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IP International Journal of Periodontology and Implantology

Journal homepage: <https://www.ijpi.in/>

Editorial

Precautions for laser application in periodontal therapy during the pandemic era

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ARTICLE INFO

Article history:

Received 31-05-2022

Accepted 05-06-2022

Available online 10-06-2022

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The current pandemic situation caused by SARS-CoV2 or also called as Covid 19 belongs to the group of family called as CORONAVIRUS. These set of virus effect both animals and humans. The symptoms when effected ranges from common cold to Severe Acute Respiratory Syndrome (SARS). The SARS-CoV 2 was first seen in Wuhan, China in 2019. Later, on 11th March 2020 WHO declared it as a pandemic of serious consideration as the morbidity and mortality rate had increased many folds.¹ The pandemic had spread like wild fire by transmission through 1) inhalation of infected droplets; 2) close contact with infected person; 3) contact with contaminated surfaces followed by face contact and dissemination; and 4) aerosol transmission of pathogens in closed spaces. The risk of transmission by aerosols had bought the dental fraternity to a pause in the pandemic times. This had a greater impact on not only the professionals but also on the patients to obtain an immediate and proper dental treatment.² Though vaccines have been developed in various countries and vaccination drive has been successfully established even in India, the transmissibility of the virus has not yet decreased since the virus is on constant mutation (alpha, beta, delta variants).³

Periodontal disease which is a global burden, is a multifactorial disease initiated by bacterial invasion causing host tissue destruction hence there is a ecological shift

from healthy gingiva to formation of periodontal pocket. Pocket has a complex subgingival biofilm which harbors various bacteria and viruses. SARS CoV-2 is a no exception for the harbour of the virus in the niche of periodontal pocket. SARS- CoV 2 binds itself to ACE 2 receptors, these receptors are also expressed by oral epithelial cells.⁴

Due to this plausibility of transmission of SARS-CoV2 through oral cavity dental fraternity especially periodontist are at higher risk of transmission of the disease. Periodontal therapy uses the ultrasonic scalers, air polishers and air abrasion units which produce maximum quantity of aerosols. While the aerosol production by scaling has been widely overlooked in the past, but now it cannot be blindsided during such pandemic situation.⁵

In search to find the least aerosol producing instrument to treat the periodontitis burden LASER comes into picture. Though, it becomes a better alternative to traditional way of treating periodontitis but yet precautions need to be taken while using the instrument.

1. Lowest wavelength and energy parameter
2. Reduction of air-flow
3. Accurate control of water- air spray during laser ablation therapy

Photobiomodulation which uses NIR laser light in the wavelength between 600nm to 1400 nm is more preferred than the 940nm (diode) to 2940nm (Er:YAG) wavelenth. Photobiomodulation therapy acts against all the microorganisms including viruses. Thus, it becomes a

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preferred method of periodontal treatment in the pandemic situation. They also do not generate any heat, smoke or aerosols at this wavelength. Thus making it more convenient in such aerosol transmitting high mortality rate having viruses like SARS-CoV 2.²

Apart from the specific consideration in LASER use, general precautions which need to be maintained while application of LASER includes.²

1. Eye protection by use of safety glasses both to avoid LASER light as well as eye contamination.
2. Face Shield to Avoid Splash from water spray during LASER ablation
3. Face mask (Eg.: N95, FFP3) to protect the respiratory tract from droplets and smoke plumes
4. Rubber Dams for isolation of specific area of treatment and also protects from contamination from saliva
5. High volume suction to absorb both the droplets and smoke plumes
6. Proper ventilation in room and disinfection protocols followed
7. LASER devices can be protected by using transparent films thus reducing the cross contamination
8. It should be noted that along with disinfection of all the instruments and working area the LASER instruments also need to be properly disinfected in between patients use.
9. It can be considered to autoclave the tips of LASER and use them.

Periodontitis is a chronic inflammatory condition and failing to treat can eventually cause tooth loss. Though periodontists are at higher risk for contacting the virus still treatment needs to be carried out. Thus, alternatives to reduce the aerosol production like use of LASER with proper precautions can be considered as an option for the treatment.

Source of Funding

None.


Conflict of Interest

None.

References

1. Guo YR, Cao QD, Hong ZS. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak: An update on the status. *Mil Med Res.* 2020;7(1):1–10. doi:10.1186/s40779-020-00240-0.
2. Dominguez JA, Vecchio AD, Todea C, Leniak KG, Vescovi P, Romeo U. Laser dentistry in daily practice during the COVID-19 pandemic: Benefits, risks and recommendations for safe treatments. *Adv Clin Exp Med.* 2021;30(2):119–25. doi:10.17219/acem/130598.
3. COVID-19 pandemic in India; 2022. Available from: https://en.wikipedia.org/wiki/COVID-19_pandemic_in_India.
4. Badran Z, Gaudin A, Struillou X, Amador G, Soueidan A. Periodontal pockets: A potential reservoir for SARS-CoV-2? *Med Hypotheses.* 2020;143:109907. doi:10.1016/j.mehy.2020.109907.
5. Spagnuolo G, Vito D, Rengo S, Tatullo M. COVID-19 outbreak: An overview on dentistry. *Int J Environ Res Public Health.* 2020;17(6):2094. doi:10.3390/ijerph17062094.

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Cite this article: Ramesh Babu M, Gayathri Muralidaran. Precautions for laser application in periodontal therapy during the pandemic era. *IP Int J Periodontol Implantol* 2022;7(2):46–47.