Response to Brugniaux, Foster, and Beaudin

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TO THE EDITOR: We thank Brugniaux et al. (1) for the comments, and we agree. It is likely that if sleep hypercapnia is an important mediator of cognitive impairment in sleep apnea syndromes, multiple mechanisms are at work. Altered cerebrovascular reactivity is plausibly one of them, with a possibility of interaction with underlying cerebrovascular disease and reserve in the older individual. It is also probable that individual differences exist in hypercapnia tolerance. To truly understand hypercapnia effects, experimental (and human) models will need to explore gene expression, cerebrovascular reactivity, glymphatic flow (5), epigenetic modification (3), effects on ion channels and neurotransmitter plasticity under hypercapnia (4), and changes in brain network activity induced by hypercapnia (2), to name just a few possibilities.

DISCLOSURES
No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS
R.J.T. drafted manuscript; D.W., B.J.Y., and R.R.G. edited and revised manuscript.

REFERENCES