation) into blood for circulation to all organs. The **Antivirt®** has proved effective against all viral and abnormal-cell diseases so far tested including COVID-19.

Keywords

MSAMS (Antivirt®), HIV/AIDS, COVID-19, Tumors

1. Introduction [1]

Developing antiviral medicines is difficult. That is reason some viral diseases are said to be incurable. Two other conditions that are also difficult to treat are abnormal cell diseases (tumors including cancers) and Antimicrobial resistant in-

fections (AMR).

1.1. What Makes Designing Antiviral Medicines Difficult

Most viruses cause immune-deficiency and viruses' small sizes enable them infect cells which are inaccessible to medicines of large molecules. So, medicines that act by inhibiting physical features or physical activities of pathogens need immunity to complement their effects against viral infections while side effects of medicines that act by inhibiting viral biochemistry become intolerable to patients when treatments continue for a long time (because of similarity of viral-biochemistry and animal cells-biochemistry). Under state of immune-deficiency, infections in cells that are inaccessible to large molecules cannot be cleared by existing antiviral medicines. Those inaccessible cells are the ones termed "viral reservoirs" or "sanctuary cells". That is reason some viral diseases, such as HIV/AIDS are "incurable" while patients of viral diseases that do not cause severe immune deficiency, such as COVID-19, recover when properly managed. So, antiviral medicines should be designed to inhibit physical features/activities of viruses instead of their biochemistry (to minimize side effects) and their active principles should be smaller than viruses (≥5 nm) so that they reach all cells.

1.2. Literature-Review

That electrostatic attraction would serve as a mechanism of inhibiting infections of electrically charged pathogens, if medicines that possess opposite electrical charges are developed, is an old scientific knowledge and that viruses and abnormal (infected/tumor) cells are electrically charged is already in literature [2] [3]. That most epidemics/epizootics including HIV/AIDS and COVID–19 are caused by viruses is also known.

Molecules of Aluminum-magnesium silicate (AMS), WHO-approved medicine/pharmaceutical stabilizing agent, consist of *Nanoparticles* [4] that are only 0.96 nm thick [5]. That means, AMS-*Nanoparticles* are smaller than any known virus (≥5 nm). They have both negative and positive electrically charged ends [5]. Unlike abnormal cells, healthy cells are neutral (bio-medical marker). The charges on AMS would enable it mop/destroy viruses/abnormal cells (by **Opposite charges-electrostatic attraction**). As a silicate, it would also normalize immunity [6] and as a stabilizing agent [7] it would enhance efficacy of antimicrobial agents for effective treatment of secondary infections.

1.3. The MSAMS

AMS $\{Al_2Mg_3(SiO_4)_3\}$ is not found in every country but most countries have Aluminum silicate $\{Al_4(SiO_4)_3\}$ and Magnesium silicate (Mg_2SiO_4) which are also WHO-approved medicines. These solid minerals were used for a reaction [8] to get a drug-formulation which was named *Medicinal synthetic AMS* {**MSAMS**, **VITUMED**®, **Antivirt**®: $Al_4(SiO_4)_3 + 3Mg_2SiO \rightarrow 2Al_2Mg_3(SiO_4)_3$}. Dextrose monohydrate (simple sugar) was incorporated in the **MSAMS**, to convey the

un-absorbable but electrically charged *Nano-medicine* across mucous membranes [9] into blood, by the principle of active-transport.

1.4. Actions-Mechanisms

Mopping viruses; Destroying abnormal cells; Normalizing immunity; Effective treatment of secondary infections, would cure any viral/abnormal-cell disease including HIV/AIDS and COVID-19. The **MSAMS** mops electrically charged pathogens (viruses and abnormal cells) by opposite charges on its *Nanoparticles*. So, we came up with the hypothesis of **Opposite-charges electrostatic attraction** between electrically charged medicines and pathogens with opposite charges as a mechanism of action for terminating viral infections and metastasis of tumor cells.

1.5. Effective Treatment of Secondary Infections

As adjuvant, AMS prolongs time drugs remain at high concentration in blood of treated patients thus enhancing their efficacies. Ability of **MSAMS** to enhance efficacy of antimicrobial agents [10] so that secondary infections are effectively treated also helps in curing viral diseases. With enhanced efficacy, lower doses achieve desired effects. Use of lower doses for treatments minimizes side effects of medicines. When side effects are minimized, immune responses of patients improve. Enhancing efficacy of antimicrobial agents and improving immune responses of patients lead to termination of even already resistant infections.

1.6. Cure for "Incurable" HIV/AIDS

Reasons existing Antiretroviral medicines do not achieve permanent cure of HIV/AIDS include that their molecules are too large to cross physiological barriers. For that limitation, they do not reach HIV infections in some cells. So, even when viral loads in blood of patients they are used to treat become undetectable, the infection may still remain "hidden". The **MSAMS** is made of ultra-*Nanoparticles*. So, the medicine crosses physiological barriers and reaches every virus and every infected cell in every organ/tissue. And since it acts by a physical effect, it is safe for any treatment-duration needed to terminate any viral-infection (including HIV).

2. Antivirt® on COVID-19 [11]

2.1. Protocols

Five more confirmed cases of COVID-19, including a 90-year old man and many unconfirmed cases have been treated with the **Antivirt®**. They were on a formulation of MSAMS and Ampicillin trihydrate (**Antivirt® A**) and Immunace extra-protection® for 7 days and then changed to a formulation of MSAMS alone (**Antivirt® B**) before they were retested by the government agency according to existing policy.

2.2. Results

Four of the confirmed COVID-19 patients reported clinical recovery after 3 days (72 hours) on the **Antivirt**®-treatment. The fifth patient, a 90-year old man recovered after 4 days (96 hours). They all tested negative at the repeat-test. All the patients have remained healthy for over six months, without relapsing.

2.3. Discussion

Delayed recovery of HIV/AIDS patients treated with regimen of **Antivirt**® and Immunace extra-protection® [12] may be due to the severe immune deficiency caused by HIV while the quick-cure (72 to 96 hours) of COVID-19 patients treated with same regimen may be because *SARS-CoV*-2 (causative agent of COVID-19) is not associated with severe immune deficiency.

Since the *COVID*-19 *virus* (RNA) is positively charged and animal-cells become negatively charged once infected while normal cells remain neutral (without electrical charges) electrical charges are biomedical markers for medicines needed to cure COVID-19 patients in order to effectively control the pandemic and eventually eradicate it.

Molecules of AMS consist of *Nanoparticles* that are much smaller than *SARS-CoV*-2 and the *Nanoparticles* have both negative and positive electrically charged ends (opposite, charges that are on the virus and on infected cells). So, the Antivirt® which is a formulation of two already approved medicines (Aluminum silicate and Magnesium silicate) and an approved food (Dextrose monohydrate) would electrostatically bond to both the virus and to cells it infects. Bonding of the *Nanoparticles* to *COVID*-19 *virus* inhibits first stage of the viral replication processes (attachment to hosts-cells) while the infected cells are mopped and/or destroyed. Using medicines for quick-cure of COVID-19 would be a better control measure for the pandemic than current vaccination efforts.

Existing COVID-19 vaccines are said to provide full protection for only three months. That means, the vaccination should be repeated every two months. Any vaccinated person or animal that is not revaccinated before three months would have an antibody level lower than titer required to prevent establishment of the viral infection. When viruses experience medicines or antibodies and survive to establish infections, they mutate to forms (variants) the medicines or the antibodies can no longer inhibit.

With current shortage of vaccines and vaccination-hesitancy in many countries, it is very difficult to achieve acceptable level of COVID-19 protective antibody titers in required percentage of citizens, in all susceptible animal species and in all countries of the world. Once protective antibody levels are not achieved, vaccinated persons or animals become media for mutation by the virus. This may be responsible for the rapid mutation to new variants currently being experienced in the world.

As alternative to vaccination, treatment to achieve quick cure can be adopted as control measure for COVID-19. Since bio-medical marker the Antivirt® inhi-

bits is a feature common to every virus, efficacy of the medicine will not change, not minding variant of the virus involved. Use of medicines to control COVID-19 would interrupt transmission of the infection with0in and between countries as persons who get infected would be quickly treated and discharged. Also, since the medicine is cheap, if it is made easily accessible, people could treat themselves at home when they suspect they have been infected thus reducing economic losses due to fear of the pandemic.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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