Clinical protocols in dental practice: Post-COVID-19

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Abstract

The COVID-19 pandemic, still on the growth curve, has had a devastating effect on the dental health sector for the past 3 months. This has become an area of enormous concern for the dentists professionally and the patients in terms of dental health. Dentistry at this point needs a complete structural change to prevent cross-infection among the patients and dentists owing to the unique characteristic of a dental health-care setting as well as to offer a sense of safety and security to the patients. This article highlights the salient points to be considered for the post-COVID phase in dentistry.

Keywords: Coronavirus; COVID-19; dental care; prevention and control; SARS-CoV-2

INTRODUCTION

Direct contact, face-to-face communication, and constant exposure to body fluids such as blood and saliva are the major predisposing risk factors among dental health-care professionals (DHCPs) in view of 2019-nCoV infection. Dental practice can also pose a potential risk to dental personnel as there is a high probability of cross-infection. Hence, the knowledge of the strategies to be put in place to perform dental procedures is a fundamental prerequisite at this crucial hour. All the oral health-care providers need to follow safety protocols with precision to ensure minimal risk to themselves and the patients. This article is designed to give an insight into the most critical measures to be considered in a dental health care setting while tackling COVID-19.

INITIAL PHASE: SCREENING, HISTORY-TAKING, SAFETY PROTOCOL

Preliminary screening and tele-triaging are essential to reduce the number of direct walk-ins in the dental office. Patients should be informed that appointments will be scheduled only after teleconsultation. They should be asked to measure their temperature before visiting the dental office, which would be rechecked on the day of the appointment.

Thermal screening is performed at the entry of the dental office; the temperature should be recorded preferably with a digital noncontact infrared thermometer which would give an alert if the temperature is beyond the permissible limit (37.4°C/99.14°F) so that the patient is referred to the nearest health center. A screening questionnaire is to be filled, which includes precise details regarding the travel and health history, the onset of symptoms, if any, to verify any chances of positivity to COVID-19. A written informed consent and undertaking below each question are a requirement and should be over-emphasized to prevent hiding of facts since there is a considerable risk of undetected exposure to asymptomatic patients.

The information about any suspected COVID-19 cases, i.e., patients with both high temperature (>99.14°F) and positive travel history, should be immediately conveyed to the health authorities. The treatment should be conducted only when both the factors in consideration are negative. In the presence of any of the two elements, the treatment should be delayed for at least 14 days for patients with only positive travel history, but for patients with fever, they are to be first appropriately examined in the nearest hospital.

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At the entry, patients should be provided with hand sanitizer (preferably alcohol-based) and mouth masks. They should be asked to remove the footwear outside, and shoe covers should be provided. Physical/social distancing should be maintained with a minimum distance of 6 feet between the patients in the waiting area. The patient education information on hand and cough hygiene should be displayed to increase awareness. Installation of physical barriers (e.g., glass or plastic windows) should be done at reception areas to prevent close contact with potentially infectious patients.

**FINAL PHASE: PERSONAL PROTECTION, TREATMENT STRATEGIES, DISINFECTION**

The patient is taken to the dental operatory and made to sit on the operating chair. A surgical gown should be provided for draping the patient along with the eye protection and head cap. Masks should be used to cover the nose as nasal protection, especially for senior citizens. A preprocedural mouth rinse preferably with oxidative agents such as 1% hydrogen peroxide or 0.2% Betadine (povidone-iodine) for 1 minute potentially reduces the salivary viral load and could be used after the treatment as well. For diagnostic evaluation, extraoral imaging like cone-beam computed tomography is preferred since conventional radiographic techniques result in excessive salivary secretion and may induce coughing as well.

For all DHCPs and the dental personnel, who come in contact with the patient, hand hygiene (water and emulsion of soap for at least 30–60 seconds or with alcoholic gel >70% v/v for a minimum of 30 seconds) and application of personal protective equipment such as masks, gloves, gowns (changed in between every patient), protective goggles, face shields, head caps, and shoe covers is strongly recommended; dressing (donning) and undressing (doffing) should be carried out in dedicated, possibly a separate and routinely sanitized area. N95 respirators and surgical masks protect the wearer from airborne particles and any contaminated fluids. An N-95 is a respiratory protective device with high filtration efficiency which provides a close facial fit owing to the tight seal around the nose and mouth.

The two main factors to be considered for glove selection are barrier protection and allergen content. Nitrile gloves due to their latex-free chemical make-up and variable levels of thickness offer adequate protection against many solvents and chemicals Moreover, they are reported to exhibit better puncture resistance in contrast to the latex gloves.

**Gowns**

According to the WHO guidelines, clean, nonsterile, long-sleeved gowns must be worn for aerosol-generating procedures and nonaerosol generating procedures except in the initial triage. If the gowns are nonfluid resistant, additionally a waterproof apron can be used.

Goggles must fit snugly, particularly at the canthus and over the brow. They should be indirectly vented and possess anti-fog properties. Face shields with crown and chin protection and wrapping around the face until the ear offer the best protection for the face and eyes from splashes and sprays.

Four-handed dentistry should be followed. The rubber dam must be used for isolation of the operating field as it cuts down the contamination of droplets and aerosol mixed with patient saliva and/or blood in 1 meter diameter of the surgical area by 70%. High power aspirators have become a critical consideration in the prevailing conditions. In cases where rubber dams cannot be used, manual tools such as carisolv or hand scalers are recommended. An anti-retraction hand-piece which prevents the backflow of oral fluids is strongly recommended.

Specialized cleaning and lubricating
device to be used for the disinfection of the hand-pieces is a must before autoclaving in Class-B autoclave. The use of a three-way syringe should be minimized due to the droplet generation during the forcible ejection of water/air. The dental settings should have adequate ventilation, as it can reduce the risk of infection through dilution and removal of infectious particles through air exchange and prevents transmission of airborne infections. Maintenance of air circulation with natural air through the frequent opening of windows is the preferred method of ventilation.

Nevertheless, an exhaust blower to create a unidirectional flow of air away from the patient would be the right choice. However, if no natural ventilation system is available, then the air conditioning unit must be used with recirculation mode blocked with regular servicing and filter cleaning for an effective output. The use of a ceiling fan during the procedure should be avoided entirely.

Ideally, separate negative pressure isolation rooms must be prepared for aerosol-generating procedures, also known as airborne infection isolation room (AIIR). If an AIIR is not available, the operatory must be well-equipped with high-efficiency particulate air (HEPA) filters/augmented ventilation.[11] Minimum number of appointments must be considered for the treatment to decrease the risk of infection.

After completion of treatment for each patient, adequate time should be given for disinfecting all the surfaces surrounding 3 metres of the chair (including the dental chair, hand-rests, spittoon, tray, buttons, and headlight switch) with a spray of 0.5%–1% sodium hypochlorite.[12] Accessories such as loupes, eyewear, can be disinfected by placing in ultraviolet chambers.

Operatory should be routinely fumigated with commercial fumigators or liquid formalin and potassium permanganate crystals by the end of the day. Disinfection of the clinic entrances, doorways, staircases, clinical area to be done under standard recommended protocols, followed by 1% sodium hypochlorite spray and mops.

The dental office waste must be regularly transported to the temporary storage facility. Reusable instruments and equipment should be pretreated, cleaned using an ultrasonic bath followed by sterilization in a Class B autoclave with postvacuum. The waste resulting from the treatment must be safely disposed of in double-layer yellow-colored medical waste package bags with “gooseneck” seal.[13]

**CONCLUSION**

The key to a successful dental practice is to consider every patient as a suspected /confirmed 2019-nCoV case and follow all the standard protocols.

Maintaining high levels of hygiene standards in a dental office and following through the infection prevention protocols are major processes in accomplishing the desired objective. The dental staff must be at the forefront of the control of cross-infections to protect the well-being and oral health of patients. It is imperative to make informed clinical decisions, create awareness among the public to avert panic while promoting the oral health and wellness of patients during these challenging times.

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