

Letter to Editor

Reducing the viral load while securing the airway

Many anesthesiologists have succumbed to the deadly COVID-19 virus. High mortality in Anesthesiologists is related to high viral load exposure during laryngoscopy and intubation. Despite the use of Personal Protective Equipment (PPE), anesthesiologists face a reasonable threat of virus exposure. With the possibility of the pandemic ebbing soon, elective surgery will restart. However, the threat of the virus will remain and thus we need to formulate methods to restrict aerosol exposure of anesthesiologists.

Many unconventional methods to reduce aerosol exposure, while securing the airway, have been recently described in social media. The methods described include the use of transparent plastic screens; intubation boxes; a plastic cover over the patient head-end, with the face mask and endotracheal tube kept under the sheet; use of video laryngoscope; stopping fresh gas flow during disconnect and laryngoscopy; avoiding general anesthesia as a technique.^[1] We need to continue these precautions even after the epidemic recedes.

COVID-19 is an RNA virus with a lipid envelope. Disinfectants like chlorhexidine and alcohol can compromise this lipid envelope of enveloped viruses.^[2] Damage to the lipid envelope compromises the integrity of the virus and neutralizes its infectivity. Detergents also damage the lipid envelope integrity. Most microorganisms expelled by COVID-positive patients reside in the upper airway. Ensuring oral hygiene helps reduce the microbial load. Toothpaste has detergent and so tooth brushing just before surgery will reduce the infectivity of the virus.

Chlorhexidine is the most widely used biocide in hand-washing and oral hygiene products.^[2] Preoperative chlorhexidine mouthwash reduces the incidence of ventilator-associated pneumonia, and its use recommended.^[3] Although chlorhexidine is not an active antiviral agent, it acts on lipid-enveloped viruses.^[4] Chlorhexidine, in a 7% alcohol base, is used as a mouthwash routinely. Combinations of bactericidal/odor suppression chemicals, in up to 26% alcohol, are also used as a mouthwash. Although use of 60 to 90% of alcohol is considered optimal for antimicrobial efficacy, a combination of alcohol with chlorhexidine should reduce the oropharyngeal viral load. Patients should undertake a mouthwash and gargle

with an oral hygiene product just before wheeling into the operating room.

Traditionally, oral hygiene is performed in the ward before shifting the patient for surgery. There is therefore a long time interval between it and tracheal intubation. If oral hygiene is performed just before surgery, the microbial load will be much lower. The reduction in viral load will benefit the patient by hindering the progress of the virus to the lower respiratory tract. It will also reduce the potential exposure risk of the intubating anesthesiologist. Guidelines from China do not recommend chlorhexidine rinse before surgery as it is not considered efficient against COVID.^[5] Even though there is currently no scientific evidence, and if one presumes a low efficacy of oral hygiene methods, the use of this easy, low-cost, and benign preoperative oral hygiene strategy is recommended.^[6]

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Mukul Chandra Kapoor

Max Smart Hospital, Saket, New Delhi, India

Address for correspondence: Dr. Mukul Chandra Kapoor,
Department of Anesthesiology, Max Smart Super-Specialty Hospital,
Mandir Marg, Press Enclave Road, Saket, New Delhi - 110 017, India.
E-mail: mukulanjali@gmail.com

References

1. Peng PWH, Ho PL, Hota SS. Outbreak of a new coronavirus: What anaesthetists should know. *Br J Anaesth* 2020;124:497-501.
2. McDonnell, Russell AD. Antiseptics and disinfectants: Activity, action, and resistance. *Clin Microbiol Rev* 1999;12:147-79.
3. Bardia A, Blitz D, Dai F, Hersey D, Jinadasa S, Tickoo M, *et al.* Preoperative chlorhexidine mouthwash to reduce pneumonia after cardiac surgery: A systematic review and meta-analysis. *J Thorac Cardiovasc Surg* 2019;158:1094-100.
4. Park JB, Park NH. Effect of chlorhexidine on the *in vitro* and *in vivo* herpes simplex virus infection. *Oral Surg* 1989;67:149-53.
5. 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.
6. Arteagoitia I, Rodriguez Andrés C, Ramos E. Does chlorhexidine reduce bacteremia following tooth extraction? A systematic review and meta-analysis. *PLoS One* 2018;13:e0195592.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: www.joacp.org
	DOI: 10.4103/joacp.JOACP_229_20

How to cite this article: Kapoor MC. Reducing the viral load while securing the airway. *J Anaesthesiol Clin Pharmacol* 2020;36:S147-8.

Submitted: 07-May-2020 **Accepted:** 10-May-2020 **Published:** 24-Jul-2020
© 2020 Journal of Anaesthesiology Clinical Pharmacology | Published by Wolters Kluwer - Medknow