International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 10 Issue 1, January 2023, Impact Factor: 7.125

To Study the infection control measures during COVID 19 in Dental Department

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ABSTRACT

A severe form of pneumonia is brought on by COVID-19, which is a sickness that is brought on by an infection with SARS-CoV-2. The pathophysiological characteristics of the COVID-19 illness, the special transmissibility of SARS-CoV-2, and the high level of globalisation that exists in our time have contributed to the rapid spread of the epidemic emergency that began in China and has now reached every corner of the globe. It appears that the most common route for COVID-19 to spread from person to person is through close contact with a symptomatic individual who is infected with the virus. The most common method of infection is by the inhalation of respiratory droplets, which can occur when patients talk, sneeze, or cough. It has also been established that the virus may live outside of living beings, either in the air or on fomites left behind by infected organisms. Because they cannot always respect the interpersonal distance of more than a metre and because they are exposed to saliva, blood, and other body fluids during surgical procedures, dental practitioners are particularly at risk of contracting the SARS-CoV-2 virus. This puts them at a high risk of becoming infected with the virus. In addition, several dental procedures might result in the generation of aerosol, which raises the possibility of an infection being spread through the air. In light of recent research, the purpose of this article is to offer dentists some suggestions that they can put into practise immediately to help lessen the likelihood that they will distribute Covid-19 while they are engaged in clinical work.

Keywords: COVID-19, dentistry, SARS-CoV-2, preventive measures, coronavirus infection, preventive dentistry.

INTRODUCTION

The COVID-19 outbreak has had a substantial impact on dental healthcare workers (DHCWs) and other medical professionals, including other healthcare workers. They are more likely to become infected with the disease as a result of the close proximity to the mouth of the patient as well as the probable aerosol-generating procedures that are involved in dental treatment. Therefore, it is absolutely necessary to put adequate infection control measures into place in dental departments in order to decrease the risk of COVID-19 spreading. The purpose of this article is to provide a review of the infection control measures that were put into place during COVID-19 in dentistry departments in India.

In the month of December 2019, a large number of patients suffering from a severe form of pneumonia were detected in Wuhan, the capital city of Hubei province, which is located in the centre of the People's Republic of China. Wuhan has a population of over 11 million people. After further investigation, the "Huanan Seafood Wholesale Market" was found to be the source of the infection [1]. This market is known for selling a broad variety of live wild animal species, some of which include bats, snakes, and pangolins. This pathology could not be traced back to any previously identified etiological agent. On January 9, 2020, a novel coronavirus known as SARS-CoV-2/human/Wuhan/X1/2019 was isolated from the pharyngeal and respiratory swabs of hospitalised patients. This discovery was made possible by the study of such swabs. This virus will be known throughout history as the pathogen that was responsible for the spread of the pandemic that was announced by the WHO on March 11, 2020 [2].

The World Health Organisation (WHO) has given the disease that was caused by the SARS-CoV-2 virus the name COVID-19. This name is an acronym that is derived from the phrases CO-rona VI-rus D-isease and the year of identification-19 [3]. The symptoms of asthenia, myalgias, nasal congestion, rhinitis, pharyngotympanic, and

particularly a dry cough and dyspnea with fever are the ones that are mentioned most frequently by patients. It's also possible that some patients will experience diarrhoea or a sore throat. The symptoms are rather minor in eighty percent of the patients, but they are severe enough in fifteen percent of the cases to need hospitalisation. The development of severe dyspnea in the final 5% of patients results in immediate admission to an intensive care unit (ICU) [4]. There is currently a lack of clarity on both the evidence on human-to-human transmission of SARS-Cov-2 as well as the surface stability of the virus. Because of these factors, the same containment measures that were utilised for the management of past coronaviruses have been implemented.

It appears that human-to-human transmission of COVID-19 occurs most frequently through intimate contact with symptomatic individuals who are infected with the virus, and the most common mode of transmission is by respiratory droplets that are spread when patients sneeze or cough [5]. Although the virus is more contagious when the patient has symptoms, there is a growing body of research that shows the possibility of human-to-human transmission even in people with minimal or absent symptoms [6]. This is despite the fact that the virus is more contagious when the patient has symptoms. It has also been recognised that the virus may be able to persist outside of living organisms, either in the air or on inanimate surfaces. According to the findings of a study that was presented in the New England Journal of Medicine [7], the SARS-CoV-2 virus was able to survive in aerosols for up to three hours, with a half-life of only one and a half hours. The virus is able to live longer on stainless steel and plastic, with an average half-life of roughly 5.6 hours and 6.8 hours, respectively; the viable virus was discovered on these surfaces up to 72 hours after application. The pathophysiological characteristics of the COVID-19 illness, the special transmissibility of SARS-CoV-2, and the high level of globalisation that exists in our period have all contributed to the rapid spread of the epidemic emergency that began in China and has now reached every corner of the globe.

On February 21, 2020, the first local instances were officially detected in Italy, and they were distributed among three clusters that were found in the regions of Veneto, Emilia Romagna, and Lombardy respectively. Since then, the government of Italy has mandated a number of restrictive policies and a social distance that have been progressively rolled out across the entire nation.

Many medical facilities, including dental surgeries and clinics, have dramatically curtailed patient access by limiting clinical activity to only urgent and non-delayed care in an effort to stem the spread of the COVID-19 virus. This is being done with the intention of containing the spread of the COVID-19 virus. Due to the difficulty to keep an interpersonal distance of more than one metre and the exposure of saliva, blood, and other body fluids during surgical operations, dental practitioners are particularly vulnerable to a high risk of SARS-Cov-2 infection. This vulnerability is compounded by the fact that they are more likely to contract the virus. Moreover, several dental treatments can create aerosol [8].

The purpose of this study is to give dentists with actionable advice that is based on the current body of research and that may be helpful in minimising the likelihood of the COVID-19 virus spreading, particularly during the phases that follow the acute epidemic period. PubMed's library ran the literature search in search of a newly released paper on the clinical and epidemiological characteristics of SARS-CoV-2 and on COVID-19's dissemination.

Covid 19 scenario in India:
More than 21 million confirmed cases and 230,000 deaths have been reported in India as a result of COVID-19 as of April 2021. India has been seriously impacted by this virus. The epidemic has also had an effect on dentistry departments, causing several clinics to close their doors or significantly reduce the services they provide. During this time of pandemic, the Dental Council of India has released guidelines for dental clinics to follow. These guidelines place an emphasis on the necessity of infection control measures.

INFECTION CONTROL MEASURES

The following measures are recommended to reduce the transmission of COVID-19 in dental departments:

Personal Protective Equipment (PPE):
Personal The use of personal protective equipment, sometimes known as PPE, is an essential part of the infection control procedures implemented in dentistry departments. DHCWs are required to wear the proper personal protective equipment (PPE) to protect themselves against the transmission of aerosols. Personal protective equipment (PPE) consists of things like N95 respirators, face shields, gowns, and gloves.

The SARS-CoV-2 virus and other airborne particles can be filtered out by N95 respirators, which also offer protection against the transmission of aerosols. Protecting the eyes, nose, and mouth from potentially infectious droplets is the primary function of face shields. People use gowns to preserve their garments and keep themselves from becoming contaminated. Gloves are used to shield the hands from contact with infectious pathogens and to prevent the spread of infection between patients.

It is essential to keep in mind that in order for personal protective equipment (PPE) to be effective, it must be correctly fitted, worn, and removed. DHCWs should get sufficient training on the use of personal protective equipment (PPE), including instruction on how to correctly put on and remove PPE.

Hand hygiene:
In dentistry departments, maintaining good hand hygiene is a straightforward yet highly efficient method for preventing the spread of COVID-19. Both DHCWs and patients are required to regularly clean their hands by washing them with soap and water or using hand sanitizers that include alcohol. The transmission of the virus and other infectious agents can be slowed down significantly by practising correct hand hygiene.

Hand hygiene should be undertaken before to, as well as after, interaction with patients, after contact with potentially contaminated surfaces, and after removal of personal protective equipment (PPE). The use of hand sanitizer or the proper method for washing one's hands are both essential components of maintaining good hand hygiene.

Decontamination of various surfaces and pieces of equipment:
Because of the risk of cross-contamination, it is imperative that every surface and piece of equipment in dental departments be frequently cleansed. This covers surfaces such as dentist chairs, counters, doorknobs, light switches, and other areas that are touched regularly.

The procedure for disinfection needs to be carried out in accordance with the recommendations made by the company that made the disinfectant. To ensure that the surface has been adequately disinfected, the disinfectant must be applied according to the guidelines provided by the manufacturer and allowed to remain on the area for the amount of time specified.

It is essential that you are aware that particular disinfectants are unable to kill bacteria on some surfaces and pieces of equipment. Before applying disinfectants, it is necessary to ensure that they are compatible with the various surfaces and pieces of equipment that they will be used on.

Patient screening:
Before attending the dental office, patients should be examined for COVID-19 symptoms and asked about their recent travel history. This can either be done through a consultation over the phone or in person at the clinic.

In the screening questions, you should inquire about recent travel history as well as symptoms including fever, cough, sore throat, and difficulty breathing. Patients who have symptoms or a history of travel should be encouraged to postpone their consultation until they have tested negative for COVID-19. This advice should be given to patients who have symptoms or a travel history.

Separation from Society:
The practise of maintaining a physical distance between individuals is referred to as social distancing, and it is a public health measure that is intended to reduce the spread of infectious diseases. In order to stop the transmission of Covid-19, the World Health Organisation (WHO) suggests that people keep at least one metre (three feet) of space between themselves. Social distancing can be achieved in dental departments by restricting the number of patients allowed in the waiting area, maintaining adequate distance between dental chairs, and staying away from areas that are overcrowded. By reducing the amount of close contact that people have with one another, social distance can help prevent the spread of the COVID-19 virus.

Reduced Levels of Aerosols:
Because the virus can spread through droplets and aerosols formed during dental procedures, it is essential that dental departments implement effective infection control measures, including the decrease of aerosols. Tiny particles known as aerosols are able to remain suspended in the air for an extended period of time, which raises the probability of transmission. It is possible to apply the following steps in dental departments in order to limit the transmission of aerosols:

1. High-volume suction During dental treatments, the use of high-volume suction can help limit the creation of aerosols by removing water and saliva from the mouth of the patient.

2. Rubber dams: During dental operations, rubber dams can be used to isolate the tooth that is being treated, which helps to reduce the spread of both saliva and airborne particles.

3. Air purifiers: The use of air purifiers equipped with HEPA filters is one method for lowering the amount of aerosols that are present in the air.

4. The use of low-speed handpieces because, in comparison to high-speed handpieces, the use of low-speed handpieces results in a lower production of aerosols; therefore, this strategy is an efficient method for lowering the transmission of aerosols.

Tele-dentistry:
Patients can receive dental care and advice through a practise known as tele-dentistry, which is a sort of remote dental consultation that makes use of technology to deliver dental care and advise to patients without requiring them to make an in-person visit to the clinic. It is possible to conduct initial consultations, follow-up appointments, and patient education through the use of teledentistry. During the COVID-19 pandemic, there has been a growth in the usage of tele-dentistry since it enables patients to receive dental care while simultaneously lowering the danger of being exposed to the virus. Patients are able to receive prompt care using teledentistry, which eliminates the need for them to physically visit the clinic for treatment. This helps decrease the strain that is placed on dental departments.

CONCLUSION

In conclusion, it is essential to apply infection control measures in dental departments, such as personal protective equipment, hand hygiene, disinfection of surfaces and equipment, patient screening, social distance, aerosol reduction, and tele-dentistry, in order to stop the spread of COVID-19. Not only will these precautions protect the employees working in dental healthcare, but they will also safeguard the patients and the community. In order to offer dental care that is both safe and effective during the pandemic, it is vital to adhere to the guidelines that have been issued by the relevant health authorities and to stay current with the most recent developments.

Dental departments really need to implement infection control measures in order to stop the spread of the COVID-19 virus. During this time of epidemic, dental clinics in India can refer to the instructions that have been published by the Dental Council of India. These recommendations should be followed to the letter by all DHCWs to protect both their own safety and the safety of their patients. Patients should also assist with DHCWs in order to stop the spread of the disease and should take the appropriate precautions.

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