

Efficacy of “Essential Iodine Drops” Against Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2)

Zoltán Köntös (✉ zkontos@ioi-investment.com)

IOI Investment Zrt.

Short report

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Abstract

Background: Aerosolization of respiratory droplets is considered the main route of coronavirus disease 2019 (COVID-19). Therefore, reducing the viral load of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) shed via respiratory droplets is potentially an ideal strategy to prevent the spread of the pandemic. The in vitro virucidal activity of intranasal Povidone-iodine (PVP-I) has been demonstrated recently to reduce SARS-CoV-2 viral titres. This study evaluated the virucidal activity of the aqueous solution of Iodine-V (a clathrate complex formed by elemental iodine and fulvic acid) as in Essential Iodine Drops (EID) with 200 µg elemental iodine/ml content against SARS-CoV-2 to ascertain whether it is a better alternative to PVP-I.

Methods: SARS-CoV-2 (USAWA1/2020 strain) virus stock was prepared by infecting Vero 76 cells (ATCC CRL-1587) until cytopathic effect (CPE). The virucidal activity of EID against SARS-CoV-2 was tested in three dilutions (1:1; 2:1 and 3:1) in triplicates by incubating at room temperature ($22 \pm 2^\circ\text{C}$) for either 60 or 90 seconds. The surviving viruses from each sample were quantified by a standard end-point dilution assay.

Results: EID (200 µg iodine/ml) after exposure for 60 and 90 seconds was compared to controls. In both cases, the viral titre was reduced by 99% (LRV 2.0). The 1:1 dilution of EID with virus reduced SARS-CoV-2 virus from 31,623 cell culture infectious dose 50% (CCID₅₀) to 316 CCID₅₀ within 90 seconds.

Conclusion: Substantial reductions in LRV by Iodine-V in EID confirmed the activity of EID against SARS-CoV-2 in vitro, demonstrating that Iodine-V in EID is effective at inactivating the virus in vitro and therefore suggesting its potential application intranasally to reduce SARS-CoV-2 transmission from known or suspected COVID-19 patients.

Full Text

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