

Importance of oral hygiene as a preventive measure against possible COVID-19 complications.

Importancia de la higiene oral como medida preventiva frente a posibles complicaciones por COVID-19.

César Cayo-Rojas.^{1,2,3}

Luis Cervantes-Ganoza.^{1,2}

Affiliations:

¹Universidad Inca Garcilaso de la Vega, Instituto de Investigación. Lima, Perú.

²Universidad Inca Garcilaso de la Vega, Facultad de Estomatología. Lima, Perú.

³Universidad Nacional Federico Villarreal, Escuela Universitaria de Posgrado. Lima, Perú.

Corresponding author: César Cayo-Rojas. Universidad Inca Garcilaso de la Vega, Facultad de Estomatología, # 165 Bolívar Avenue. Pueblo Libre, Lima, Perú.
E-mail: cesarcayorojas@gmail.com

Cite as:

Cayo-Rojas C & Cervantes-Ganoza L. Importance of oral hygiene as a preventive measure against possible COVID-19 complications.

J Oral Res. 2020; Covid-19. S2(1):8-9.

Doi:10.17126/joralres.2020.043

The current situation due to the pandemic of coronavirus disease 2019 (COVID-19) is everyday more alarming. According to the World Health Organization (WHO), as of 3 June 2020, 6.287.771 infected people have been reported with a fatality rate of 6.04%.¹ These are worrisome facts concerning public health, owing to the exponential growth of the cases. Facing this context, there are many specialties in the medical field that according to their experience are contributing to the clinical area to inform about a series of protocols aiming at protecting professionals' health whilst providing medical care.

WHO has given recommendations on the correct use of personal protective equipment.² It has also provided professionals and the public in general with a series of protocols concerning accurate and systematic hand washing and fomite disinfection, such as surfaces exposed to contamination by saliva droplets.³ However, the advantages of frequent brushing and rinsing of the oral cavity with 1% hydrogen peroxide or 0.2% povidone have not been given due importance as a possible preventative measure to reduce the risk of severe cardiovascular or respiratory complications in patients exposed to COVID-19.

The metagenomics studies of patients with COVID-19 from different countries (China, Brazil, Peru, Cambodia) show that infection by coronavirus type 2 (SARS-CoV-2), which causes COVID-19, allows anaerobic bacteria to colonize the lungs and lead to severe respiratory complications (pneumonia).³ These anaerobic bacteria, such as *Streptococcus mutans*, *Prevotella* spp., *Fusobacterium* spp., *Capnocytophaga* spp., and *Actinomyces* spp. among others, exist in a greater quantity in the saliva of patients with periodontal problems and poor oral hygiene.^{4,5} Moreover, according to what has been reported before the COVID-19 pandemic, it was known that these bacteria could cause cardiovascular and/or respiratory systemic complications in some patients.⁵

During the incubation period SARS-CoV-2 lodges mainly in the epithelial cells of the salivary gland excretory ducts because these cells contain the angiotensin-converting-enzyme-2 (ACE2) receptor to which the coronavirus type 2 binds in order to enter the cell and replicate.

This fact explains why saliva is the main means of contagion via coughing or sneezing. Later, this virus enters the circulatory and respiratory systems,

leading to a renin-angiotensin system imbalance, which causes organs like lungs, heart and kidneys to malfunction.⁶ On the other hand, owing to SARS-CoV-2 vulnerability to oxidation, it is recommended the use of mouthwash containing oxidizing agents like 1% hydrogen peroxide or 0.2% povidone, prior to the dental clinical procedure.⁷

Alternatively, thanks to substances such as fluorides, sodium benzoate, xylitol, cinnamaldehyde, eugenol and thymol among others, toothpaste has been proven to possess antimicrobial activity against pathogenic anaerobic bacteria present in the oral cavity.

According to the research conducted by Ebelechukwu *et al.*,⁸ some of the toothpaste brands that have shown to be effective include Aquafresh®, Close Up® (tingly red), Colgate® (advanced whitening), Crest 5® complete,

Dabur herbal®, Florish gel®, Holdent®, Macleans®, Pearl drops smokers® and Sensodyne®.

To conclude, given the limitations of the knowledge currently available regarding complications of COVID-19 patients with a high oral pathogenic bacterial load, and knowing the antimicrobial properties of toothpaste,⁸ especially during this pandemic, it is essential to encourage, inform people around us, and put emphasis on the frequent brushing of the oral cavity with toothpaste and the use of mouthwash containing 1% hydrogen peroxide or 0.2% povidone.

This way we will not only reduce the SARS-CoV-2 viral load in saliva but also the amount of pathogenic anaerobic bacteria in the mouth that could colonize the lungs and cause severe respiratory complications in COVID-19 patients.

REFERENCES.

1. WHO. Coronavirus disease 2019 (COVID-19): situation report, 135. WHO.2020.
2. WHO. Uso racional del equipo de protección personal frente a la COVID-19 y aspectos que considerar en situaciones de escasez graves: orientaciones provisionales. WHO. 2020.
3. WHO. Coronavirus disease (COVID-19)/Technical guidance publications. All technical guidance on COVID-19 - select topic from drop down menu. WHO.2020.
4. Chakraborty S. The 2019 Wuhan outbreak is caused by the bacteria Prevothella, which is aided by the coronavirus, possibly to adhere to epithelial cells - Prevothella is present in huge amounts in patients from both China and Hong Kong. 2020. [In press]. Available at: 10.31219/osf.io/usztn.
5. Peña SM, Calzado DM, González PM, Cordero GS, Azahares AH. Patógenos periodontales y sus relaciones con enfermedades sistémicas. MediSan. 2012; 16(7):1047-58.
6. Xu R, Cui B, Duan X, Zhang P, Zhou X, Yuan Q. Saliva: potential diagnostic value and transmission of 2019-nCoV. Int J Oral Sci. 2020;12(11):1-6.
7. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci. 2020 [cited 12(9):1-6.
8. Nwakalor EO, Okpokwasili GC. Evaluation of Toothpaste Effectiveness in Reducing Oral Bacteria. International Journal of Bioengineering & Biotechnology. 2019; 4(3):26-31.