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Exploiting Charges on Medicinal Synthetic Aluminum Magnesium Silicate's {$Al_4 (SiO_4)_3 + 3Mg_2SiO_4 \rightarrow 2Al_2Mg_3 (SiO_4)_3$} Nanoparticles in Treating Viral Diseases, Tumors, Antimicrobial Resistant Infections

Authors : M. C. O. Ezeibe, F. I. O. Ezeibe

Abstract : Reasons viral diseases (including AI, HIV/AIDS, and COVID-19), tumors (including Cancers and Prostrate enlargement), and antimicrobial-resistant infections (AMR) are difficult to cure are features of the pathogens which normal cells do not have or need (biomedical markers) have not been identified; medicines that can counter the markers have not been invented; strategies and mechanisms for their treatments have not been developed. When cells become abnormal, they acquire negative electrical charges, and viruses are either positively charged or negatively charged, while normal cells remain neutral (without electrical charges). So, opposite charges' electrostatic attraction is a treatment mechanism for viral diseases and tumors. Medicines that have positive electrical charges would mop abnormal (infected and tumor) cells and DNA viruses (negatively charged), while negatively charged medicines would mop RNA viruses (positively charged). Molecules of Aluminum-magnesium silicate [AMS: $Al_2Mg_3 (SiO_4)_3$], an approved medicine and pharmaceutical stabilizing agent, consist of nanoparticles which have both positive electrically charged ends and negative electrically charged ends. The very small size (0.96 nm) of the nanoparticles allows them to reach all cells in every organ. By stabilizing antimicrobials, AMS reduces the rate at which the body metabolizes them so that they remain at high concentrations for extended periods. When drugs remain at high concentrations for longer periods, their efficacies improve. Again, nanoparticles enhance the delivery of medicines to effect targets. Both remaining at high concentrations for longer periods and better delivery to effect targets improve efficacy and make lower doses achieve desired effects so that side effects of medicines are reduced to allow the immunity of patients to be enhanced. Silicates also enhance the immune responses of treated patients. Improving antimicrobial efficacies and enhancing patients` immunity terminate infections so that none remains that could develop resistance. Some countries do not have natural deposits of AMS, but they may have Aluminum silicate (AS: $Al_4 (SiO_4)_3$) and Magnesium silicate (MS: Mg_2SiO_4), which are also approved medicines. So, AS and MS were used to formulate an AMS-brand, named Medicinal synthetic AMS {$Al_4 (SiO_4)_3 + 3Mg_2SiO_4 \rightarrow 2Al_2Mg_3 (SiO_4)_3$}. To overcome the challenge of AMS, AS, and MS being un-absorbable, Dextrose monohydrate is incorporated in MSAMS-formulations for the simple sugar to convey the electrically charged nanoparticles into blood circulation by the principle of active transport so that MSAMS-antimicrobial formulations function systemically. In vitro, MSAMS reduced ($P \leq 0.05$) titers of viruses, including Avian influenza virus and HIV. When used to treat virus-infected animals, it cured Newcastle disease and Infectious bursa disease of chickens, Parvovirus disease of dogs, and Peste des petits ruminants disease of sheep and goats. A number of HIV/AIDS patients treated with it have been reported to become HIV-negative (antibody and antigen). COVID-19 patients are also reported to recover and test virus negative when treated with MSAMS. PSA titers of prostate cancer/enlargement patients normalize (≤4) following treatment with MSAMS. MSAMS has also potentiated ampicillin trihydrate, sulfadimidin, cotrimoxazole, piparazine citrate and chloroquine phosphate to achieve ≥ 95 % infection-load reductions (AMR-prevention). At 75 % of doses of ampicillin, cotrimoxazole, and streptomycin, supporting MSAMS-formulations' treatments with antioxidants led to the termination of even already resistant infections.

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