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Editorial

Delivery of COVID-19 Vaccines Via Nasal Spray

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As of March 29, 2021, Oxford University, UK launched a phase I trial investigating the nasal spray delivery of its AstraZeneca (AZ)-partnered COVID-19 vaccine (ChAdOx1 nCoV-19). The study will be conducted at the Oxford University's Jenner Institute and is aimed to determine the ability of improvement of protection against mild COVID-19 and transmission, including monitoring the safety of the delivery technique and any adverse reactions after vaccination by intranasal administration of AZ-vaccine via an intranasal spray device, compared to the currently intramuscular injection delivery as part of the national roll-out of the same vaccine. Thirty healthy participants with 18-40 years of age will be enrolled in the early stage of trial. The study participants' symptoms will be followed-up by filling in an electronic diary card of any symptoms following vaccination with having blood and nasal swabs taken at most of the follow-up visits for a total of four months of the study participants' following-up [1]. As of March 10, 2021, Rokote Laboratories Finland Ltd., a newly founded, Finnish academic spin-out company is developing and bringing to the world markets a nasal spray COVID-19 vaccine, based on gene transfer technology. An adenovirus vector is used in this vaccine to deliver a cloned DNA strand that causes nasopharyngeal cells to produce SARS-CoV-2 (COVID-19) viral protein inducing an immune response with good results in animal models. This technology of gene therapies has been successfully used in clinical trials treating cancer and cardiovascular diseases. The clinical trial will be began in Finland within a few months [2].

The red algae-derived NasitrolTM nasal spray, based on iota-carrageenan (a sulfate polysaccharide synthesized by red algae) and produced by Amcyte Pharma demonstrated antiviral activity and clinical efficacy in the common cold treatment. Active substance, iota-carrageenan of Nasitrol is thought to exert antiviral activity via its interaction with the COVID-19 viral surface that prevent viral entry and capturing viral particles released by host infected cells. Nasitrol is formulated to decrease the COVID-19 viral load in the upper respiratory tract, preventing from viral proliferation and lung spreading. The University of Tennessee Health Science Center, USA revealed in its previous in vitro study that the NasitrolTM formulation can inhibit SARS-CoV-2 (COVID-19). In the new study of Amcyte Pharma (NCT04590365), carried out in 394 clinically-healthy-not-yet-been-COVID-19-vaccinated clinicians, nurses, and other medical professionals who provided care to COVID-19 patients at 8 hospital ICUs. Four daily doses of Nasitrol spray or placebo were administered to randomly assigned participants for 21 days with the primary end point of clinical COVID-19 infection, confirmed by RT-qPCR testing, after 21 days of treatment. The study has been also carried out in Argentina at the Cesar Milstein Research Institute and the CEMIC University Hospital in Buenos Aires, and sponsored by the Ministry of Science, Technology and Innovation of Argentina. The preliminary report of the study revealed that the incidence of COVID-19 infection was significantly lower in the Nasitrol group, compared to the placebo group, 1% versus 5%, respectively [3].

In conclusion, this exciting and attractive novel administration of a COVID-19 vaccine could effectively prevent asymptomatic infection, thus decreasing COVID-19 transmission, including disease episodes.

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