

Preventive and Safety Measures for Dental Health Care Professionals on COVID -19, A Literature Review

Amulya Vanti*, Pallavi Gopeshetti, Asim Jamadar, Lovin Valsan Mathew, Seema Hanjagi, Divyashree Dandavati

Department of Conservative Dentistry and Endodontics, Maratha Mandal's Nathajirao G. Halgekar Institute of Dental Sciences and Research Centre, Belagavi, Karnataka, India

***Corresponding Author:** Dr. Amulya Vanti, Department of Conservative Dentistry and Endodontics, Maratha Mandal's Nathajirao G. Halgekar Institute of Dental Sciences and Research Centre, Belagavi, Karnataka, India.

Abstract

A worldwide health emergency has been caused due to highly infectious coronavirus disease (SARS-COV-2). Outbreak of disease is still high despite global efforts made to contain the spread. Its mode of spread is primarily through droplets of saliva or discharge from nose when an infected person sneeze or coughs. No prophylactic vaccines available in this time hence prevention plays an important role from affecting more lives in this pandemic.

Dental professionals are at higher risk as they work in close proximity to patients and are more prone to aerosols infections. covid-19 is a new challenge in modern dentistry, new updated guidelines are required in dental clinics to avoid cross-infections. [1]

In this article we aim to discuss preventive and safety measures for dental health care professionals in managing patients in this COVID -19 pandemic.

Currently the research on (SARS-COV-2) is in its primary stages, based on current published evidence, a literature search was performed, the main search engines were PubMed, Google Scholar. 10 articles on management COVID -19 diffusion in dental articles were selected to develop bibliographic review. It is hoped that this review will help to recognize and deal with SARS-COV-2 and provide a reference for future research studies.

Keywords: COVID- 19, Dental Health Professionals, Pandemic, Safety Measures

1. INTRODUCTION

In late December 2019, a case of unidentified pneumonia was reported in Wuhan city China. The International taxonomy of viruses named the virus severe acute respiratory syndrome coronavirus 2 (SARS-COV-2), later the world health organization officially named the disease COVID -19. Patients with COVID -19 present with symptoms of fever, dry cough, myalgia. Less obvious symptoms such as nausea, diarrhea, abnormal taste sensation (dysguesia), reduced sense of smell (hyposmia). X ray and computed tomographic findings reveal ground glass opacities in the chest. [1, 2]

Risk of COVID -19 inhalation and transmission is extremely high when performing dental procedures due to use of rotary handpiece, ultrasonic scalers and airway syringes which

diffuses aerosol particles of saliva, blood and secretions and also contaminates instruments, dental equipment's and surfaces.

Previous epidemiological studies have shown that there are three factors involved in viral spreading: source of infection, route of transmission and susceptibility. Mucosa of oral cavity has been recognized as a potentially high risk route of infection.

2. METHODOLOGY OF REVIEW

The study methodology was to review the available information in PubMed and Google scholar. Till date no confirmed treatment or vaccine is available and hence prevention is crucial. It is important to protect health care workers to ensure continuity of care to the public and to prevent transmission of infection to other patients.

2.1. Prophylactic Measures to Limit Transmission

2.1.1. Patient Management by Tele Screening and Triaging

Contact patients prior to dental treatment through teledentistry before scheduling an appointment, three most important questions for initial screening include any exposure to a suspected or know COVID -19 patient, any recent travel history to high risk areas in last 14 days, presence of any symptoms of respiratory illness, fever or cough. [3]

If patient gives positive response to the above 3 questions dental care treatment should be deferred for at least 2 weeks since incubation period for (SARS-COV-2) can range from 0-24 days. These patients should be referred to physician's for COVID – 19 diagnosis. [4]

2.1.2. Assessment of True Dental Emergency

If patient gives negative response to the above 3 questions dental care treatment should be Can be considered by questionnaire in telephone : are you in pain, what is your level of pain in scale 0-10, do you have swelling, do you have fever, are you having trouble in swallowing, did you experience any trauma. Asses the patient dental condition and determine whether patient needs to be seen in dental setting. Limit the number of visitors accompanying the patients to dental appointment to only those who are necessary. Advise patients and anyone accompanying them to wear facemask and will undergo screening for fever with contact free forehead thermometer or infrared thermal sensors. In case of absence of symptoms, dental procedures can be performed using with precaution implemented. [5]

Dentist should control patient influx not have more than 1 patient in waiting room and to provide (governoitalia 2020b) and keep 1meter distance between chairs. Accompanying subjects recommended to wait outside the dental office. Patients clothing, cellular telephones, bags are encouraged to be left in waiting room, prevent patients from staying long on waiting room and remove all potentially contaminated objects (magazines, toys etc) to prevent cross infection. Disinfection of surfaces that are frequently touched like chairs, desks, handles suggested with 0.1% or 70% isopropyl alcohol, a dry environment in dental office is recommended to control infection. [6]

2.1.3. Infection Control Measures during Treatment

- *Personal protective equipment for dental practitioners*

Use of protective equipment's including gloves, masks, protective surgical glasswares, protective outwears long sleeved water resistant gown, and shields, recommended to protect eyes, nasal and oral mucosa. (li and meng 2020; meng et al 2020; peng et al 2020). facemask should be changed after the performance of dental procedure and should be worn by the whole team including nonclinical staff members. Protective shields, glasses should undergo thorough disinfection with 70% isopropyl alcohol after each procedure. (SLDP 2020)

- *Prescription of mouth rinse prior to dental treatment*

Use of antimicrobial mouth rinses prior to dental procedures containing 1% hydrogen peroxide or 0.2% povidone can be used to reduce microbial load in saliva, patient should perform mouth rinse for 1minute prior to dental procedures. Mouth rinses are strongly recommended in case where the rubber dam is not employed for dental procedure. [6, 7]

- *Hand hygiene*

Is an important measure to reduce SARS-COV-2 transmission. Protocol involving 5 hand washing 2 before 3 after treatment was proposed (Peng et al 2020). It is recommended to avoid touching eyes, mouth and nose without having hands carefully washed. Dental practioner should perform hand wash for at least 60 seconds with hydroalcholic solutions prior to wearing gloves.

- *Limitation of aerosol –producing procedures*

It is advisable to minimize the operations involving generation of aerosol and droplets, Perform dental procedures with manual instruments than rotatry hand piece. Rubber dam isolation and high speed evacuation should be used to reduce aerosol diffusion. [8]

- *Cleaning of potentially contaminated surfaces*
- *Postpone elective dental procedures*

During pandemic dental activities must be limited to treatments that cannot be postponed.

According to CDC guidelines for infection control in dental healthcare settings-2003, avoid all elective treatments, emergencies like severe tooth pain, swelling, trauma, uncontrolled bleeding should be treated.

According to Italian national institute of health suggest limiting the time of health care contact with patients to 15min to reduce the risk of contact, thus treatment should be aimed at just the resolution of the emergency. After the procedure, all disposable protections should be removed and high level of disinfection performed. It is recommended not to remove personal equipment's prior to exiting the contaminated area since the virus tends to remain in airborne particles after each patient at least 5-min air change is advised. Renew indoor air by opening the windows or using mechanical ventilation, possibly in between patients. SARS Cov2 can persist in aerosol for up to 3 hours (van doremalen et al 2020)

Inadvertent treatment of a dental patient who is later confirmed to have COVID-19 may occur, should request the patient to inform dental clinic if they develop symptoms or are diagnosed with COVID -19 within 2 days following dental appointment. [8, 9]

Every patient should be considered as potentially infected by this virus, dental health professionals must be updated with evolving disease and with adequate training to stop the spread of this infection. [10]

3. CONCLUSION

To conclude in the present scenario there is still an unmet need for guidelines on the management of patients at various stages of disease, therefore further prospective assessment of the implications of COVID- 19 outbreaks in dental practice is urgently needed.

REFERENCES

- [1] Chan JF, Yuan S, Kok KH, To Wang KK, Yang J, Xing F, Liu J, Yip Yan CC, Chu H, Poon RW, et al. 2020. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person to person transmission: a study of a family cluster. *Lancet*. 395(10223):514-523.
- [2] Chen J. 2020. Pathogenicity and transmissibility of 2019-ncov - A quick overview and comparison with other emerging viruses. *Microbes and Infection*. 22(2):69-71.
- [3] Al-Ahmad SH, Awad MA, Edher FM, Shahramian K, Omran TA. 2017. The effect of rubber dam on atmospheric bacterial aerosols during restorative dentistry. *J Infect Public Health*. 10(2):195-200.
- [4] R. Izzetti, M. nisi, M. Gabriele, F. Graziani. Covid-19 transmission in dental practice: Brief review of preventive measures in Italy. *J dental research*. 2020, Vol. 99(9) 1030–1038.
- [5] ANDI: Associazione Nazionale Dentisti Italiani. 2020.com (Italy): ANDI; [accessed 25 march 2020].
- [6] Cleveland JL, Gray SK, Harte JA, Robison VA, Moorman AC, Gooch BF. 2016. Transmission of blood-borne pathogens in US dental health care settings: 2016 update. *J Am Dent Assoc*. 147(9):729-738.
- [7] Backer JA, Klinkenberg D, Wallinga J. 2020. Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travelers from Wuhan, China, 20-28 January 2020. *Euro Surveill*. 25(5).
- [8] Del Rio C, Malani PN. 2020. 2019 novel coronavirus - important information for clinicians. *JAMA*. 323(11):1039-1040.
- [9] Kampf G, Todt D, Pfaender, S, Steinmann E.2020. Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents. *J Hosp Infect*. 104(3):246-251.
- [10] Governo Italiano: Presidenza del Consiglio dei Ministri. 2020 a. coronavirus, firmato il Dpcm 22 marzo 2020. Rome (Italy): Governo Italiano; [accessed 25march 2020].

Citation: Amulya Vanti, Pallavi Gopeshetti, Asim Jamadar, Lovin Valsan Mathew, Seema Hanjagi, Divyashree Dandavati. *Preventive and Safety Measures for Dental Health Care Professionals on COVID -19, A Literature Review*. *ARC Journal of Dental Science*. 2020; 5(2):19-21. DOI: <https://doi.org/10.20431/2456-0030.0502004>.

Copyright: © 2020 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.