

RESPONSE TO LETTER TO THE EDITOR



The Authors Reply: Regarding Omitting Apnea Testing in a Patient on Vasopressors

Julius Gene S. Latorre^{1,3*}, Elena B. Schmidt¹ and David M. Greer²

© 2020 Springer Science+Business Media, LLC, part of Springer Nature and Neurocritical Care Society

We thank Dr. Bloria for his thoughtful and important comment regarding our manuscript and our decision not to perform the apnea test in our patient. We agree strongly that apnea test is an integral part in the clinical determination of brain death. However, apnea test in selected patients may not be safe due to potential development or worsening of hemodynamic instability, arrhythmia, or cardiac arrest, potentially compromising the potential for organ donation in eligible patients. It is true that the patient in our report fulfilled all the prerequisites for apnea testing and brain death evaluation which includes having a systolic blood pressure above or equal to 100 mmHg. This blood pressure was, however, achieved despite the patient's compromised hemodynamic status using high doses of multiple vasopressors. Although most patients being evaluated for brain death are able to tolerate apnea testing without significant complications, it is not uncommon for bedside clinicians to not attempt apnea testing due to hemodynamic instability. In a series of 147 patients cited by Dr Bloria, apnea test was not attempted in 13 due to severe hemodynamic instability and two were aborted before completion due to hypotension or hypoxia [1]. In a review of 608 patients, 124 hemodynamic complications were noted including 111 patients developing significant hypotension, nine developing arrhythmia or bradycardia, and four developing cardiac arrest [2]. In another series of 145 patients, cardiovascular complications were seen during apnea test in 26% of cases, most commonly hypotension, and the

most common predisposing factor includes pre-apnea test hypotension or use of inotropics [3].

Author details

¹ Department of Neurology and Neurosurgery, SUNY Upstate Medical University, Syracuse, NY, USA. ² Department of Neurology, BU School of Medicine, Boston, MA, USA. ³ Department of Neurology UH-7134, SUNY Upstate Medical University, 750 East Adams Street, Syracuse, NY 13210, USA.

Conflicts of Interest

The authors report no disclosures.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Published online: 20 April 2020

References

1. Daneshmand A, Rabinstein AA, Wijdicks EFM. The apnea test in brain death determination using oxygen diffusion method remains safe. *Neurology*. 2019;92(8):386–7.
2. Scott JB, et al. Apnea testing during brain death assessment: a review of clinical practice and published literature. *Respir Care*. 2013;58(3):532–8.
3. Goudreau JL, Wijdicks EF, Emery SF. Complications during apnea testing in the determination of brain death: predisposing factors. *Neurology*. 2000;55(7):1045–8.

*Correspondence: latorrej@upstate.edu

³ Department of Neurology UH-7134, SUNY Upstate Medical University, 750 East Adams Street, Syracuse, NY 13210, USA

Full list of author information is available at the end of the article

This comment refers to the article available at <https://doi.org/10.1007/s12028-020-00966-8> and <https://doi.org/10.1007/s12028-020-00934-2>.