



Dental Education in COVID-19 Pandemic

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Abstract

The emergence of the coronavirus pandemic introduced many disruptions in various areas of life; it had a significant impact on dental education. Medical schools have had to move away from patient-assisted clinical classes to remote or hybrid learning, and develop new safety protocols to return to face-to-face activities as soon as possible. This study aims to present applicable methods of protecting students, patients and teachers.

Clinical relevance: It is imperative that medical universities introduce new rules for conducting clinical classes to optimize the safety of both students and patients in times of a pandemic.

A brief objectives statement: This article should describe the problems faced by students and medical schools during the pandemic and propose possible solutions that should be implemented in order to maintain the continuity of education without exposing students to the risk of infection by (SARS-CoV-2).

Introduction

Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2), is a novel RNA coronavirus belong the same family as MERS-CoV and SARS-CoV which appeared in 2002 and 2012 respectively. (SARS-CoV-2) for the first time was identified in January 2020 in the city of Wuhan in China [1], where it caused epidemics of pneumonia and from where it rapidly spread across China. After causing an epidemic in China which resulted in the death of thousands of people, the virus has spread all over the world and the number of infected people is increasing day by day. On February 11th, 2020, the World Health Organization (WHO) proclaimed professional designation for the current CoV-associated disease to be COVID-19, and on March 11th, they declared the Coronavirus Disease 2019 (COVID-19) outbreak caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) a pandemic [2] due to the high contagion rate and widespread infectivity. Basic Reproduction number (R0) of SARS-CoV-2 has been evaluate between 2.2 and 3.28 [3,4], which means that each virus carrier infects 2 to 3 people on average. The new coronavirus has become a worldwide health threat, up to November 18th, 2020; COVID-19 has caused the death of 1333,742 people all over the world and infected more than 55326,907. The SARS-CoV-2 infection mainly presents flu-like symptoms such as fever, sore throat, cough, myalgia, and asthenia [5]. Early anosmia and dysgeusia may be present and is thought to be one of distinctive symptom [6]. Children and adolescents usually suffer asymptotically or exhibit mild symptoms, but severe disease and death in younger age groups may also occur [7]. Some patients are classified at high risk of developing interstitial pneumonia and acute respiratory distress syndrome leading to multi-organ failure and ultimately death from acute respiratory failure due to the presence of comorbidities and advanced age [8]. Typically, patients with the disease suffer from dyspnea of varying severity and the most common radiological symptoms are glass opacity and bilateral patchy shadows which can be observed on CT [9].

OPEN ACCESS

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Received Date: 14 Jan 2021

Accepted Date: 05 Feb 2021

Published Date: 09 Feb 2021

Citation:

Sajdłowski D, Świątkowski W, Rahnama
M. Dental Education in COVID-19
Pandemic. *World J Surg Surgical Res.*
2021; 4: 1283.

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Impact of COVID-19 on Dental Education and Protocols which should be Implemented

Training of future generations of dentists in the time of the coronavirus pandemic poses many challenges to medical schools. Their task is to ensure the highest possible level of dentistry education, while ensuring the maximum possible safety. This task is not easy to achieve. Medical and dental schools have to deal with many problems with premises, equipment and logistics by making appropriate and timely changes to their teaching and learning methods to ensure continuity of education, by implementing temporary protocols to protect employees, students, faculty and patients. Despite many limitations and a constant feeling of uncertainty as to the possibility of continuing their studies, and concerns about its quality, students must adapt to the new realities. The biggest challenge to consider was postponing direct contact with the patient which is a key

component of the dentistry curriculum and cannot be substituted by any form of e-learning. Despite this in early 2020 during the first wave of pandemic, most medical colleges introduced remote learning using available programs such as Zoom, WebEx, Jitsi, Microsoft Teams and Moodle to share educational contents and to allow the communication between students and lecturers. As time passed, medical world get deeper into epidemiology of SARS-CoV-2 and certain protocols could be applied to enable full-time or hybrid learning. However, you should be aware that dental students, lecturers, staff and patients in the clinical room belong to high-risk group due to exposure to the constant contact with aerosols that accompany many dental procedures which is a potential source of coronavirus infection [10]. Another factor that classifies dental students as a high-risk group for contact with SARS-CoV-2 is working in close proximity to the patient's mouth and potentially in the respiratory tract. For this reason, one of the most important tasks is the proper triage of patients. At the telephone registration stage, patients should be selected in such a way as to avoid Aerosol Generating Procedures (AGP). Each patient should complete an appropriate questionnaire on the basis of which the carrier of the SARS-CoV-2 virus can be excluded. After completing the questionnaire, patient's temperature should be checked using non-contact medical thermometers or the oxygen saturation should be measured using a pulse-oximeter. Patients with flu-like symptoms or a confirmed coronavirus infection should be referred to designated centers for the treatment of patients infected with coronavirus. On the other hand, patients qualified to participate in classes with students should wait for a call in designated waiting rooms, maintaining established distances, so as not to be crowded in clinical rooms. Patients should report to clinical rooms individually without accompanying persons, except for children and persons requiring care of third parties. The number of students participating in the classes must also be properly adjusted to the size of the room and comply with the restrictions introduced by the Department of Public Health. During clinical classes, both the patient and the students should wear disposable protective gowns. Students, lecturers and staff are additionally equipped with FFP3 masks, caps, visors and shoe covers.

Before surgery, the patient must rinse their mouth with a solution (1% hydrogen peroxide, 0.2% povidone iodine, or non-alcoholic options such as rinsing with 0.2% chlorhexidine) to reduce bacterial burden [11], as well as the use of rubber dam [12] or high power saliva ejectors [13] when possible and if appropriate, this is especially important at Aerosol Generating Procedures (AGP). After the patient has left the station, it should be decontaminated with broad spectrum virucidal, fungicidal and bactericidal agents. After completing the course, students take off their protective clothing in a special room and place them in appropriate containers for used personal protective equipment. Dental schools must also remember to equip the treatment rooms with devices for disinfecting and sterilizing rooms during and after classes, for example with the use of flow UVC lamps that can work in the background, and fumigation and ozonation devices that should be used between patients or at the end of the day.

Conclusion

Due to worldwide epidemic emergency, dental training, especially clinical part of education became very difficult for each participant of dental education. Dental schools have to supply students and teachers for expensive personal care equipment, teacher had to change or

modify educational methods very rapidly, and students were made to limit their clinical experience with patients. At early stages of epidemics, we have also observed limited patients' number in all dental departments of Medical University of Lublin. In our opinion one of the solutions would be to test all patients and participants of training toward coronavirus infection. As student's dental treatment is mostly conducted in outpatients' clinics, instant testing of all the patients seems to be difficult to achieve. The perfect situation we gain, when all the teachers, students, and their patients would be vaccinated against COVID-19.

All these fact have changed dental education and pushed it toward safer areas which are medical simulation. From the teacher's point of view, during last month's we observed that students appreciate clinical classes with patients very much, and they are afraid about next restrictions which could limit access to clinical classes again.

References

- Rodriguez-Morales AJ, Bonilla-Aldana DK, Balbin-Ramon GJ, Rabaan AA, Sah R, Paniz-Mondolfi A, et al. History is repeating itself: Probable zoonotic spillover as the cause of the 2019 novel Coronavirus Epidemic. *Infez Med.* 2020;28(1):3-5.
- Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Biomed.* 2020;91(1):157-160.
- Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *N Engl J Med.* 2020;382(13):1199-207.
- Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. *J Travel Med.* 2020;27(2):taaa021.
- Wu D, Wu T, Liu Q, Yang Z. The SARS-CoV-2 outbreak: What we know. *Int J Infect Dis.* 2020;94:44-8.
- Carignan A, Valiquette L, Grenier C, Musonera JB, Nkengurutse D, Marcil-Héguy A, et al. Anosmia and dysgeusia associated with SARS-CoV-2 infection: An age-matched case-control study. *CMAJ.* 2020;192(26):E702-7.
- Stawicki SP, Jeanmonod R, Miller AC, Paladino L, Gaieski DF, Yaffee AQ, et al. The 2019-2020 novel coronavirus (Severe Acute Respiratory Syndrome Coronavirus 2) pandemic: A Joint American College of Academic International Medicine-World Academic Council of Emergency Medicine Multidisciplinary COVID-19 Working Group Consensus Paper. *J Glob Infect Dis.* 2020;12(2):47-93.
- Bajgain KT, Badal S, Bajgain BB, Santana MJ. "Prevalence of comorbidities among individuals with COVID-19: A rapid review of current literature." *Am J Infect Control.* 2021;49(2):238-46.
- Yang W, Sirajuddin A, Zhang X, Liu G, Teng Z, Zhao S, et al. The role of imaging in 2019 novel coronavirus pneumonia (COVID-19). *Eur Radiol.* 2020;30(9):4874-82.
- Deery, C. The COVID-19 pandemic: Implications for dental education. *Evid Based Dent.* 2020;21:46-7.
- Australian Dental Association Managing COVID-19 Guidelines. 2020.
- Harrel SK, Molinari J. Aerosols and splatter in dentistry: A brief review of the literature and infection control implications. *J Am Dent Assoc.* 2004;135(4):429-37.
- Jamal M, Shah M, Almarzooqi SH, Aber H, Khawaja S, El Abed R, et al. Overview of transnational recommendations for COVID-19 transmission control in dental care settings. *Oral Dis.* 2020.