

Covids Precautions In Dentistry – Review Article

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ABSTRACT

The outbreak of COVID-19 has become a severe global acute respiratory pandemic around the world within a few months with an increasing number of infections and deaths. Covid-19 is a highly contagious and fatal disease. Almost everyone in this population are prone, and the incubation is 1-14 days. The clinical symptoms of COVID-19 are fever, dry cough and fatigue. It is the responsibility of the dental practitioner to fully understand the characteristics feature of COVID-19 and strictly implement the protective measures to reduce and control the risk of infection in dental procedures.

Keywords COVID-19, Transmission, Symptoms, Precautions, Dentistry, Coronavirus disease 2019

INTRODUCTION

The outbreak of Coronavirus Disease 2019 (COVID-19) has become a severe global acute respiratory pandemic around the world in just a few months with an increasing number of infection and deaths. The pathogen that caused the new coronavirus disease belongs to the beta-type coronavirus with a cell membrane. It is round or oval and has a diameter of 60-140nm. At present, it has been confirmed that it has more than 85% homology with bat SARS-like coronavirus (bat-sl-covzc45). The World Health Organization (WHO) announced the outbreak of new coronavirus COVID-19 as public health emergency of international concern (PHEIC) on January 30, 2020, and it has raised to the highest level on February 28, 2020. On March 11th 2020, the World Health Organisation declared that COVID-19 outbreak is a global pandemic. Due to the characteristics of coronavirus, and the dental procedures, the dental practitioners are facing unprecedented challenges. It's the duty of every dentist to understand about the characteristics features of coronavirus and implement the most appropriate protective measures to reduce and control the risk of infection in dental procedures [1].

Covid-19 Transmission:

Several studies were performed to determine the modes of transmission of SARS-CoV-2, which confirmed that it's mainly transmitted through respiratory droplets and direct contact. The primary mode of transmission is thought to occur from droplet spread in which large droplet carry virus particles. Droplet transmission occur when a person is in close contact with a patient having respiratory symptoms. SARS-CoV-2 enters cells via angiotensin-converting enzyme 2 receptors which are found in most cells of the respiratory system as well as salivary gland cells. The salivary gland cells are believed to be the first sites where SARS-CoV-2 is not a living

organism and depends on host cells to replicate. SARS-CoV-2 infection spread through respiratory droplets or by contact. Therefore, coughing, sneezing by an infected person can lead to SARS-CoV-2 airborne, infecting individuals in close contact. This leads to the recommendation of social distancing to minimize the spread of the disease. Another route for transmission is, if droplets of SARS-CoV-2 land on close objects which are located near to an infected individual and are subsequently touched by other individuals [3].

Clinical Symptoms

Besides how coronavirus spreads, dentist need to familiarise with clinical symptoms. This may help them identify the suspected patients and decide what can be done next, including taking appropriate protective measure, taking emergency dental treatment in a negative pressure clinic and so on [1]. Patients with coronavirus usually show clinical symptoms of fever, dry cough and myalgia. In addition, less obvious symptoms such as nausea, diarrhoea, reduced sense of smell (hyposmia), and abnormal taste sensation (dysguesia) [3].

PRECAUTIONS

Appointment

During this pandemic, social distancing will be the new normal and is included in the dental office. The number of patients in the waiting area must be limited. Another alternative is to ask patients to wait in their vehicle and call them ready to be seen, in addition, procedures that may create aerosols should be moved to the last appointment of the day. OHCP should also limit the number of personnel in offices and operating rooms [2].

Hand Hygiene

Proper hand hygiene is critical in disintegrated SRAS-CoV-2 as soap and detergent cut the virus's fatty outer layer and is more effective than popular widely available hand sanitizers alone. Due to the fragility of the virus, rubbing hands for at least 20sec, generating foam, will essentially dissolve the fat layer and the remaining protein molecule will dissolve on its own. It is recommended to moisturize after continuous washing of hands, to improve the protection function of skin. Patients should also be asked to perform hand hygiene with alcohol based sanitizers on entry into the office, entry into the operatory, and again after the dental procedure at dismissal [2].

Personal Protection Equipment

PPE including impervious gown, facemask, eye protection, gloves and disposable cap should be donned before entering the room to intact with patients. The US National Institute for Occupational Safety and Health has classified filtering respirators into three categories: N - not resistant to oil, R - somewhat resistant to oil, and P - strongly resistant to oil. Respirators available are N95, N100, N99, P100, P99, P95, R95, R100, and R99. Number 95 indicates 95%, 99 indicates 99% and 100 indicates 99.97% minimum filtration efficiency of the respirator. Powered air purifying respirator (PAPR) which has blower to draw contaminated air through filters is mainly used in operating room, hospitals, and ambulatory settings with excellent protection capability [2].

Mouth Rinse

SARS-CoV-2 is sensitive to oxidation. 0.2% povidone-iodine or 1.0% hydrogen peroxide mouth rinse is pre used before any procedures, which has viricidal activity and is beneficial in reduction of oral and respiratory pathogens. However, potential efficacy is unclear and requires further investigation [2].

Disinfection And Sterilization Protocol

As routine infection control measures like cleaning of the surfaces in the dental clinic is a must before and after treating each patient. Consequently, both dental clinics and health centres should consider an effective and firm disinfection protocols in both inside the dental chair room and

public area. All the instruments should be intensively cleaned and disinfected, including all the chairs, handles of the doors, desks, walls, and every possible appliance that it may display the virus [4].

Dental Dam

The dental dam is considered to be a perfect tool used for isolation in the dental field, especially during root canal treatment. It helps to enhance a proper cross-infection control for both dental team and patients. Also, it plays an important role in the infection control measurements [4].

Instrument Processing

To prevent the risk of the cross-contamination:

1. Area of cleaning: This area is responsible for receiving the reusable contaminated dental instruments. Those instruments will be cleaned, decontaminated, and sorted.
2. Area of packing: This area is responsible for the preparation of the cleaning instruments to the sterilization step, and also, the procedure of assembling, inspecting, and packing of the clean instruments took place in this area.
3. Area of sterilization: This area includes both the incubators and sterilizers for analysing the spore tests [4].

Medical Waste Management

The wastes that is formed in the dental clinic are non-infectious and thrown in regular trash. This includes the gloves, masks and lightly bloody gauzes. The medical wastes like needles and gauzes contain heavy blood and extracted teeth which display a risk of infection. The special biohazard bag with a leak-resistant should be used to for the non-sharp regulated medical wastes. While sharp instruments such as unused sterile sharps, scalpel blades, and syringes should be contained in puncture-resistant containers. The domestic waste and medical waste created during the treatment of patients with confirmed or suspected coronavirus infection are regarded as infectious medical wastes. To dispose this category of wastes, double-layered yellow-colored package specially designed for medical wastes and gooseneck ligation should be used. The surface of the package should be marked and disposed as per the requirement [4].

CONCLUSION

Dental practitioners face unpredictable challenges since coronavirus is a very highly fatal disease and contagious disease. Dental procedures generate a large aerosols and droplets which makes the virus difficult to control and prevent. Here we have summarized the characteristics of COVID-19 briefly and introduced protective measures for dentists, providing a guideline for the prevention of infection for dental clinics in other region. The global pandemic is severe and there is still some limitations which should be considered. How to carry out oral diagnosis and treatment on regular prevention and control of COVID-19 is an open issue to be discussed [1].

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