



COVID-19 IMPACT ON DENTISTRY: A REVIEW

Dental Science

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ABSTRACT

A recent outbreak of Covid-19 shook the world. This airborne infection already affected more than a million people. The outbreak is still on rise and affecting even health care professional. The virus can spread through saliva and respiratory droplets. Dental health care professionals are at risk due to their close working field to patient's oral cavity. This article briefly discussed about Covid-19 and precautionary measurements needs to be taken by dental professionals.

KEYWORDS

Covid-19, Dental professionals, Personal protection equipment

INTRODUCTION:

Covid 19 outbreak from Wuhan, China develop into public health crisis and spreads across 151 countries including India.¹ The public health emergency was declared by world health organization on 30th January 2020. It is rapidly emerging respiratory disease. On January 2020, first Covid-19 patient reported in India.² [Fig.1]

Corona virus are SS-RNA virus diameter ranging from 60 nm to 140 nm belongs to coronaviridae family.⁸ Covid-19 labelled as SARS-CoV-2. It can spread from person to person through close contact, direct contact, respiratory droplet.³ In routine clinical practice, dentist are more prone to get infected because of the exposure to saliva, close proximity to patient and contaminated aerosol.⁴ Currently no vaccine and medication are available to fight against Covid-19. Therefore, it can be mitigated by only by using appropriate methods of identification and management.

Based on currently available guideline, it is advisable for dentist to avoid dental procedure unless there is an emergency. This will diminish the interpersonal contact. Before commencing any treatment, dentist should take appropriate measurement to avoid contact with infected patient. This can be done by posing few questions such as patients travel history, patient's health status or any history of contacting infected person. Till 10/04/2020 around 1,619,937 reported Covid-19 cases and 97,056 death due to Covid-19 have been reported and India has reported 6,725 cases till date.⁹

In this article we discussed an overview of currently available protocols for dental practitioners and management Covid-19 patient.

SYMPTOMS:

Fever, tiredness and dry cough are the most common symptom of covid-19 patients. But sore throat, nasal congestion, pains, runny nose are also reported with mild symptom earlier and escalate gradually and leads to respiratory failure or even death.⁵

The incubation period of Covid-19 is from 0 to 24 days. In this incubation period patient accidentally might transmit the disease.⁶ Distinctly 80% of the cases reported with mild symptoms which mostly left undiagnosed.⁷ Covid-19 has male predilection with existence chronic disease such as immunocompromised patient,

cardiovascular illness.⁶

DIAGNOSIS:

Patient reported with fever, sore throat, cough and travel history mainly from china are suspected cases. However, these patients can be asymptomatic carrier. The confirmation of the suspect case can be done by positive molecular test. In India, the collected sample transferred to the labs or the National Institute of Virology in Pune. Till date no commercial test available.

In early disease chest X-ray might appear normal but CT imaging shows sub segmental consolidation and ground glass opacities. In many suspect cases with negative molecular test, CT scan used to diagnose Covid-19.¹⁰

INFECTION PREVENTION AND CONTROL IN DENTAL PRACTICE:

Patient evaluation:

It is advisable to discuss patient chief complaint via telephone triage. Always discuss 3 most relevant questions, history of fever in past 1 week, patient travel history, any contact with Covid-19 patient. Elective dental care should be avoided for 2 weeks if patient give positive response to any of the query.¹¹ This is because study has confirmed that in infected individual virus is present in saliva.¹²

Personal protection equipment:

Do not initiate the treatment without using personal protection equipment. World health organization, American dental association and Centers for disease control and prevention recommend to cover the eye with goggles, nose and mouth with N95 mask followed by reusable face shield and gown.^{13,14} This is because to achieve optimal level of protection mask alone is not sufficient. World health organization advocate to utilize N95 or FFP2 mask.¹⁵ In case of unavailability of face shield and surgical mask, emergency dental procedure should be avoided.¹³

Provision of emergency care:

American dental association and Centers for disease control and prevention recommend to defer the use of handpiece, ultrasonic scalers and air-water syringe because these are aerosol generating procedure which escalate the risk of infection.^{13,14} [Fig-2] In case of emergency if

aerosol generating procedure is needed than it should be done under rubber dam with high volume intra-oral suction and extra-oral suction to minimize the risk of aerosol contamination.^{13,16}

Potential exposure of dental health care professional:

Dental healthcare professional should call the patients those who receive emergency treatment. If patient develop sign and symptom of Covid-19 than refer to medical professional immediately and dentist should initiate self-monitoring for 14 days. If dental professional develops sign and symptoms of Covid-19 than they should self-isolate themselves and should coordinate with medical professional.¹⁷

Hand hygiene:

Cleaning hand prior and later to the procedure with alcohol-based sanitizer or with water and soap is utmost necessary.¹⁸ Alcohol based hand sanitizer is recommended for 20-30 seconds in the absence of evident dirt on hand.¹⁹ Soap and water should be used for 40-60 seconds when hand is dirty.²⁰ Hand hygiene is compulsory before putting and after removing PPE.²¹ In the absence of soap or alcohol-based hand rub, chlorinated water can be the alternative solution but cannot be used ideally because it may cause dermatitis.²²

Dental clinic disinfection:

Dental Treatment of asymptomatic Covid-19 patient with high speed hand piece and ultrasonic produce aerosol in dental clinic and routine standard procedure cannot protect dental health professional from Covid-19. Heat tolerated critical and semi critical instruments should be sterilized with heat sterilization procedure.²³ Heat sensitive instrument can be sterilized with chemical disinfectant.²⁴

CONCLUSION:

In current scenario dental health care professionals are at the risk of the infection due to Covid-19 attachment to ACE receptor which is present in saliva.

Only emergency dental treatment should be performed with adequate personal protective barrier if patient is asymptomatic.

After the dental treatment if patient develop Covid-19 symptoms than dental health care professional should isolate themselves for 48 hours and seek medical professional help.



Figure 1 – A screenshot of an interactive map of the global cases of COVID-19 by the Center for Systems Science and Engineering at Johns Hopkins University. This dashboard is continually updated and can be accessed at <https://coronavirus.jhu.edu/map.html>. Site accessed April 10, 2020

CONFLICT OF INTEREST

NIL

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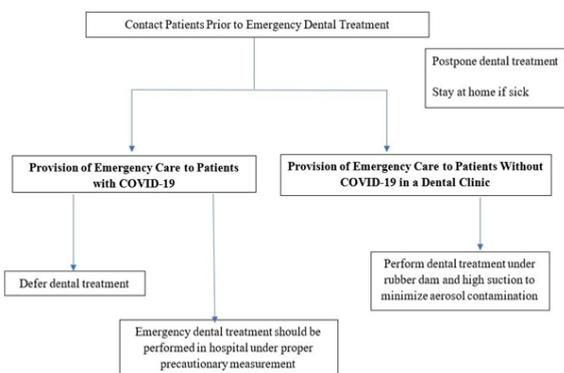


Figure-2 CDC Guideline for Dental Care During COVID-19