

A case of COVID-19 infection quickly relieved after nasal instillations and gargles with povidone iodine

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Dear Editor,

The SARS-CoV-2 virus is transmitted directly or transported in the form of aerosol droplets and comes into contact with the nasal and oropharyngeal mucosa where it begins to proliferate. From here, the infection spreads to the oropharynx and other respiratory organs through a mechanism called “microaspiration” [1].

As recently illustrated by McCullough *et al.* [2], COVID-19 disease requires early intervention that can stem hospitalizations and deaths. Its progression can be arrested if the virus is destroyed during incubation [3]. Accordingly, initial multiple therapy [2] may include nasal instillations and gargling with Povidone-Iodine (PVP-I), a soluble form of iodine, known to be a powerful virucidal. PVP-I-based gargles and nasal instillations have been shown to lower the nasopharyngeal viral load in patients with COVID-19 [4].

A 70-year-old female subject presented fever which reached 38 °C, and an intense headache. A profound asthenia confined her to bed. Subsequently, muco-hematic nasal secretions and continuous, non-productive cough appeared. The SARS-CoV-2 real-time PCR test conducted on her nasopharyngeal swab sample yielded the following results: E gene (Pan Coronavirus screening): positive; RdRP/S gene (2019-nCoV specific target gene): positive; N gene (2019-nCoV specific target gene): positive. As her general condition progressively worsened, treatment with PVP-I was started. The patient was told to inhale a 1% aqueous solution of PVP-I through each nostril until the liquid is perceived in the throat, followed by gargling with the same solution for 60 s, twice a day. After 24 h, the body temperature began gradually decreasing until it normalized. After further 24 h, all other symptoms disappeared. The cough persisted but with progressively diminishing intensity. On the third day, the patient fully recovered, except for slight asthenia. One week later, the real-time PCR test was positive only for gene N (2019-nCoV specific target gene).

This survey, although limited to a single patient, can provide useful information on how the advanced stage of COVID-19 can rapidly regress even after nasal instillations and gargles of a 1% solution of PVP-I.

This uncommon course is in accordance with many *in*

vitro studies, demonstrating the rapid virucidal activity of PVP-I on multiple viruses, including related coronaviruses [5], owing to the action of the released I₂ that destabilizes the capsular membrane causing the lysis of its proteins and the alteration of fatty acids; nucleic acids are also oxidized [6].

The mode of action of PVP-I is independent of the type of coronavirus variant that could arise, and hence, it could be included in future armamentarium for the prevention and treatment of the COVID-19 epidemic [6].

Cases of both overt and subclinical hypothyroidism following prolonged oral rinses with PVP-I have been reported, and hence, its use is contraindicated in patients with active thyroid disease.

Therapies such as Povidone-iodine are also widely available, generic and inexpensive. Naturally, its effectiveness must be verified through clinical research, including randomized trials. Until such evidence is available, its promising co-use in early intervention could be considered experimental without supplanting either personal protective equipment or the acquisition of immunity through vaccines [7].

Ethics approval and consent to participate

Not applicable.

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Conflict of interest

The author declares no conflict of interest.

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