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Letter to Editor

Navigating the COVID hide and seek: Strategies for a safe dentistry

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In 2020 the world was hit by the unexpected adversary, COVID-19, it took a while for everyone to understand the threat and adopt a new lifestyle to combat the threat. The dental community had a real challenge as we handled the oral cavity, the reservoir of the virus. Although guidelines were issued by regulatory bodies like the WHO for a safe and effective dental practice, many had to shut down clinics out of fear or until they were equipped to handle the prevention of cross-infection. We learned over time to execute a safe and effective dental practice in such unprecedented times and there was a sense of relief getting back to normalcy but the resurgence of COVID-19 has rekindled the panic. These incidents make us ponder: should we prioritize the practice of safe dentistry only during a crisis? Are we responsibly accountable for adhering to the fundamentals of cross-infection control during routine practice?

1. General Preventive Measures

The COVID-19 pandemic has revealed critical gaps in the collective responsibility of healthcare systems including dentistry in such situations. Global recommendations from experts for safe dental practice include teledentistry and telephone triage, questionnaires to collect information, measurement of body temperature, oral rinse with 1% hydrogen peroxide, personal protective equipment (PPE),

anti-retraction handpieces, use of rubber dam, respirators replacing masks, large volume cannulas for aspiration, surface disinfectants like Ethanol (62% and 71%), and sodium hypochlorite between (0.1% and 0.5%),¹ clean and disinfect the operatory, efficient ventilation, and a portable high-efficiency particulate air (HEPA) air-filtration unit.^{2,3} The adoption of digital dentistry can immensely prevent the spread of infection for instance use of an intraoral scanner for digital impression prevents cross-infection through impression trays, materials, and lab procedures. Identifying patients as apparently healthy, suspected of COVID-19, and positive for COVID-19, helps in segregating patient waiting areas to prevent cross-infection.⁴ Above all clinics should be equipped with and adhere to basic infection control procedures and COVID guidelines issued by regulatory bodies.

2. Prosthodontic Care in COVID-19

Each dental speciality entails specific treatments that expose clinicians to COVID-19, but prosthodontists are relatively at a higher risk through potential contact with aerosols during tooth preparation, exposure to saliva during impressions, dealing with denture debris, interactions with dental laboratories and technicians over impressions, dental casts and prostheses, and contaminated surfaces. An ample amount of aerosols produced during tooth preparation that carry the COVID-19 virus increases the chances of exposure during these procedures.⁵ Droplets and aerosols laid with

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blood and saliva remain in the air and surfaces for a longer time and are the prime routes of viral transmission during dental procedures.⁴ The dental prostheses can become a reservoir for viruses posing significant risk to the prosthodontists. A Dental prosthesis is in constant friction with mucosa increasing the likelihood of microbial proliferation.⁶ Asymptomatic patients also carry a risk of transmitting the virus through dental procedures and hence every patient in a dental clinic should be handled with utmost care.

As a preventive measure, prosthodontists can consider providing urgent treatment such as provisional restorations, debonding, denture adjustment and repairs, implant screw loosening and fractures and conditions that impede function due to pain and trauma. Adopting some of the preventive measures of four-handed dentistry, using rubber dam in aerosol generation procedures wherever possible, CAD-CAM restorations that reduce the need for adjustments and additional appointments.⁵ The use of oral rinses such as 0.2% povidone, chlorhexidine and hydrogen peroxide before prosthetic procedures minimises viruses which is more significant whenever rubber dam usage is not possible. However, the use of these oral rinses against viruses has limited significance, yet some in vitro studies have proved their benefit. The use of PPE, N95 masks, respirators, face shields, protective gowns, and head caps is an indispensable barrier for virus entry. N95 masks being highly resistant to aerosols can be an effective barrier against the inhalation of 0.3 μm particles. The use of disposable gowns is justified than fabric gowns and it is recommended to be changed for each patient.^{4,5}

Aerosols generated with the use of rotary instruments in prosthodontic procedures including finishing, and polishing of saliva-contaminated prostheses descend onto the floor, surfaces, and air, and remain there based on their size and gravity. Care has to be taken to decontaminate all these areas to ensure a virus-free environment. The use of disinfectants for surfaces, and the use of air filters (HEPA -high-efficiency particulate air filter) to prevent air-borne transmission is recommended. Surface decontamination and effective sterilisation are to be ensured for every patient, to accomplish the same the number of patient appointments can be kept minimum. The recommended effective biocidal agents for surfaces are propan-2-ol (70-100%), ethanol (78-95%), formaldehyde (0.7-1%), glutaraldehyde (0.5-2.5%), povidone-iodine (0.23-7.5%), sodium hypochlorite (0.21%), Hydrogen peroxide (0.5%).^{4,5}

COVID-19 is known to pose a high risk to the elderly population and people with underlying systemic conditions due to compromised immune functions. Prosthodontists deal with the geriatric population addressing their unique oral health needs. Managing elderly people in this crisis with additional precautions is challenging

for prosthodontists. Prosthodontic emergencies in this population during the crisis should include reassurance, motivation, following patients remotely and adopting teledentistry or mobile dentistry.⁷ The use of disposable or single-use instruments and double covering for sensors while shooting radiographs can be additional measures along with standard preventive measures. Repair of broken dentures needs to be considered in cases of pain and discomfort. Sodium hypochlorite can be used to disinfect dentures pre- and post-laboratory procedures to prevent cross-contamination. Dentures have to be transported in an aseptic environment. Dislodgement or recementation of fixed prosthesis has to be considered for later unless it is causing discomfort to the patient, in cases requiring immediate attention, the procedure has to be handled with all recommended precautions and temporaries should be considered. Emergencies arising from peri-implantitis have to be managed under adequate antibiotic coverage, and debridement under local anaesthesia with aseptic precautions. Emergencies arising from mechanical complications with implants can be deferred unless causing discomfort, or symptomatic relief can be given by retrieving fractured, loosened screws and deferring further procedures. Cases of hyperplastic tissue associated with the removable prosthesis or implant overdenture should be managed with topical astringents and local anaesthesia and surgeries should be deferred until the pandemic resides.⁷ Elderly patients with poor oral hygiene and systemic conditions are more prone to develop oral candidiasis. This situation in a COVID-19 patient impacts negatively by increasing morbidity. Healthcare service providers need to be cautious with these conditions alerting and providing required oral health measures.⁶ Teledentistry can be of immense help in comforting the patient and necessary instructions can be given over the phone. Collecting the required history and scheduling the patient appointment based on the necessity should be considered. Digital platforms for sharing photographs and videos for diagnosis and web-based communication should be encouraged.⁷

An added challenge to prosthodontists during COVID-19 is dealing with opportunistic infections such as mucormycosis and restoring maxillofacial defects triggered by the infection. Diabetes is known to be a triggering factor for COVID-19 and mucormycosis. The condition involves the maxillary sinus, teeth and orbits. The features include eye discomfort, headache, facial pain, fever, numbness, runny and blocked nose, blurred vision, cough, and haemoptysis.⁸ Surgical removal of the lesion followed by restoration of the defect with prostheses is the protocol. The recommended and safer method would be to adopt digital techniques in the process of restoration.⁹ General preventive measures would be the disinfection of impressions, dental casts and prostheses, adopting a strict laboratory protocol, and high vacuum saliva ejectors during tooth preparation.⁷

Considering the treatment a prosthodontist offers, he is more prone to virus exposure from aerosols, contaminated prostheses and laboratory communication over impressions, casts and prostheses. Therefore, preventive measures to address the cross-infection in a dental set-up need to be considered by the prosthodontist. Deferring non-emergency treatments and including emergency treatments in the protocol, telephonic triage, use of PPE, decontamination of surfaces, use of air filters, and adapting to digital dentistry are viable measures.⁵

According to the article in Nature Journal COVID-19 is here to stay and become endemic and less dangerous over time.¹⁰ As dental professionals, we need to maintain a clear infection control protocol and adhere to standard COVID guidelines for safe dental practice to prevent the spread and associated complications. In this evolving landscape, dental professionals play a vital role in safeguarding patients and the community by maintaining a commitment to safe dental practices.

3. Source of Funding

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4. Conflict of Interest

None.

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