



Letter to the Editor

Korean J Anesthesiol 2020;73(6):568-569
<https://doi.org/10.4097/kja.20318>
pISSN 2005-6419 • eISSN 2005-7563

Received: June 19, 2020

Accepted: July 27, 2020

Corresponding author:

Gaurav Sindwani, M.D.

Department of Anesthesia, Institute of Liver and Biliary Sciences, New Delhi 110070, India

Tel: +91-8728089898

Fax: +91-011-26123504

Email: drsindwani25@gmail.com

ORCID: <https://orcid.org/0000-0002-4646-5853>

Ketamine use in the COVID-19 era: be cautious!

Aditi Suri¹, Gaurav Sindwani²

¹Department of Oncoanesthesia, All India Institute of Medical Sciences, ²Department of Anesthesia, Institute of Liver and Biliary Sciences, New Delhi, India

Coronavirus disease 2019 (COVID-19) is a highly contagious disease, which is caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It spreads mainly through coughing and sneezing, which generates aerosols and droplets of varying sizes, and direct human-to-human physical contact. The patient's upper aerodigestive tract has a high viral load, and any procedure on the upper airway can increase the risk of infection transmission via droplets and aerosols. Frontline workers such as anesthesiologists are at high risk of contracting this disease. Prolonged preoxygenation, along with rapid sequence induction, has been recommended to decrease the coughing and aerosol generation [1]. The role of antisialagogues like glycopyrrolate has also been advocated by some experts during tracheal intubation to minimize oral secretions [2]. All these measures act as aerosol barriers, or they decrease the amount of generated aerosols by reducing the oral and bronchial secretions. On the other hand, commonly used anesthetic drugs such as ketamine, which causes bronchorrhea or hypersalivation, need to be used with caution during this COVID era.

Ketamine is frequently used alone or in combination for induction in pediatric and hemodynamically unstable patients and procedural sedation and analgesia. Recently, clinicians have recommended its use in COVID-19 patients, owing to its better hemodynamic stability [3]. One of its commonest side effects is increased oral and bronchial secretions, for which an anti-sialagogue has been advocated. In a meta-analysis by Shi et al. [4], it was observed that the addition of atropine to ketamine significantly reduces hypersalivation that results from ketamine premedication. However, hypersalivation and bronchorrhea may still be present in 12% of the patients receiving atropine. Moreover, administering an anticholinergic to each patient may not be possible, and it may be associated with side effects like arrhythmias.

Ketamine is an N-methyl D-aspartate receptor antagonist. It inhibits the catecholamine reuptake and increases the norepinephrine concentration at the postsynaptic receptors. This increased norepinephrine stimulates the sympathetic arm of the salivary glands, which results in hypersalivation [5]. We have found the following disadvantages of using ketamine in this COVID era: 1) Preserved gag and cough reflex during procedural sedation can increase the aerosol spread, 2) Increase in the amount of aerosol generated from saliva and bronchial secretions caused by leaks around the endotracheal tube cuff in a patient on positive pressure ventilation, 3) Increased need for repeated oral and bronchial suctioning increases the healthcare worker exposure, and repeated suctioning also carries an inherent risk of aerosolization of the virus particles, 4) Blurring of vision of videolaryngoscope.

The WHO and the United States Center for Disease Control and Prevention recommends the use of full personal protective equipment while providing care to COVID-19 patients; however, these methods have not been fool-proof. Often, the COVID-19 status of the patient is not known, or it may be falsely negative. There is an urgent need for ad-

© The Korean Society of Anesthesiologists, 2020

© This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ditional measures against this highly infectious disease. At our center, we have seen a significant increase in bronchial secretions and the need for airway suctioning after the use of ketamine in these patients. Therefore, we suggest a cautious use of ketamine for sedation and anesthesia in this COVID era. To conclude, the use of ketamine for sedation and anesthesia should be cautious in suspected or confirmed COVID-19 patients, and the benefits of its use must be weighed against its associated increased risk of COVID-19 infection spread.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

Author Contributions

Aditi Suri (Conceptualization; Data curation; Writing – original draft; Writing – review & editing)

Gaurav Sindwani (Conceptualization; Data curation; Resources; Supervision; Writing – original draft; Writing – review & editing)

ORCID

Aditi Suri, <https://orcid.org/0000-0002-6581-8968>

Gaurav Sindwani, <https://orcid.org/0000-0002-4646-5853>

References

1. Kim HJ, Ko JS, Kim TY. Recommendations for anesthesia in patients suspected of COVID-19 Coronavirus infection. *Korean J Anesthesiol* 2020; 73: 89-91.
2. Garg H. Can glycopyrrolate come to the airway rescue in Covid-19 patients? *J Clin Anesth* 2020; 64: 109843.
3. Cook TM, El-Boghdady K, McGuire B, McNarry AF, Patel A, Higgs A. Consensus guidelines for managing the airway in patients with COVID-19: Guidelines from the Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists. *Anaesthesia* 2020; 75: 785-99.
4. Shi J, Li A, Wei Z, Liu Y, Xing C, Shi H, et al. Ketamine versus ketamine pluses atropine for pediatric sedation: a meta-analysis. *Am J Emerg Med* 2018; 36: 1280-6.
5. Trimmel H, Helbok R, Staudinger T, Jaksch W, Messerer B, Schöchl H, et al. S(+)-ketamine : Current trends in emergency and intensive care medicine. *Wien Klin Wochenschr* 2018; 130: 356-66.