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COVID-19: HOW DENTISTS COPE WITH THE SITUATION .

Dental Science

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KEYWORDS

INTRODUCTION

Several epidemics (such as H1N1, H5N1, avian influenza, Ebola, SARS, Zika, and Nipah) have affected India and other countries in the past, which were successfully tackled with appropriate research [1]. Emergence of novel human pathogens and re-emergence of several diseases time to time are of particular concern [2]. A novel human coronavirus initially referred to as the Wuhan coronavirus (CoV), currently designated as severe acute respiratory syndrome (SARS)-CoV-2, is responsible for the latest pandemic that is affecting human health and economy across the world [3].

India has curtailed the spread of this virus to a certain extent but healthcare providers are at an increased risk of contracting the infection and becoming potential carriers of the disease. According to Occupational Safety and Health Administration (OSHA), dental health care personnel (DHCP) are placed in very high exposure risk category as dentists work in close proximity to the patient's oral cavity [4,5].

Structure

SARS-CoV-2 is the seventh member of the family of coronaviruses that infect humans [6].An enveloped positive-stranded RNA virus with a diameter of 60–140 nm, spherical or elliptical in shape, and pleomorphic that shows a crown-like appearance under an electron microscope . [7, 8]. The average incubation period is estimated to be around 0–14 days (generally adopted duration for quarantine and medical observation of potentially exposed persons).

Saliva and covid-19

SARS-CoV-2 has been found to be in high concentration in saliva of infected patients which makes it a potential route of transmission. Salivary droplets consist of droplet nuclei of microorganisms in a mixture of moisture, generated by an infected person during coughing, sneezing, talking, or exhalation. The potential risk of transmission through salivary droplets depends on (i) how long the droplets remain in air and (ii) how long the virus remains infectious in the droplet.[9,10]

Recommendations for Providing Dental Care during COVID-19 Pandemic:

Dentists, dental hygienists, dental assistants, and Receptionists need to update their knowledge and skills regarding infection control and follow the protocols recommended by the relevant authorities to protect themselves and their patients against infections.[11]

An attempt should be made to telephone triage all patients in need of dental care. Teledentistry can be of great assistance in the current pandemic situation.[12] Newer technologies have not only enhanced the quality of management of dental patients but have also made possible their partial or complete management at distances of kilometres away from healthcare centers or dental clinics.[13] The entire process of networking, sharing digital information, distant consultations, workup, and analysis is dealt with by a segment of the science of telemedicine concerned with dentistry known as “Teledentistry” [14, 15].

Based on the patients' signs and symptoms, a decision should be made to determine whether the patient needs to be seen in the dental clinic. Appropriate pharmaceuticals and detailed home care instructions should be provided by means of Teledentistry in situations where dental treatment can be delayed.[23]

Dental clinic modification

A. Reception/Waiting area

a. Display visual alerts at the entrance of the clinic and reception area about respiratory hygiene, cough etiquette, social distancing, and disposal of contaminated items in trash cans.

b. As soon as the patient enters the reception area, ask them to wash their hands using hand wash or alcohol-based hand rub. Use tissue paper or hand dryer to dry the hands instead of towels. Tissue paper dispenser and foot-operated waste bin are mandatory.

c. Include temperature recordings as part of your routine patient assessment before performing any dental procedure. A noncontact forehead thermometer can be used to measure the patient's body temperature

d. Include all screening questionnaire.

e. Maintain social distancing in the reception area.Instruct the patient to wear a mask while waiting in the reception area and maintain respiratory hygiene by covering their mouth and nose during coughing and sneezing.

f. Remove magazines, articles, toys, and other objects from the reception area that may be touched by others and are difficult to disinfect. Install glass/plastic barrier at the reception desk. Cashless/ contactless payment methods should be encouraged.

g. Avoid usage of commercial split/centralized/window air conditioners unless equipped with high-efficiency particulate air (HEPA) filters [16,17]

During Treatment

Indian Council of Medical Research recommends the use of hydroxychloroquine for prophylaxis of SARS-Cov-2 infection for healthcare workers involved in the care of suspected or confirmed cases of COVID-19. The recommended dosage is 400 mg twice a day on day 1, followed by 400 mg once weekly for next seven weeks, to be taken with meals [19].

It is recommended that the highest level of personal protective equipment (PPE) available is used by dental surgeon and dental assistant while treating patients which includes gloves, gown, head cover, shoe cover, eye protection including goggles or a disposable/reusable face shield that covers the front and sides of the face, and a N954 or higher-level respirator. A combination of a surgical mask and a full-face shield can be used in situations when a respirator is not available [21].

Good hand hygiene is one of the best ways to prevent the spread of infectious diseases. A two-before and three-after hand hygiene should be followed in order to reinforce the compliance of hand washing. Specifically, the dental surgeon and the dental assistant should wash their hands before examining a patient, before performing any dental procedures, after touching the patient, after touching the surroundings and equipment without disinfection, and after touching the oral mucosa, blood, damaged skin, or wound [18].

Preprocedural mouth rinse with 0.5–1% hydrogen peroxide for its

nonspecific virucidal activity against viruses or with 0.2% povidone-iodine is recommended as it might reduce the load of corona virus in saliva [22].

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 computed tomography (CBCT), are appropriate alternatives during the outbreak of COVID-19 [6].

DHCP should avoid aerosol-generating procedures to the best and prioritize the use of hand instruments such as spoon excavators in combination with chemomechanical caries removal agents. However, if aerosol-generating procedure needs to be performed, it should be scheduled as the last appointment of the day [20]. Working from 10 or 11 o'clock position is recommended. In order to avoid splatter, eight o'clock position should be avoided. Use of rubber dam during such procedures is recommended as it could significantly reduce airborne particles in approximately three-foot diameter of the operational field by 70%. Four-handed dentistry with high volume suction for aerosols should be implemented along with regular suction [18]. Additional measures such as improving the quality of water, flushing of water from dental unit water lines, using antiretraction valves, antiretraction handpieces, and retrograde aspiration are strongly recommended to prevent cross infection [22].

8. Posttreatment

Because coronaviruses lose their viability significantly after 72 hours, many organizations have promoted a rotation and reuse strategy. It involves acquiring a set number of N95 masks (at least 5 as per the CDC), and rotate their use each day, allowing them to dry for long enough that the virus is no longer viable. However, N95 respirators used during aerosol generating procedures or those contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients should be discarded [21].

Fumigation is not practical for dental operatory; however, measures such as mopping the floor with 1% sodium hypochlorite and disinfecting waterlines with 0.01% sodium hypochlorite can help reduce the risk of cross infection All biomedical waste pertaining to patient care should be carefully disposed from time to time through an authorized biomedical disposal agency [22].

9. CONCLUSION

Dental health care personnel need to understand the implications of potential transmission of the (SARS)-CoV-2 virus in a clinical setup. Hence, they need to keep themselves updated with any new information regarding this disease.

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