Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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The authors' response: Propofol and sedation in patients with coronavirus disease 2019

Dear Editor,

We would like to thank you for your valuable comments on our manuscript.

Authors pointed out the risk of using propofol in patients with coronavirus disease 2019 (COVID-19) because it increased the activity and protein level of angiotensin-converting enzyme 2 (ACE2), which is known to play an important role in SARS-CoV-2 cell entry and transmission. Moreover, authors proposed that the use of propofol in patients with COVID-19 should be avoided, when possible, in favor of alternative sedative agents, including midazolam and dexmedetomidine. This is an interesting idea that needs to be further examined in COVID-19 patients. In both of the cases that we reported, propofol was administered on the first day of admission as a first-line sedative agent.

In case 1, a single 190-mg induction dose of propofol was initially administered intravenously, followed by continuous intravenous infusion at a rate of 230 mg/h (approximately 3 mg/kg) for 5 days. The dosage was steadily reduced and eventually discontinued on day 7 to prepare for extubation. Serum C-reactive protein (CRP) level, which reflects inflammation, gradually decreased during the hospital course, and the patient was finally weaned off mechanical ventilation on day 9. After discontinuation of the propofol infusion, no rapid improvement was observed in the patient's condition.

In case 2, no propofol was used for induction of anesthesia. Propofol, at a rate of 180–330 mg/h (approximately 2–3.6 mg/kg), and midazolam were administered as sedative agents until day 5. After that, the patient was co-treated with propofol—at a dose of 20–120 mg (approximately 0.2–1.3 mg/kg)—and dexmedetomidine up to day 12. Serum CRP level progressively diminished, but he failed to wean from the ventilator. When tracheotomy was performed on day 13, propofol was dispensed at a maximum rate of 280 mg/h to deeply sedate the patient and thus ensure the safety of the operation. Propofol was discontinued on day 17, with no apparent side effects observed during the administration.

It remains unknown whether the use of propofol may aggravate the clinical conditions of COVID-19 patients. However, if it is strongly recommended that sedative drugs other than propofol should be used for the management of COVID-19 patients, the number of patients with neuroleptic malignant syndrome (NMS) might rise considerably [1]. Therefore, as suggested in our manuscript, it is absolutely necessary to consider NMS development when managing COVID-19 patients [2].

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Reference

[1] Levenson JL. Neuroleptic malignant syndrome. Am J Psychiatry. 1985;142:1137–45.
[2] Soh M, Hifumi T, Isokawa S, Shimizu M, Otani N, Ishimatsu S. Neuroleptic malignant syndrome in patients with COVID-19. Am J Emerg Med. 2020;S0735-6757(20). https://doi.org/10.1016/j.ajem.2020.05.042 30384-3, Online ahead of print.

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