

Novel Coronavirus Infection and Periodontal Clinic: Are we Prepared?

Malvika Singh

ABSTRACT

Novel coronavirus infection or COVID-19 has become a major challenge and a matter of concern not only for India but for the whole world. This viral infection has been recognized in almost whole world and clinically represented with dry cough, fatigue, coughing sputum, shortness of breath. This article is an attempt to throw light on coronavirus infection and enumerates certain preventive measures to be taken in a periodontal set up for prevention of the same.

Key words: Novel coronavirus, Infection, Aerosol production, Periodontist, Prevention.

INTRODUCTION

Coronavirus infection is a respiratory infection that spreads via droplets from coughing. Its incubation period is between 2-14 days and the symptoms often ranges from fever, to pneumonia, acute respiratory distress syndrome and death.¹ Periodontal settings contain aerosols dispersed in air thus have high chances of cross infections making it imperative to follow, strict and effective infection control protocols under such settings. This article, based on relevant guidelines given by various reputed organizations and on-hand experience and provides necessary management protocols for dental practitioners to treat the same in (potentially) affected areas.

Epidemiology: As on July 25 2020, 15581009 people have been infected and 635173 have lost their lives due to this pandemic globally.²

Signs and symptoms: The most commonly reported clinical signs and symptoms include fever (87.9%) dry cough (67.7%), fatigue (38.1%), (33.4%), shortness of breath (18.6%), pain in muscles or joints (14.8%), sore throat (13.9%), headache (13.6%), chills (11.4%), nausea in/or vomiting (5%), nasal congestion (4.8%), diarrhea (3.7%), hemoptysis (0.9%) and conjunctival congestion (0.8%).³ The incubation period ranges from 2-14 days⁴ and the case fatality ranges from 0.5%-2.3% globally.⁵⁻⁷ (Figure 1)

Vulnerable groups: Population groups more vulnerable to coronavirus infection include people above 60 years of age, males, people with underlying conditions such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer.^{8,9} Children are as likely to be infected as adults, however they experience mild clinical manifestations which can be attributed to the low levels of immunity.¹⁰

People at High Risk of Infection: People of all ages are generally susceptible to this new infectious disease but those in close contact with patients including health care workers and other patients in the hospitals are at higher risk of SARS-CoV-2 infection.¹¹

Transmission: The primary mode of transmission is via respiratory droplets and they remain suspended in air for a short time but may stay viable and contagious on a metal, glass or plastic surface.

Diagnosis: The most common method used for diagnosing real-time reverse transcription polymerase chain reaction (rRT-PCR) is the used as the method for viral testing of COVID-19.¹² The test can be done on respiratory or blood samples and results are generally available within a few hours to days.

Guidelines in periodontal setup

Nosocomial Infection in Dental Settings: Dental procedures are known to produce aerosols and droplets that are generally contaminated with bacteria and viruses thus having Covid-19 as one of the components of these aerosols will not be much of a surprise among the members of dental professionals. Also, while examining or performing any dental procedure, the gloves of periodontist becomes soiled with patient's saliva and blood making periodontists most vulnerable to this infection. Therefore, it is suggested that elective procedures, surgeries and non-urgent dental visits should be avoided. Instead, patients should be assessed telephonically on the basis on the severity of their chief complaints while taking into account their travel, medical and dental history. Those patients who respond affirmatively for the same

Malvika Singh

Department of Periodontics, Institute of Dental Sciences Sehora, Jammu and Kashmir, INDIA.

Correspondence

Dr. Malvika Singh,

Assistant Professor, Department of Periodontics, Institute of Dental Sciences Sehora Jammu and Kashmir-181132, INDIA.

Mobile no: +91-0191-2468822
Email: singhmalvika4@gmail.com

History

- Submission Date: 26-03-2020
- Revised Date: 03-06-2020
- Accepted Date: 25-08-2020

DOI : 10.5530/ijmedph.2020.4.31

Article Available online

<http://www.ijmedph.org/v10/i4>

Copyright

© 2020 Phcog.Net. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International license.

Cite this article : Singh M. Novel Coronavirus Infection and Periodontal Clinic: Are we Prepared?. Int J Med Public Health. 2020;10(4):143-6.

should be advised to immediately seek medical help and only those patients that require utmost care and attention should be called for emergency treatment on dental clinics/ hospitals while taking following guidelines: (Figure 2).

1. **Providing education to colleagues as well as support staff:** All the staff members should be well trained and educated in the form of a refresher training program prior to the functioning of clinic/ hospital by the head of the same so that the team becomes prepared about handling (possibly a COVID-19 positive) patients and answering their queries.
2. **Disinfection of dental clinic, patient waiting room and front desk:** All surfaces including dental clinic, waiting room, front desk as well as bathrooms should be kept cleaned and sanitized frequently. These should be cleaned with 0.1% sodium hypochlorite, 0.5% hydrogen peroxide or 62-71% ethanol. Waiting room and clinic should be properly and adequately ventilated. The use of Air purifiers with UV-C lamps is recommended. Dental clinic should be an isolated room with negative pressure relative to the surrounding area and should have an N95 filtering disposable respirator for persons entering the room. It should also be well ventilated with air exchange for 6 times an hour during operatory hours and should be cleaned preferably with hypochlorous acid (as it evaporates from the surface without wiping). All dental chair and associated surfaces including that of surfaces in the clinic should be disinfected at regular the intervals between patients using ethanol 70%.
3. **Evaluation of risk from patients:** Patients to should be evaluated in following steps:
 - a. **Before patients' arrival:** Whenever the patient calls for an appointment, the front desk should again ask about their medical signs and symptoms, history of travel specially to endemic areas and the possibility of coming in contact with patients diagnosed with COVID-19. The patients who answer in the affirmative should not be called immediately for dental treatment instead they should be instructed to seek medical help first. Also, it should be the duty of front desk to inform the nearby health administrative authority to provide immediate medical treatment to such patients. The patients who answer front desk's questions negatively, should be instructed to take their temperature before coming to dental clinic. Walk in-visits should be avoided instead, patients should be called only after giving them appointments at designated time and they should be instructed to reach dental clinic/ hospital on time to decrease the number of patients waiting in waiting area/ OPD. The escorts of the patients should be instructed to wait in the car only to be called telephonically by front desk after patients are finished with their procedures.

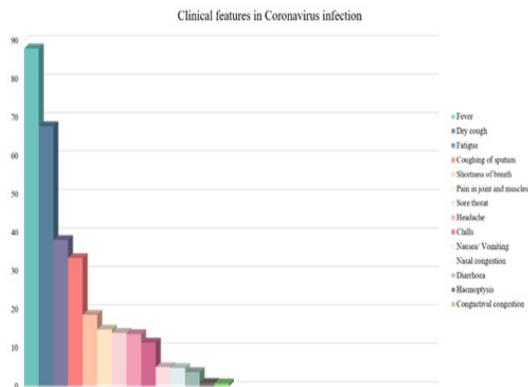


Figure 1: Clinical manifestations of coronavirus infection.

- b. **When patient arrives:** All attempts should be made to keep the waiting room empty and every patient entering the waiting area should be provided with a surgical mask. The waiting room should have pictorial representations regarding coronavirus infections at prominent surfaces. They should also contain directions for the patient about using a hand sanitizer from a non-touch dispenser stand and to vigorously rub their hands for 20 sec. Waiting area should also have pictorial representation of signs and symptoms of COVID-19 indicating them to seek immediate medical help if they have or know someone who has the same kind of infection and patients should be made to be seated 3 feet (1 meter) apart from each other. They should be given disposable tissues and handkerchiefs incases of coughing and sneezing (as a preventive measure) and the same should be immediately disposed into a garbage bin. Physical barriers such as plastic or glass windows should be installed at a designated place in waiting area where the temperature, medical, travel and dental history could be taken and recorded.
4. **Personal protective measures by the dental professional and support staff:** Medical, travel, clinical and family history of all staff members working in the clinic/hospital should be recorded as a routine practice. Immunosuppressed team members should be encouraged to stay at home. Pregnant staff members should be offered a choice to work or not and those of them willing to work and are less than 28 weeks pregnant should practice the same with social distancing, women who are more than 28 weeks pregnant or have underlying health conditions should be encouraged to work during this period. Personal protective equipment designed to adhere to the highest levels of sterilization protocol and are given as Figure 3.
 - a. **Hand Hygiene:** It is one of the principal pathways for reducing the transfer of microorganisms to the patients. It should be done in two ways; handwashing with water and soap and hand disinfection using

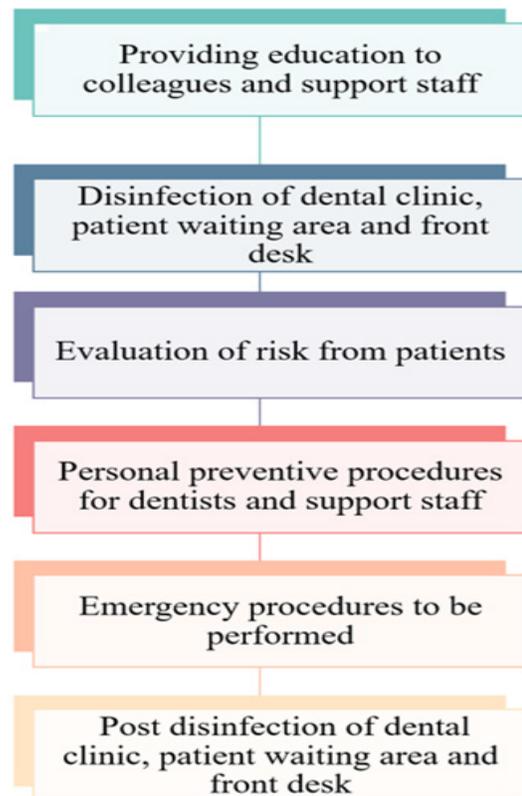


Figure 2: Guidelines during periodontal settings.

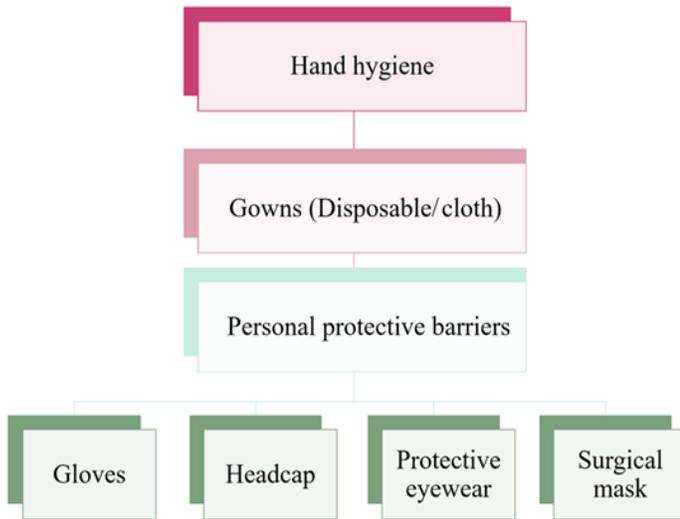


Figure 3: Personal protective measures.

alcohol-based solutions, both for 20 sec. Periodontist and personnel should follow hand hygiene protocols and prevent their hands from direct contact with eyes, nose and mouth before examination of patients and beginning of dental treatment; after contact with patients, environmental surfaces and materials/ substances contaminated with blood and body liquids/secretions and after contact with secretions, mouth mucosa and injured skin.

- b. *Gowns:* Disposable or surgical cloth gowns should be worn by professionals as well as personnel. They should either be disposed or sterilised (properly UV) after treating every patient.
- c. *Personal Protective Measure:* These include:
 - i. *Protective eyewear:* Goggles and or face shields should be recommended as ocular tissues have been shown to be susceptible to transmission of aerosols. After completion of a dental treatment, reusable eye protection should be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use and disposable eye protection should be discarded.
 - ii. *Head cap:* This forms the covering of head and protects the possibility of settling down of virus in hair in the form of aerosols. Disposable or head caps made from cloth should be worn by both dental professional as well as personnel. The disposable headcap should immediately be discarded and disposed after treating a patient, while the clothed headcap should be washed and sterilised before being worn in a new patient.
 - iii. *Face masks:* Surgical or special masks i.e. N95 respirator or FFP2 masks are should be used when the operator is at a distance of less than 6 feet. If a respirator is not available, a combination of a surgical mask and a full-face shield should be used. If the minimally acceptable combination of a surgical mask and a full-face shield is not available, any form of procedure should not be performed instead the patient should be referred to other clinician that has adequate personal protective equipment. After termination of dental treatments, used face masks must be disposed.
 - iv. *Gloves:* Periodontist and personnel should change their protective gloves after the termination of each dental treatment. Sometimes the protective gloves might have unidentified or small tears, in rupture of the glove during use thus-the use two pairs of gloves during dental surgical procedures is highly recommended.
5. **Treatment of emergency cases:** Before the start of periodontal treatment, patients should be instructed to rinse their mouth with

povidone iodine solution or mouth wash containing hydrogen peroxide⁷ to reduce the number of micro-organisms, which are in contact with blood during invasive dental treatments. Procedures that are likely to induce coughing should be avoided (if possible) or performed cautiously. Use of Other Materials/Instruments/ Equipment: Rubber dam should be used as it can minimize the dispersion of droplets, secretions and aerosols and in cases of unavailability of the same, hand instruments, e.g., hand scalers/ curettes are recommended for periodontal purposes. Specific periodontal considerations are as follows:

Hand scalers/ curettes should replace ultrasonic scalers in combination with high volume suctions to reduce aerosol production and splatter. Patients having acute periodontal and periapical abscess should be prescribed analgesics and antibiotics. For patients with acute pericoronitis, curettage should be done along with prescribing analgesics and antibiotics. They should be instructed to telephonically call the doctor if problem persists to decide the further course of action (operculectomy or tooth extraction).

Patients having Acute Necrotizing ulcerative gingivitis/ periodontitis, the affected area should be isolated, dried and cleaned, swabbed with cotton pellets under local anesthesia. They should be allowed to rinse with 3% hydrogen peroxide solution along with the prescription of medications as post-operative instructions.

For patients with dentin hypersensitivity, desensitizing agents should be applied with finger over affected areas along with prescribing desensitizing dentifrice and other instructions. Patients with oral ulceration should be treated with application of topical analgesia. However, in cases of primary herpetic gingivostomatitis and herpes infection, antiviral agents should be prescribed.

Patient care equipment, offices also should follow routine cleaning and disinfection strategies used during flu season. Equipment soiled with blood, body fluids and secretions should be discarded and disposed of according to the sterilization protocols. All reusable equipment should be cleaned, disinfected and reprocessed before being used in the next patients.

6. **Disinfection of clinic, waiting area and front desk after performing emergency procedure:** The disposable protective equipment should be transferred to a temporary storage area. The medical waste from the treatment of patients suspicious to COVID-19- should be considered an infectious residue and should be packed in two-layered packages and sealed properly. All surfaces and equipment should be cleaned, disinfected and sanitized immediately if located within 6 feet of symptomatic patients and otherwise they should be cleaned after doing 2 patients.

Recent trends:¹³ Although the research in development of vaccine is going on at a fast pace with few companies entering phase I of clinical trials, till date no vaccine has been discovered. According to World Health Organization the only drug right now that seems to have worked in some patients is remdesivir. Laboratory tests have shown to kill viruses, but once again results in patients are anticipated.

Conclusion: Since there is currently no vaccine or specific antiviral treatment available for treatment of coronavirus infection. Efforts should be aimed at managing symptoms and supportive therapy. The guidelines while treating a patient in periodontal set up is highly recommended so safety of clinician as well as patient is maintained and the infection is not spread further.

CONFLICT OF INTEREST

The author declares no conflict of interest.

REFERENCES

1. Novel Coronavirus. World Health Organization (WHO). 2020. Available from <https://www.who.int>
2. World Health Organization. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). 2020. Available from: <https://www.who.int/docs/default-source/coronaviruse/who-china-jointmission-on-covid-19-final-report.pdf>.
3. WHO-China Joint Mission (16–24 February 2020). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) (PDF). World Health Organization. 2020.
4. Chinese Center for Disease Control and Prevention. Epidemic update and risk assessment of 2019 Novel Coronavirus. 2020. Available from: <http://www.chinacdc.cn/yrdgz/202001/P020200128523354919292.pdf>.
5. Chinese Center for Disease Control and Prevention. The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) — China, 2020. 2020. Available from: <http://www.ourphn.org.au/wp-content/uploads/20200225-Article-COVID-19.pdf>.
6. Istituto Superiore di Sanità (ISS). Epidemia COVID-19: Aggiornamento nazionale - 09 marzo 2020 – ore 16:00: ISS. Available from: https://www.epicentro.iss.it/coronavirus/bollettino/Bollettino-sorveglianza-integrataCOVID-19_09-marzo-2020.pdf.
7. Report on the Epidemiological Features of Coronavirus Disease 2019 (COVID-19) Outbreak in the Republic of Korea from January 19 to March 2, 2020. *J Korean Med Sci.* 2020;35(10):1-11.
8. World Health Organization (WHO). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) 2020. 2020. Available from: <https://www.who.int/docs/default-source/coronaviruse/who-china-jointmission-on-covid-19-final-report.pdf>.
9. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, *et al.* Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. *The Lancet.* 2020;395(10223):507-13.
10. Bi Q, Wu Y, Mei S, Ye C, Zou X, Zhang Z, *et al.* Epidemiology and Transmission of COVID-19 in Shenzhen China: Analysis of 391 cases and 1,286 of their close contacts. *Med Rxiv.* 2020:2020.03.03.20028423.
11. Chan JF, Yuan S, Kok KH, To KK, Chu H, Yang J, *et al.* A familial cluster of Pneumonia Associated With The 2019 Novel Coronavirus Indicating Person-To-Person Transmission: A study of a family cluster. *Lancet.* 2020;395(10223):514-23.
12. Coronavirus Disease 2019 (COVID-19). U.S. Centers for Disease Control and Prevention (CDC). 2020.
13. Coronavirus: How close are we to a vaccine or drug? London: British broadcast corporation. 2020. Available on <https://www.bbc.com/news/health-51665497>

Cite this article : Singh M. Novel Coronavirus Infection and Periodontal Clinic: Are we Prepared?. *Int J Med Public Health.* 2020;10(4):143-6.