



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

**In Reply to the Letter to the Editor Regarding “Case Volumes and Perioperative COVID-19 Incidence in Neurosurgical Patients During a Pandemic: Experiences at Two Tertiary Care Centers in Washington, DC”**



We appreciate Raj et al.<sup>1</sup> for taking interest in our article regarding the incidence of coronavirus disease 2019 (COVID-19) in neurosurgical patients during the pandemic<sup>2</sup> and providing their commentary entitled “Letter to the Editor Regarding: “Case Volumes and Perioperative Coronavirus Disease 2019 Incidence in Neurosurgical Patients During a Pandemic: Experiences at Two Tertiary Care Centers in Washington, DC.” We are grateful for the opportunity to respond to this thoughtful and insightful letter.

We humbly agree with all the points listed by the authors. Some of these points, including the classification of cases according to the urgency, the percentage of COVID-19-positive patients, and regional limitation were addressed and listed as weaknesses in our study. The classification of cases as elective, urgent, or emergent has remained somewhat subjective and could be influenced by surgeon interpretation. Certainly, this is an area that requires further standardization or a centralized decision-making process as we determine how to risk stratify our operative patients in pandemic settings.

The primary point of interest in our study was the evaluation of patients who had tested negative for COVID-19 but who then had developed COVID-19 in the postoperative hospitalization period. The 2.8% positive rate was reported as a rate of nosocomial infection during the postoperative period. This was attained by dividing the number of positive postoperative COVID-19 tests by the number of total postoperative COVID-19 tests (which had only included patients with a confirmed preoperative negative test result). Therefore, the percentage was computed from a population of patients who had all received postoperative COVID-19 tests. We agree that inherent imperfectness was present in the testing and also that asymptomatic patients might not have been captured; thus, the results should be interpreted cautiously.

Specifically, the issue that Raj et al.<sup>1</sup> stated regarding nosocomial transmission to asymptomatic patients is a true concern that, unfortunately, we were unable to answer in our study because not all patients had undergone COVID-19 testing in the postoperative period. Attaining a percentage closer to the true postoperative infection rate among our population would require an estimate of the number of asymptomatic patients who had had nosocomial transmission of COVID-19. Statistical modeling has been performed, which estimated the proportion of asymptomatic patients with COVID-19 be 17.9% (95% confidence interval, 15.5–20.2%).<sup>3</sup> Extrapolating this estimate to our patient population in which 5 patients were found to be positive postoperatively would estimate that 1 additional patient was missed by the lack of testing of asymptomatic postoperative patients. This would estimate the overall rate of nosocomial transmission at 6 of 306 patients who had tested negative preoperatively, or 2.0%. Of

course, inaccuracies exist in estimating the true nosocomial transmission rate using this method; hence, we reported a postoperative nosocomial infection rate of 2.8% among a population of patients who had received a postoperative COVID-19 test rather than the entire postoperative population.

Despite this limitation, we believe that our results have contributed objective data amidst all the conjectures and editorials that could help minimize the spread of misinformation as we learn more about this new disease.<sup>4</sup> At the least, the studies will have something to support pursuing elective cases or give guidance to departments and hospital administration. To the note of extending the work to postpandemic periods, we intend to do exactly that. Now that neurosurgical services have restarted their elective cases and the neurosurgical caseload patterns are changing further, we hope to report changes in the COVID-19 rate and testing patterns. We have increased the length of our study and are in the process of reviewing 3 months of clinical data after the peak COVID-19 pandemic period to 1) observe any change in the incidence and 2) to confirm the benefit of the modified medically necessary, time sensitive score for risk stratification at these institutions. Stay tuned.

Again, we appreciate the commentary from Raj et al.<sup>1</sup> and the opportunity to clarify some points and expand on the focus of our study. We encourage others to study their respective populations in relationship to transmission risk, especially as hospitals increase their elective caseloads. As stated by the authors of the commentary, this just “might represent the tip of the iceberg.”

**Ehsan Dowlati<sup>1</sup>, Tianzan Zhou<sup>1</sup>, Kwadwo Sarpong<sup>2</sup>, Gnel Pivazyan<sup>1</sup>, Jessica Briscoe<sup>3</sup>, Islam Fayed<sup>1</sup>, William Mualem<sup>2</sup>, Jordan Black<sup>2</sup>, Christopher G. Kalhorn<sup>1</sup>, Mani N. Nair<sup>1</sup>, Daniel R. Felbaum<sup>1,4</sup>**

From the <sup>1</sup>Department of Neurosurgery, MedStar Georgetown University Hospital, Washington, DC; <sup>2</sup>Georgetown University School of Medicine, Washington, DC; and Departments of <sup>3</sup>General Surgery and <sup>4</sup>Neurosurgery, MedStar Georgetown University Hospital, Washington, DC, USA

To whom correspondence should be addressed: Ehsan Dowlati, M.D., M.S.

[E-mail: edowlati@gmail.com]

<https://doi.org/10.1016/j.wneu.2020.08.159>

## REFERENCES

- Raj S, Chouksey P, Mishra R, Shrivastava A, Agrawal A. Letter to editor regarding: “case volumes and perioperative coronavirus disease 2019 incidence in neurosurgical patients during a pandemic: experiences at two tertiary care centers in Washington, DC”. *World Neurosurg.* 2020;143:632.
- Dowlati E, Zhou T, Sarpong K, et al. Case volumes and perioperative coronavirus disease 2019 incidence in neurosurgical patients during a pandemic: experiences at two tertiary care centers in Washington, DC [e-pub ahead of print]. *World Neurosurg.* <https://doi.org/10.1016/j.wneu.2020.08.015>, accessed August 18, 2020.
- Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020. *Euro Surveill.* 2020;25:2000180.
- Toth G, Spiotta AM, Hirsch JA, Fiorella D. Misinformation in the COVID-19 era. *J Neurointerv Surg.* 2020;12:829-830.