

LETTERS TO THE EDITOR

What can a dentist and dental sleep apnea researcher do under COVID-19 lockdown?

Yasue Tanaka, PhD; Fernanda R. Almeida, PhD

Department of Oral Health Sciences, Faculty of Dentistry, University of British Columbia, Vancouver, British Columbia, Canada

INTRODUCTION

In the midst of the SARS-CoV-2 crisis, people are expected to stay home as much as possible, and some cities and countries are implementing lockdown. Nonessential businesses and services were strictly limited in these cities. Although many dental treatments are thought to be an essential service, most dental clinics are closed or opened only for patients who need emergent care. Registrar and chief executive officer of the College of Dental Surgeon of British Columbia sent registrants an urgent message that included the recommendation to suspend all elective and nonessential dental services immediately on March 16, 2020,¹ and similar recommendations have been made all over the world. The extremely high contagious ability of this novel SARS-CoV-2 virus,² the difficulty of keeping physical distance in a dental clinic, concerns about releasing aerosol by dental devices, and shortage of personal protective equipment are convincing enough to suspend routine dental treatment.

It is also a hard time for researchers. The Research Ethics Office of the University of British Columbia announced on March 18, 2020 that all research activities and new recruitment of participants to research that involve in-person interactions should be suspended until further notice.

The use of continuous positive airway pressure (CPAP) therapy in patients with SARS-CoV-2 has shown to increase the spread the virus in the household, and some patients with milder forms of obstructive sleep apnea may have been advised by their physician to temporarily discontinue the use of CPAP. These patients now are looking at alternatives, but dentists are unable to provide nonessential treatment.

This situation is stressful for both patients who are willing to start oral appliance (OA) therapy and dentists or researchers who would provide treatment to patients. A lot of patients who were referred to dental clinic have experienced other therapies such as CPAP or surgery but could not tolerate it or did not get sufficient results. Before the patients reached to the sleep dentist, they might have already spent years having polysomnography examinations and trying to get used to CPAP.

WEB CONSULTATION

Telemedicine may improve this situation and help with patient concerns. Telemedicine in dental sleep medicine is less common than in sleep medicine,³ because a lot of steps such as impression taking and fitting OA need to be done in person. However, the first consultation with a dental sleep specialist is well suited to telemedicine. When a patient visits our clinic for the first time, dentists normally start with consultation, during which they take complaints, symptoms, medical history, and treatment history of each patient; evaluate their sleep studies; and explain the mechanism of OA, eligibility for treatment, possible side effects, treatment steps and period, necessity of follow-up, and so on. This consultation visit is important as the first step of OA therapy. Some patients may be referred back to the referring physician because OA therapy is not indicated for all patients. If the patient is interested in the research, the researcher may explain research protocol and give him/her a consent form, which will be replaced by an electronic file during lockdown at this visit. Visual materials could help patients understand OA therapy. The patients may get a short movie explaining mechanism of OA therapy after telephone or web consultation and have opportunities to ask questions. This can accelerate treatment protocols and help with patient concern and expectation of treatment. Moreover, dentists or researchers can show “we are here” and not leave patients with the uncertainty that they will be lost in the system and never get treatment. Patients could proceed to impressions of their teeth as soon as some lockdowns are lifted, because impression taking does not generate any aerosols, and careful infection control and personal protective equipment using level 3 masks and face shields by staff should likely suffice.

Telemedicine also can help existing patients. With regard to patients in the acclimation period, dentists could check their symptoms such as snoring and tiredness and instruct titration if necessary. Patients can send reports obtained from a smartphone application to be revised during video consultations. Simple movies showing how to titrate OAs can be sent to patients. If patients have pain or discomfort, a web camera in the patient’s device would help identify the source. Patients can be instructed to do exercises, to stop using the OA for a

while, or to decrease titration per the recommendations of the specialist dentist.

HYGIENE PROTOCOLS

Patient may be nervous about the hygiene of OAs during pandemic. OAs and containers should be washed with soap and water every day before and after OA use. Patient should also wash their hands before and after handling the OA. Household disinfectant or diluted household bleach solutions are not recommended to disinfect OAs. These products may alter the material or may have effect on the living body if it stays on the surface. If patients are infected with SARS-CoV-2, patients should be extra careful in washing their OA after use with soap and water, as well as the use of denture cleanser tablets (eg, Polident [GlaxoSmithKline Healthcare, Mississauga, Ontario, Canada], Efferdent [Prestige Healthcare Inc, Tarrytown, NY]), which should be used every day to decrease chances of other oral health infections because patients are likely immune compromised.

PREFABRICATED/OFF THE SHELF/NON-CUSTOM FIT OAS

Some clinicians may consider prefabricated OAs as temporary treatment for patients infected with SARS-CoV-2 instead of CPAP. This has been proposed because CPAP has the potential to generate aerosol and increase the risk of transmission of SARS-CoV-2.⁴ Although prefabricated OAs are available over the counter and look easy to use, the studies showing reasonable outcomes of these devices involve OAs that have been fitted and titrated by a specialized dentist.⁵⁻⁷ Even then, these prefabricated OAs have shown poor or inferior efficacy compared with custom-made OAs, and this should be avoided, especially when patients are infected and in need of ideal breathing during the day and night. Also, the poor fit to the dental arch may cause an increase in gingival ulcerations and, because of size and other side effects, lead to poor adherence. Finally, the prefabricated materials are more porous, which make them harder to clean and likely more prone to stay infected.

During and after the pandemic, patients with obstructive sleep apnea might be open to the idea of having an alternative treatment for times where they may have some respiratory infection and would prefer to use an OA rather than CPAP to decrease possible transmission of the infection to family members.

PROPOSE PROTOCOLS FOR OA THERAPY

During the lockdown phase, when patients require OA adjustments, which include trimming of the OA, protocols should follow the local Dental College guidelines for urgent care and verify if it will be included as an emergency.

While in the lockdown phase, dentists could use telemedicine to start triaging patients who are potential candidates for OA

treatment. Dentists can also use telemedicine for OA titration and provide recommendations on how to alleviate side effects.

A phase approach to dentists returning to practice during the pandemic has been well described by the American Dental Association,⁸ and the new phase regulations for dental care will be provided by local regulatory agencies. We provide some precautions and possibilities for dentists in the field of dental sleep medicine. These measurements are closer to dentures and orthodontic treatment, although with some peculiarities.

Soon after the lockdown phase, the sleep dentist should still use telemedicine to decrease the number of patients in their practice and waiting areas. Appointments should be made by phone, and walk-in patients should not be accepted. The American Academy of Dentistry and Canadian Academy of Orthodontics⁹ have clear documents stating in detail the steps described here.

Waiting areas should be avoided, chairs should be wiped between patients, and all magazines and other unnecessary things should be removed from waiting areas to avoid contamination. Caution should be taken, and all patients and staff should be treated as possible carriers of SARS-CoV-2. Patients and staff should be screened at the door before entrance and provided with questionnaires, record temperature, and provide a level 3 mask and hand sanitizer during waiting times for all patients. Once patients enter the clinic, patients should not touch door handles; staff should open all doors for the patients. Before the dental consult, patients should do an H₂O₂ rinse for 30 seconds, and existing OAs should be washed with a disposable toothbrush, soap, and water.

For consults that include impressions of a patient's dental arches, staff should use the same personal protective equipment as for the triage dental personal, which includes a level 3 mask, face shield, eye protection, gown, and gloves.¹⁰ In case of traditional impressions, impressions should be rinsed under running water and saliva and blood should be removed from the surface of the impression immediately after removal from the mouth. NaOCl spray (1%) could be used for disinfection of the impression materials.¹¹

In case of digital impressions, infection control is simpler, but the bite registration should be disinfected and stored in a sealed bag.

OA ADJUSTMENTS

If an OA needs to be adjusted with a hand piece, the OA should first be washed thoroughly with soap and a disposable toothbrush. The trimming of the OA should be done with the OA close to high volume suction. If possible, this procedure should be done in a dental operator room further away from the patient's treatment area. The area where OA adjustments is performed should be as clean as possible, and decluttering should be done so all surrounding surfaces can be wiped clean. If the adjustment procedure needs to be repeated after the patient tries the OA again, all steps should be redone. During the treatment, patients should not touch their mouth or OAs without washing their hands before and after this procedure. Once all adjustments have been done by the dentist, the patients should be asked to wash their hands again and don their level 3 or personal masks before leaving the practice.

CLEANING BETWEEN PATIENTS

Dental operatory room disinfection has been well described by the American Dental Association. Barriers such as plastic wraps or bags used to prevent contamination of surfaces should be removed and examined as to whether they are soiled. All surfaces should be cleaned and disinfected if they are soiled. The surface, supplies, or equipment located within 6 feet of patients should be cleaned, disinfected, or discarded. Dental chair barriers should be used to cover the operator chair, patient chair, and other equipment in the area. Traditional disinfectants made with 0.5% H₂O₂ (eg, OPTIM 33TB [SciCan Ltd, Toronto, Ontario, Canada]) has demonstrated effectiveness against viruses similar to SARS-CoV-2 (COVID-19) on hard nonporous surfaces and noninvasive medical devices. This product can therefore be used against SARS-CoV-2 when used in accordance with the directions for use against poliovirus on hard, nonporous surfaces and noninvasive medical devices.

CONCLUSIONS

The protocols outlined in this letter to the editor should be taken as guidance for dental sleep specialists and not as directives. Also, this document exemplifies some of the main procedures in dental sleep medicine, but entire detailed protocols for dentists, staff, and patients should be frequently checked with the local college. Every dentist should follow the provided regulations from their local authorities.

Dentists providing OA therapy during this difficult time have an important role, and clarification to patients that they should not stop CPAP treatment unless advised by their primary care physician is imperative. Every step in the care for patients with sleep apnea is critical, and it is imperative that dentists protect themselves, their staff, and patients to help interrupt the transmission of SARS-CoV-2 (COVID 19).

CITATION

Tanaka Y, Almeida FR. What can a dentist and dental sleep apnea researcher do under COVID-19 lockdown? *J Clin Sleep Med*. 2020;16(9):1641–1643.

REFERENCES

1. COVID-19 Resources for Registrants. CDSBC website. <https://www.cdsbc.org/about-cdsbc/news/covid-19/covid-19-for-registrants>. Accessed May 11, 2020.
2. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci*. 2020;12(1):9.
3. Singh J, Badr MS, Diebert W, et al. American Academy of Sleep Medicine (AASM) position paper for the use of telemedicine for the diagnosis and treatment of sleep disorders. *J Clin Sleep Med*. 2015;11(10):1187–1198.
4. AASM COVID-19. FAQs for sleep clinicians. <https://aasm.org/covid-19-resources/covid-19-faq>. Accessed May 11, 2020.
5. Tsuda H, Almeida FR, Masumi S, Lowe AA. Side effects of boil and bite type oral appliance therapy in sleep apnea patients. *Sleep Breath*. 2010;14(3):227–232.
6. Sutherland K, Dalci O. Fake it till you custom-make it: a non-inferior thermoplastic mandibular advancement device? *Thorax*. 2019;74(7):629–630.
7. Gagnadoux F, Nguyen XL, Le Vaillant M, et al. Comparison of titrable thermoplastic versus custom-made mandibular advancement device for the treatment of obstructive sleep apnoea. *Respir Med*. 2017;131:35–42.
8. American Dental Association Coronavirus (COVID-19) center for dentists. <http://www.ada.org/virus>. ADA.org/virus. Accessed May 11, 2020.
9. Guidance on Preparing Workplaces for COVID-19. <https://assets-prod-www1.aaoinfo.org/assets-prod-www1/2020/03/OSHA-Covid-19-Booklet.pdf>. Accessed July 22, 2020.
10. Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19): interim guidance. https://apps.who.int/iris/bitstream/handle/10665/331215/WHO-2019-nCov-IPCPPE_use-2020.1-eng.pdf. Accessed July 22, 2020.
11. Mushtaq MA, Khan MWU. An overview of dental impression disinfection techniques—a literature review. *J Pak Dent Assoc*. 2018;27(4):207–212.

SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication May 12, 2020

Submitted in final revised form May 20, 2020

Accepted for publication May 20, 2020

Address correspondence to: Fernanda R. Almeida, PhD, 2199 Wesbrook Mall, Vancouver, BC, Canada, V6T 1Z3; Email: falmeida@dentistry.ubc.ca

DISCLOSURE STATEMENT

All authors have seen and approved the manuscript. The authors report no conflict of interest.