Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Contents lists available at ScienceDirect

Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology

journal homepage: www.elsevier.com/locate/jomsmp

Letter to the Editor

Cetylpyridinium chloride mouthwashes: Potential role in COVID-19 control

To the Editor:

We have read with great interest the article by Komine et al. [1] published in volume 33 of 2021 of the journal about the *in vitro* virucidal activity against SARS-COV-2 of oral health care products. In this publication, the authors suggest that Cetylpyridinium Chloride (CPC) has antiviral activity against SARS-COV-2, also recommend its use through mouthwashes.

Mouthwashes are oral antiseptics commonly used as antimicrobial chemical agents, which can be classified by their chemical structure into phenols, oxidising agents (hydrogen peroxide), biguanides (chlorhexidine), and quaternary ammonium compounds (Cetylpyridinium Chloride). Some compounds such as Cetylpyridinium Chloride (CPC) inactivate viruses by breaking their lipid envelope, thus interfering with their ability to enter the cell; this would help reduce the salivary viral load, so the risk of transmission would be lower and the severity of the disease would also be reduced [2–5].

Despite the exhaustive recommendations on basic hygiene and personal protection measures and immunisation carried out in countries with high transmissibility of the virus [6], the use of CPC-based mouthwashes has not spread as a complementary mechanism, despite its high preventive potential and mitigating [2].

Other authors [3,7] have suggested the use of mouthwashes before any procedure that generates aerosols, such as dental care; however, official recommendations on the use of mouthwashes that contribute to the prevention or attenuation of COVID-19 in the population have not yet been published.

Two clinical trials have been documented, the first is a randomised controlled clinical trial [2], in which they conclude that commercial mouthwashes formulated with CPC could reduce the viral load of SARS-COV-2 more consistently than other mouthwashes, bringing to light the potential role of this component in the control of COVID-19. And the second clinical trial [8], a pilot study, which also suggests using CPC as a mouthwash against SARS-COV-2.

Mouthwashes with CPC are low-cost, clinically safe and easily accessible products for the general public, with an *in vitro* antiviral effect superior to chlorhexidine [1,7]; similarly, CPC could be added to body disinfectants to decrease the amount of virus spread [9]. On the other hand, the recommendations made by governments and healthcare providers need to be based on complete and conclusive evidence, so that the use of this type of product can be massively communicated. Despite this, there is currently a lack of publications on studies related to the use of this compound to reduce the viral load of SARS-COV-2.

In conclusion, we support the claims made by Komine, although there is sufficient *in vitro* evidence [1,7], it is necessary that the scientific community, in addition to the pharmaceutical industries, carry out more observational and experimental studies, which allow strengthening the evidence of the virucidal effect of CPC against SARS-COV-2, complementing and correcting the limitations of preliminary studies [1,2,5,8]; in order to reduce the impact of this disease on our society.

References

[1] Komine A, Yamaguchi E, Okamoto N, Yamamoto K. Virucidal activity of oral care products against SARS-CoV-2 in vitro. J Oral Maxillofac Surgery, Med Pathol 2021;33:475–7, http://dx.doi.org/10.1016/J.AJOMS.2021.02.002.
[2] Seneviratne CJ, Balan P, Ko KKK, Udawatte NS, Lai D, Ng DHL, et al. Efficacy of commercial mouth-rinses on SARS-CoV-2 viral load in saliva: randomized control trial in Singapore. Infection 2021;49:305–11, http://dx.doi.org/10.1007/s15010-020-01563-9.
[3] Sette-De-Souza PH, Soares Martins JC, Martins-De-Barros AV, Rodrigues Vieira B, Fernandes Costa MJ, da Costa Araújo FA. A critical appraisal of evidence in the use of preprocedural mouthwash to avoid SARS-CoV-2 transmission during oral interventions. Eur Rev Med Pharmacol Sci 2020;24:10222–4, http://dx.doi.org/10.26355/eurrev_202010_23245.
[4] Herrera D, Serrano J, Roldán S, Sanz M. Is the oral cavity relevant in SARS-CoV-2 pandemic? Clin Oral Investig 2020;24:2925–30, http://dx.doi.org/10.1007/s00784-020-03413-2.
[5] O'Donnell VB, Thomas D, Stanton R, Maillard J-Y, Murphy RC, Jones SA, et al. Potential role of oral rinses targeting the viral lipid envelope in SARS-CoV-2 infection. Function 2020;1:1–12, http://dx.doi.org/10.1093/function/zqaa002.
[6] Wu YC, Chen CS, Chan YJ. The outbreak of COVID-19: an overview. J Chinese Med Assoc 2020;83:217–20, http://dx.doi.org/10.1097/JCMA.0000000000000270.
[7] Mateos-Moreno MV, Mira A, Ausina-Márquez V, Ferrer MD. Oral antiseptics against coronavirus: in-vitro and clinical evidence. J Hosp Infect 2021;113:30–43, http://dx.doi.org/10.1016/J.JHIN.2021.04.004.
[8] Eduardo F de P, Corrêa L, Heller D, Daep CA, Benitez C, Malheiros Z, et al. Salivary SARS-CoV-2 load reduction with mouthwash use: a randomized pilot clinical trial. Heliyon 2021;7:e07346, http://dx.doi.org/10.1016/j.heliyon.2021.e07346.
[9] Baker N, Williams AJ, Tropsha A, Ekins S. Repurposing quaternary ammonium compounds as potential treatments for COVID-19. Pharm Res 2020;37:8–11, http://dx.doi.org/10.1007/s11095-020-02842-8.

Anderson Vilchez-Chavez *
Marcos J. Carruitero
Universidad Privada Antenor Orrego, Trujillo, Peru

Edward Chavez-Cruzado [a,b]
[a] *Universidad Privada Antenor Orrego, Trujillo, Peru*
[b] *Unidad Generadora de Evidencias y Vigilancia Epidemiologica, Scientia Clinical and Epidemiological Research Institute, Trujillo, Peru*

* Corresponding author at: Universidad Privada Antenor Orrego, Av. Daniel Alcides Carrión 195, Trujillo, Peru.
E-mail address: anderson7vilchez@gmail.com (A. Vilchez-Chavez)

30 July 2021
Available online 6 October 2021

https://doi.org/10.1016/j.ajoms.2021.09.007