
OPINION

An appeal for safe oral health care delivery during and after the covid-19 pandemic

Sara Diaz

Diaz S. An appeal for safe oral health care delivery during and after the covid-19 pandemic. *J Nurs Res Pract.* 2022; 6(10):172-174.

ABSTRACT

Just a few months ago, the severe acute respiratory syndrome coronavirus 2, SARS-CoV-2 outbreaks began. It spread quickly, leading to a number of fatalities and morbidities. Despite numerous new particular publications being published every

day, the virus's transmission mechanism is still not fully understood. The Angiotensin-converting enzyme 2 receptors are highlighted in this article as a potential route for viral transmission into the body through the oral cavity. It also offers recommendations for standard safety precautions to be taken when providing oral healthcare in dental offices.

Key Words: *Angiotensin II, Coronavirus, Professional practise, Pandemics*

OPINION

On March 11, 2020, the World Health Organization formally classified the current Sars-cov-2 epidemic to be a pandemic. The virus that caused covid-19 disease, *Bat-SL-Covxc45* and *bat-SL-Covxc2*, which are both typically found in wild, non-aquatic mammals of the order Chiroptera, exhibited a mutation at the whole-genome level. These viruses showed identity, with a peak in the S2 protein demonstrating approximately of sequence homology and. Since January 2020, an increasing number of publications have been published on covid-19. Over 50,000 papers have been published, with nearly 250 papers being published every day, according to PubMed. Around 2.2 is the expected basic reproduction number for covid-19. This indicates that each sick infects 2.2 persons on average. More research is still required to fully understand the mechanism of infection transmission from person to person. Understanding the precise role and setting of virus-host interactions is crucial for preventing further transmission, safeguarding health care workers, and outlining future safety standards. Due to the lack of specific medications or vaccines for covid-19 with sufficient data to support their efficacy and safety, the norms and operating procedures for Hcw who frequently interact with the general public such as dentists, doctors, nurses, and other healthcare professionals will be crucial for the community's safety.

Still essential for limiting the outbreak are early diagnosis and management.

The Italian National Institute of Health has stated that the HCW

have been identified as being the most impacted by the outbreak. Due to their frequent use of devices that produce aerosols that could be contaminated by the virus and their proximity to the mouth cavity, dentists and other oral health professionals—collectively known as Dental Health Care Workers may be even more at risk. Dental businesses are currently dealing with a flurry of backlogged patients, in part because all the non-urgent treatment procedures were postponed during the lockout. Thus, new personal protective equipment regulations must be implemented to successfully stop dental clinics from turning into a new hub for viral transmission in the neighborhood.

More often than other sites of transmission like the nose, eyes, or urogenital tract, contact during routine daily interactions is related to the functions of the mouth. Angiotensin converting enzyme 2 has been identified as the Sars-cov-2 cell entrance receptor. The S1 region of the spike protein, which must first be exposed through an initial enzymatic step mediated by a serine protease Tran's membrane serine protease 2 or through a co-expressed membrane Endo-peptidase of the *Ace2* receptor, is bound by the virus when it attaches to its punitive receptor. Furin *Ace2* or *Tmprss2* has been shown to be expressed in Type 2 alveolar cells.

METHODS

Do a literature search

In March 2020, we conducted a preliminary search for pertinent material in the National Library of Medicine. We then conducted a second search in June 2020. The search was done with the use of the

Editorial Office, *Journal of Nursing Research and Practice*, Windsor, Berkshire

Correspondence: Sara Diaz, Editorial Office, *Journal of Nursing Research and Practice*, Windsor, Berkshire, e-mail: robertwilliam40@aol.com

Received: Nov 15, 2022, Manuscript No. PULJNRP-22-5635; Editor assigned: Nov 18, 2022, PreQC No. PULJNRP-22-5635 (PQ); Reviewed: Nov 22, 2022,

QC No. PULJNRP-22-5635 (Q); Revised: Nov 26, 2022, Manuscript No. PULJNRP-22-5635 (R); Published: Nov 29, 2022, DOI: 10.37532/

Puljnrp .22.6(10).172-174.



This open-access article is distributed under the terms of the Creative Commons Attribution Non-Commercial License (CC BY-NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits reuse, distribution and reproduction of the article, provided that the original work is properly cited and the reuse is restricted to noncommercial purposes. For commercial reuse, contact reprints@pulsus.com

relevant Boolean logic and the terms covid-19, sars-cov-2, dentistry, transmission, saliva, and suggestions. 38 articles that are acceptable were discovered.

Basic clinical experience

The clinical coordinator oversaw the implementation of the recommendations in this assessment at SST Dental Clinic in Segrate, Italy during Italian phase 2 from May 15, 2020 to July 15, 2020. Serological tests were used with clinic ethics committee approval, and patients who needed testing were informed of the process. After receiving all of their questions answered, they signed the informed consent form to indicate their assent to participating in the test. All patients on the clinic waiting list who regularly visit the clinic for dental care are included in the data.

As required by the National Dental Association's criteria, each patient gave their written agreement and self-certified that they were healthy and fit to receive dental consultations. The clinical process manager gathered data. Clinical notes were reviewed, and if data were present, they were added retroactively for outcomes that were found to be lacking. On May 15, 2020, all Dhcw employed by the clinic underwent a serological rapid test for IgM /IgG detection. The immune chromatographic, strip based on colloidal gold was used to detect viral IgM or IgG antibodies. Pan previously studied its sensitivity and specificity.

RESULTS

According to reports, the oral cavity is one of the primary host locations for entry and transmission of Sars-cov-2, which can spread by contact, droplets, aerosols, or saliva. Recent investigations show how fecal-oral transmission could contaminate the oral environment for a prolonged length of time and how Sars-cov-2 has been isolated in saliva. It has been observed that the viral load in potential spreaders' faces has RNA persisted for over five weeks after the patients swab tested negative, despite, to use caution when interpreting their findings for the potential influence of confounders. The danger of transmission through saliva may persist for up to five weeks, according to the aforementioned findings, and this potential should be carefully taken into account when deciding on the right safety measures to take in the dental office. Chen verified that 75% of the seriously ill individuals had Sars-cov-2 in their salivary glands. It is simple to infer that, aside from direct inhalation, the oral cavity may be a significant source of infection in the general population. The size of the particles involved also plays a role in this. Particles less than 5-10 m in size can reach deep within the lungs, while droplets and aerosolized particles between 10 and 100 m tend to deposit in the upper airway.

Therefore, the mouth cavity may be one of the initial sites of viral entrance for all but the smallest particles. This may be supported by data showing that with mild symptoms experience impairment to their sense of taste. In contrast to their observation of its expression on the epithelium's surface, Hamming claims that ace2 expression was seen in the basal layer of the non-keratinizing squamous epithelial mucosa of the nose, oral cavity, and naso-pharynx. This may imply that these anatomical regions are not the main points of entry for Sars-Cov but rather locations where the virus deposits and where conditions are favorable for its reproduction. Aerosols produced by breathing normally or when exerting oneself are easily able to reach the alveolar pneumocystis in the lower respiratory tract, where

endothelial cells from small and large arteries and veins express Ace2. Human Ace2, which inhibits angiotensin II, can bind to both Sars-Cov and Sars-cov-2 coronaviruses with high affinity. It is supported by data suggesting it is the primary co-receptor implicated in the infection, although it has also been claimed that it may not be the only one. During the early phases of infection, lipid rafts high in cholesterol are essential for viral entrance into the cell. These membrane micro domains support the coronavirus endocytosis process that occurs in the initial stages of internalization as well as the interaction between the viral spike protein and the cellular ace2 receptor.

A study that demonstrates enhanced sensitivity to fusion with murine hepatitis virus in mouse fibroblasts that have been fed with cholesterol supports the significance of cholesterol and the other lipids that make up the lipid rafts. The number of links between viral S glycoproteins and Metil-cyclodextrins is cut in half when cholesterol is depleted, according to in vitro cell models that express the Ace2 membrane protein. Therefore, using cyclodextrins to target host lipids appears to be a very effective antiviral tactic. The therapeutic management of covid-19, however, should take into account the potential to interfere with Ace2 receptor glycosylation, which could help to prevent Sars-cov-2 binding to target cells. Additionally, ulcers and bleeding from periodontal pockets would mix with saliva and become a part of the particles produced by breathing, increasing the risk of a virus entering the lower respiratory tract.

Considerations or recommendations for dental hospitals and clinics

According to the available data, the traditional mode of transmission—contact and droplet spread—can be largely prevented by isolating symptomatic patients and wearing facial masks or other facial coverings, which act as a physical barrier to the mouth and nose, which are the main sites of infection for droplets and larger aerosol particles. Therefore, it is important to inform and motivate patients as well as all Dhcw to regularly don high-quality face masks. With an estimated half-life of one hour, Sars-cov-2 has been demonstrated to endure in a confined environment for at least three hours. Increased airflow and treatment room air exchange rates will be crucial steps to alter virus particles that continue to float in the air as micro-aerosols. It would be reasonable to alternate using patient treatment rooms with a 1-3 h quarantine time between uses if adequate high-volume air exchange mechanisms are not in place. Disposable coverings should be taken into consideration together with thorough surface disinfection in cases where complete air change and surface disinfection cannot be ensured after each patient. Additionally, there needs to be implementation of measures for a spatial separation between every non-operating person, including the waiting area. By limiting the number of patients scheduled at one time, careful appointment scheduling can also aid in ensuring spatial distance.

Patients who need immediate care but have covid-19 symptoms should be postponed or transported to an institution with a negative pressure room. Patients shouldn't be scheduled for dental operations or directed to such a facility unless the office has negative pressure treatment rooms. To make sure that no ethical standards or treatment protocols are violated, Dhcw s should consult their government's advice before treating and referring these patients. In addition, those with special needs, such as those who exhibit covid-19

symptoms, are elderly, or have underlying medical comorbidities, should seek medical advice. Pre-procedural mouthwash containing substances including hydrogen peroxide, povidone iodine, and a high molecular weight mixture of cetylpyridinium chloride and hyaluronic acid are among the additional measures. To lessen the formation of aerosols, the four-handed approach is advised, coupled with the usage of rubber dams in addition to saliva ejectors.

Micro-particulate respirators combined with wearable facial transparent screens and disposable water-resistant shoes, hair, and full body covers are recommended as protective clothing. Knowing how clinical workers and patients have been exposed to or are infected with Sars-cov-2 is particularly crucial. Serological assays for specific anti-Sars-cov-2 IgM or IgG would be crucial in this case, notwithstanding some worries about cross-reactivity with phylogenetically related coronaviruses that cause the common cold. Conversely, nasopharyngeal or salivary swabs followed by viral genome amplification—hopefully not just qualitatively but quantitatively—remain the most reliable method for determining the presence of Sars-cov-2.

All patients must be regarded as potentially positive regardless of the testing technique or the possibility of false negative results. It is anticipated that DHCW would continue to pay close attention while taking the regularly recommended infection control actions.

DISCUSSION

The last months' efforts to shut down oral health institutions or restrict services to urgent care have unquestionably helped to stem the virus's rapid spread. However, it is important to carefully consider any further extensions of lockdowns or post-lockdown tactics after taking into account the role that the Dhcw has played in lowering the prevalence of oral disorders, which have an impact on people's overall health and quality of life.

The Dhcw and patients who visit the dental office are undeniably at a higher risk of contracting Sars-cov-2 infection and spreading it to others. These workers are divided into operative and non-operative categories depending on their capacity to work in the oral cavity or/and provide crucial outside support. Thoughtful preparation and the application of strategies supported by scientific data, on the other hand, can be an efficient way that may help in adapting to this difficult situation.

Patients presenting for dental emergencies could be divided into four groups, as already suggested by Izzetti, based on shared experiences from various countries during this pandemic lockdown: subjects with known Sars-cov-2 infection, subjects who have recovered from COVID-19, subjects at potential risk of infection, and subjects with unknown risk of infection, which includes every other patient. To stop transmission in the dentist office, it's crucial that we correctly identify patients.

Groups 2 and 3 could be combined to form a group of people who may be infected with Sars-cov-2 but may not exhibit any symptoms for an extended length of time. Additionally, both clinical and non-clinical workers need to be included in the categorization. As healthcare professionals, it would be ideal if all Dhcw s underwent Sars-cov-2 and related antibody testing in the future; nevertheless, this should not change the current Covid-19 protective regimens.

CONCLUSIONS

The recommendations made in this paper are supported by the most recent scientific knowledge. They were created as the result of conversations involving numerous dental professionals and researchers from various continents. We do, however, recognize that the recommendations are subject to change given the rapid advancements in our understanding of Sars-cov-2 transmission. It's also crucial to keep in mind that different countries experience different transmission phases, thus the recommendations made here only apply to those nations that have already transitioned to the new normal. The Dhcw s must also pay close attention to any new regulations or recommendations the general public still has a high level of dread of dental offices and Dhcw s, but our experience shows that by adhering to the right standards and suggestions, Sars-cov-2 cross-infection at dental offices may be readily avoided, making them a secure environment for both Dhcw s and patients. To our knowledge, this is the first study to disclose a testing procedure using volunteers exposed to high levels of radiation. Following the suggested guidelines, no transmission between the patient and Dhcw s was noted during the two-month period. These data also highlight the value of Dhcw and dental patient epidemic multi-time point surveillance.