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Review Article

Changing Trends in Dentistry: Corona Effect

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***ABSTRACT*:**
The current spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and its related coronavirus disease has engrossed the entire international community and caused widespread public health concerns. In spite of global efforts to contain the disease spread, the outbreak is still on a rise because of the community spread pattern of this infection. Dental professionals, may come across patients with suspected or confirmed SARS-CoV-2 infection and will have to act meticulously not only to provide care but at the same time prevent nosocomial spread of infection. Dentists should follow standard, contact, and airborne safeguards including the appropriate use of personal protective equipment and hand hygiene practices.
Key words Coronavirus, Dentistry, nosocomial infection, aerosol.

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INTRODUCTION

The existing outbreak of the 2019 coronavirus strain (COVID- 19) establishes a public health emergency of global concern.[1] International centres for disease control and prevention are monitoring this infectious disease outbreak in which symptoms of COVID-19 infection comprise of fever, cough, and acute respiratory disease, with severe cases leading to pneumonia, kidney failure, and even death. Assumed the novelty of COVID-19, some characteristics of the virus remain yet indefinite. The COVID-19 outbreak serves as both a reminder and an chance to assist. Since COVID-19 was recently identified in saliva of infected patients,[2] the COVID-19 outbreak is a cue that dental/oral and other health professionals must always be assiduous in protecting against the spread of infectious disease. In this background, healthcare workers, such as dentists, may be naively providing direct care for infected, but not yet diagnosed COVID-19 patients, or those considered to be suspected cases for surveillance.[3]

Dentists have been suggested to take several personal protection measures and avoid or minimalize operations that can produce droplets or aerosols. Furthermore, the use of saliva ejectors with a low volume or high volume can decrease the production of droplets and aerosols. The most endorsed guidelines indicate that dentists should evade the scheduling of any patient: only such vital dental diseases can be considered during the COVID-19 outbreak. This

action will radically limit the interpersonal contact, the waiting time of patients in dental cabinets and, in general, the conditions disposing patients to be infected. When the dentists treat patients, they should intercept the potentially infected person before they reach the operating areas; for example, those with a fever measuring >37.5 _C and the posing of a few questions about the patient's general health status in the last 7 days, and about the risk of having been in contact with other infected persons.[4]

As frequently as possible, the staff should work at an acceptable distance from patients; furthermore, handpieces must be equipped with anti-reflux devices to avoid contaminations, improving the risk of cross-infections. Finally, during the operating sessions, the dentist should prefer procedures dipping the quantity of aerosol produced in the environment.[5] Personal prevention, both for health personnel and for patients, must be related with the prevention of the spread of the virus through environmental remediation. In particular, due to the high proliferation of the virus in the particles exhaled by coughing and sneezing, every surface in the waiting room must be considered at risk. Furthermore to providing adequate periodic air exchange, all surfaces, chairs, magazines, and doors that come into contact with healthcare professionals and patients must be considered "potentially infected". It may be valuable to make an alcoholic disinfectant and masks available to patients in the waiting room. The entire air conditioning system must be sanitized very frequently.[6]

The incubation period of COVID-19 has been assessed at 5 to 6 days on average, but there is evidence that it could be as long as 14 days, which is now the usually adopted duration for medical observation and quarantine of exposed persons. Dental patients who cough, sneeze, or receive dental treatment including the use of a high-speed handpiece or ultrasonic instruments make their secretions, saliva, or blood aerosolize to the surroundings. Dental apparatus could be contaminated with various pathogenic microorganisms after use or become exposed to a contaminated clinic environment. Subsequently, infections can occur through the puncture of sharp instruments or direct contact between mucous membranes and contaminated hands.[5]

Due to the exceptional characteristics of dental procedures where a large number of droplets and aerosols could be generated, the standard protective measures in daily clinical work are not effective enough to avert the spread of COVID-19, especially when patients are in the incubation period, are unaware they are infected, or choose to conceal their infection.[5]

DISCUSSION

The disease, which is caused by a novel coronavirus termed the "SARS coronavirus," or SARS-CoV, principally spreads through droplet infection and affects people of any age. It has a mortality rate ranging from 10 to 15 percent. A major trademark of this disease has been the rate at which it has affected health care workers through nosocomial transmission; in some countries, up to one-fourth to one-third of those infected were in this category.[7]

SARS-CoV-2 can stay on surfaces for a few hours or up to several days, liable on the type of surface, the temperature, or the humidity of the environment.[8] This strengthens the need for good hand hygiene and the importance of thorough disinfection of all surfaces within the dental clinic. The use of personal protective equipment, including masks, gloves, gowns, and goggles or face shields, is recommended to protect skin and mucosa from (potentially) infected blood or secretion. As respiratory droplets are the main route of SARS-CoV-2 transmission, particulate respirators (e.g., N-95 masks) are recommended for routine dental practice.[5]

The 4-handed technique is helpful for controlling infection. The use of saliva ejectors with low or high volume can reduce the production of droplets and aerosols. During the outbreak of COVID-19, dental clinics are recommended to establish precheck triages to measure and record the temperature of every staff and patient as a routine procedure. Precheck staff should ask patients questions about the health status and history of contact or travel.[9]

Patients and their accompanying persons are provided with medical masks and temperature measurement once they enter our hospital. Patients with fever should be registered and referred to designated hospitals. If a patient has been to epidemic regions within the past 14 days, quarantine for at least 14 days is suggested. In areas where COVID-19 spreads, nonemergency dental practices should be postponed. Aerosol-generating procedures, such as the use of a 3-way syringe, should be minimized as much as possible. Intraoral x-ray examination is the most common radiographic technique in dental imaging; however, it can stimulate saliva secretion and coughing. Therefore, extraoral dental radiographies, such as panoramic radiography and cone beam CT, are appropriate alternatives during the outbreak of COVID-19.[10]

Dental emergencies can occur and exacerbate in a short period and therefore need immediate treatment. Rubber dams and high-volume saliva ejectors can help minimize aerosol or spatter in dental procedures.[11] Alternatively, patients could be treated in an isolated and well-ventilated room or negatively pressured rooms if available for suspected cases with COVID-19. If the tooth needs to be extracted, absorbable suture is preferred. For patients with facial soft tissue contusion, debridement and suturing should be performed. It is recommended to rinse the wound slowly and use the saliva ejector to avoid spraying. Life-threatening cases with oral and maxillofacial compound injuries should be admitted to the hospital immediately, and chest CT should be prescribed if

available to exclude suspected infection because the RT-PCR test, besides time-consuming, needs a laboratory with pan-coronavirus or specific SARS-CoV-2 detection capacity.[5]

Anti-retraction dental handpiece with specially designed anti-retractive valves or other anti- reflux designs are strongly recommended as an extra preventive measure for cross-infection.[7] Therefore, the use of dental handpieces without anti-retraction function should be prohibited during the epidemic period of COVID-19. Public areas and appliances should also be frequently cleaned and disinfected, including door handles, chairs, and desks. The elevator should be disinfected regularly. People taking elevators should wear masks correctly and avoid direct contact with buttons and other objects. The medical waste (including disposable protective equipment after use) should be transported to the temporary storage area of the medical institute timely. The reusable instrument and items should be pre-treated, cleaned, sterilized, and properly stored.[12]

Preprocedural mouth rinse with 0.2% povidone-iodine might reduce the load of corona viruses in saliva. Another alternative would be to use 0.5-1% hydrogen peroxide mouth rinse, as it has non-specific viricidal activity against corona viruses. Preferences should be given to tele-consultation, more so in non-critical conditions so that the infection should not affect patients especially the susceptible ones. The rampant spread of SARS-CoV-2 worldwide increases the likelihood that dental health care professionals will treat this subset of the patient population. Universal precautions are crucial to minimize the spread of this virus and its associated disease. Health care providers must keep themselves up-to-date about this evolving disease and provide adequate training to their staff to promote many levels of screening and preventive measures, allowing dental care to be provided while mitigating the spread of this novel infection.[13]

CONCLUSION

Dental care providers need to be aware and prepared for tackling any impending infectious disease challenge as might be the case in the current outbreak of SARS CoV-2 transmission and its associated coronavirus disease, which can be life-threatening to susceptible patients. Health care professionals have the duty to protect the public and maintain high standards of care and infection control.

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