

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/341113599>

The novel coronavirus and challenges for general and paediatric dentists

Article in Occupational Medicine · May 2020

DOI: 10.1093/occmed/kqaa055

CITATIONS

3

READS

78

4 authors, including:



Vishwendra Singh

Government Medical College & Hospital

9 PUBLICATIONS 4 CITATIONS

SEE PROFILE



Ankur Luthra

Postgraduate Institute of Medical Education and Research

63 PUBLICATIONS 28 CITATIONS

SEE PROFILE

EDITORIAL

The novel coronavirus and challenges for general and paediatric dentists

The novel coronavirus pandemic is spreading at an alarming rate. As of 4 April 2020, it has affected 1 034 163 people globally and 2567 individuals in the Indian subcontinent [1]. The causative agent is a positive-stranded RNA virus which gains entry into the host cell by attaching itself to the angiotensin-converting enzyme 2 (ACE 2) receptors and has been named the 'Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2)'. The disease it causes is the 'Coronavirus Disease 2019 (COVID-19)' [2].

Three main transmission routes are known; droplet, contact and aerosol. However, affected patients also present with abdominal discomfort and diarrhoea and the gastrointestinal system has also been identified as a potential route of transmission [3].

It usually affects individuals between 25 and 89 years of age with a slight predilection for males; however, no generalizations can be made [3]. A lower incidence has been reported in children and this might be due to the fact that children are generally well cared for and thus at lower risk for exposure to infected people. Other possible reasons are immature ACE 2 receptors, presence of antibodies to different viruses especially in the winter months when they get multiple upper respiratory tract infections and a developing immune system which reacts differently to the virus [4]. A general observation is that older age and existence of underlying co-morbidities (e.g. respiratory disease, hypertension and cardiovascular disease) are associated with poorer outcomes [5].

Diagnosis is based on a combination of epidemiological factors (e.g. history of travel to or residence in affected region), clinical symptoms, Computed Tomography (CT) findings and laboratory tests according to WHO standards [6].

Currently, no definite treatment is available for COVID-19 and so it is recommended that preventive steps be taken to lower risk of transmission. Frequent hand washing lasting at least 20 s with soap and water, use of hand sanitizers with at least 60% alcohol, avoiding touching mucosal surfaces (mouth, nose, eyes) with unwashed hands, practicing proper cough etiquette, wearing a face mask (if symptomatic), limiting exposure to affected people and maintaining a distance of at least 2 m from others are the suggested preventive steps [1].

There is a high risk of cross infection between patients and dental practitioners. Dental procedures involve

face-to-face contact between the practitioner and patient, aerosolization of body fluids, exposure to saliva, blood and handling of sharp instruments. ACE 2 receptors to which the virus binds are ubiquitous throughout the respiratory tract and salivary gland duct epithelium in the human mouth, and transmission is possible from there [7]. Dental patients may cough or sneeze during treatment and their salivary (and possibly blood) secretions can become aerosolized during use of ultrasonic instruments or high-speed handpieces. Dental instruments may become contaminated or be exposed and these infected instruments can cause infections through puncture of or direct contact with mucous membranes and hands [7]. An article in the *New York Times* placed dentists at the highest risk for SARS-CoV-2 infection [8]. It is therefore imperative that guidelines and protocols are made for effectively and efficiently handling patients with COVID-19 in the dental clinic and minimizing risk of nosocomial transmissions.

The American Dental Association (ADA) [9] has categorized dental treatments into emergency and non-emergency procedures. Only dental emergencies like uncontrolled bleeding, cellulitis or a diffuse bacterial infection with intra-oral or extra-oral swelling that can compromise patient's airway and trauma involving facial bones, potentially compromising the patient's airway, and urgent dental care including treatment for dental pain, pericoronitis, surgical post-operative osteitis, dry socket dressing changes, abscesses, tooth fracture, avulsion/luxation, dental treatment required prior to critical medical procedures, final crown/bridge cementation should currently be undertaken. All other treatments should be postponed. The ADA encourages dentists to use their professional judgement in determining a patient's need for urgent or emergency care as guidelines may change as the pandemic progresses.

In India both the Dental Council of India (DCI) and Indian Dental Association (IDA) also currently advise against elective dental procedures [10,11]. They advise obtaining proper health and travel history and contact details of all patients. Patients with respiratory infections (current or in the last 48 h) and those with travel histories to COVID-19-affected regions should be reported to the health department and should be rescheduled. Physical barriers in reception areas and proper personal protective equipment (PPE) should be

used to limit close contact with infectious patients. Use of rubber dams, high-volume evacuation and proper sterilization protocols after each patient have also been highlighted. A 1% hydrogen peroxide (or a 0.2% povidone) solution should be used as a pre-procedural mouth rinse. Patients should be educated about hand and respiratory hygiene and cough etiquette, and proper disposal of contaminated items. Hand sanitizers (with 60–95% alcohol), tissues and no-touch receptacles for disposal should also be provided in public areas of the clinic. Waste generated through treating COVID-19 patients should be properly disposed of using a ‘gooseneck’ ligation [7]. Government agencies are producing regular updates on coronavirus and management of patients.

Paediatric dentistry is in a unique position in the coronavirus pandemic. Children may act as asymptomatic carriers of the virus. Various dental organizations state that only emergency dental procedures be performed [9–11] and paediatric dentistry is no different. The American Association of Paediatric Dentistry (AAPD) [12] has been posting regular updates about treatment. The AAPD advises paediatric dentists to postpone all elective procedures for at least 3 weeks but to continue emergency or urgent care. They also suggest that elective general anaesthesia cases be postponed so that operating room resources are not stressed.

The International Association of Paediatric Dentistry [13] has also made recommendations for parents to maintain optimal oral health of children and avoiding dental clinic visits:

- Brushing at least twice daily with fluoridated toothpaste.
- Taking only water between meals. Milk and juices should be taken at mealtimes only.
- Limiting snacking—not to eat more than five times during the day (breakfast, snack, lunch, snack and dinner).
- Sugar-containing foods should be consumed in moderation. Chewy sweets which stick in the mouth for extended periods should be avoided.
- Healthy eating habits should be adopted as they not only prevent cavities but improve weight and a healthier childhood.
- Parents should remain in touch with their paediatric dentist in case they have any queries about oral health or require assistance.

Though these suggestions may seem redundant, they are of prime importance when social distancing and home confinement are crucial.

The novel coronavirus presents unprecedented challenges to the healthcare industry with its rapid transmission and unknown characteristics. No specific treatment modalities are available, so social distancing and proper respiratory and hand hygiene are key to avoiding transmission. Dental professionals are at high risk as almost all dental procedures generate aerosols, and droplet and contact transmission may also occur.

Stringent protocols, precautions and triaging of patients should be adopted in dental care during the pandemic.

Vishwendra Singh

Oral Health Centre, Government Medical College and Hospital, Chandigarh, India

Gurvanit K. Lehl

Oral Health Centre, Government Medical College and Hospital, Chandigarh, India

Manjit Talwar

Oral Health Centre, Government Medical College and Hospital, Chandigarh, India

Ankur Luthra

Department of Anesthesia and Intensive Care, Post-graduate Institute of Medical Education and Research, Chandigarh, India
e-mail: zazzydude979@gmail.com

Competing interest

The authors report no conflict of interest.

References

1. COVID-19 Coronavirus Pandemic. <https://www.worldometers.info/coronavirus/> (4 April 2020, date last accessed).
2. Ramphul K, Mejiias SG. Coronavirus disease: a review of a new threat to public health. *Cureus* 2020;12:e7276.
3. Adhikari SP, Meng S, Wu YJ *et al.* Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infect Dis Poverty* 2020;9:29.
4. Dong Y, Mo X, Hu Y *et al.* Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics* 2020. doi:10.1542/peds.2020-0702.
5. Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *J Dent Res* 2020. doi:10.1177/0022034520914246.
6. World Health Organization. *Clinical Management of Severe Acute Respiratory Infection When Novel Coronavirus (2019-nCoV) Infection Is Suspected: Interim Guidance*. 2020. [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected) (24 March 2020, date last accessed).
7. 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;12:9.
8. The workers who face the greatest risk. *New York Times*. <https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk.html> (24 March 2020, date last accessed).
9. American Dental Association. *ADA Develops Guidance on Dental Emergency, Nonemergency Care*. <https://www.ada.org/>

- [en/publications/ada-news/2020-archive/march/ada-develops-guidance-on-dental-emergency-nonemergency-care](#) (24 March 2020, date last accessed).
10. Dental Council of India. *Precautionary and Preventive Measures to Prevent Spreading of Novel Coronavirus (COVID-19)*. http://dciindia.gov.in/Admin/NewsArchives/L.No._8855..PDF (24 March 2020, date last accessed).
 11. Indian Dental Association. *Indian Dental Association's Preventive Guidelines for Dental Professionals on the Coronavirus Threat*. https://www.ida.org.in/pdf/IDA_Recommendations_for_Dental_Professionals_on_the_Coronavirus_Threat.pdf (24 March 2020, date last accessed).
 12. American Academy of Pediatric Dentistry. *COVID-19/ Covonavirus Update*. <https://www.aapd.org/about/about-aapd/news-room/covid-19/> (25 March 2020, date last accessed).
 13. International Association of Paediatric Dentistry. *March e-News*. <http://www.iapdworld.org/news/news.php?Sn=432> (25 March 2020, date last accessed).