

Efficacy of pentasodium diethylenetriamine pentaacetate in ameliorating anosmia post COVID-19

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February 28, 2022

Abstract

Abstract Objectives: An association between COVID-19 and anosmia has been demonstrated worldwide. Calcium cations play an essential role in odor transmission, including feedback inhibition. Therefore, it is suggested that reducing intranasal free calcium cations with topical chelating agent pentasodium diethylenetriamine pentaacetate may improve olfactory function in patients with anosmia post COVID-19 infection. **Design:** Prospective controlled clinical trial to test use of pentasodium diethylenetriamine pentaacetate for post COVID-19 olfactory loss. **Setting:** ENT Department (Institution blinded for review). **Participants:** Sixty-six adult patients with history of confirmed COVID-19 and olfactory dysfunction persisted more than 90 days after SARS-CoV-2 negative testing were included. **Main outcome measures:** Participants were divided into 2 equal groups receiving nasal spray containing either 0.9% sodium chloride or 2% pentasodium diethylenetriamine pentaacetate. Olfactory function was assessed before treatment and 1 month later using the Sniffin' Sticks test. A carbon paste ion-selective electrode was developed for quantitative analysis of calcium cation concentrations in nasal mucus before treatment and 1 month later. **Results:** After treatment with pentasodium diethylenetriamine pentaacetate, there was a significant improvement from functional anosmia to hyposmia compared with sodium chloride. In addition, the decrease of calcium concentration was recorded after treatment with pentasodium diethylenetriamine pentaacetate compared with sodium chloride. **Conclusion:** Based on the results of the proposed study, topical use of pentasodium diethylenetriamine pentaacetate may be a useful therapy for olfactory dysfunction after COVID-19.