Authors' Reply to Drs Bourque and Breiner, Re: Cerebrospinal Fluid in Posterior Reversible Encephalopathy Syndrome

The Neurohospitalist
2019, Vol. 9(3) 126
© The Author(s) 2019
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1941874419847356
journals.sagepub.com/home/NHO

Colin A. Ellis, MD¹ and Ramani Balu, MD, PhD¹

We thank Drs Borquet and Breiner for their thoughtful remarks on our study and for highlighting their recent reassessment of reference ranges for cerebrospinal fluid (CSF) protein levels. We applaud this effort toward a more nuanced, evidence-based approach to CSF analysis in clinical practice.

We do not wish to suggest that CSF protein elevation should be a diagnostic criterion for posterior reversible encephalopathy syndrome (PRES), which might imply that lumbar puncture is part of the standard diagnostic evaluation of these patients. Our primary interests were to identify clinical evidence that sheds light on the pathophysiology of the disorder and to offer guidance to clinicians wondering what CSF findings are expected when patients with PRES do undergo lumbar punctures. Regarding the former, we found that CSF protein levels correlated with radiographic severity; this association is independent of where one defines the upper limit of normal and suggests that leakage of protein through the blood–brain barrier is part of the pathophysiology of the disorder. Our results broadly agree with two prior studies^{1,2} showing that the degree of CSF protein elevation correlates with the severity of vasogenic edema. We agree with Drs

Borquet and Breiner that using CSF/serum albumin gradient measurements provides a more accurate picture of the degree of blood–brain barrier disruption. Because CSF albumin measurements are not routinely recorded during routine lumbar punctures at our institution, we were unable to calculate these values in our cohort. We anticipate that future studies will investigate more specific biomarkers of blood–brain barrier dysfunction in patients with PRES.

ORCID iD

Colin A. Ellis, MD <https://orcid.org/0000-0003-2152-8106>

References

1. Datar S, Singh TD, Fugate JE, Mandrekar J, Rabinstein AA, Hocker S. Albuminocytologic dissociation in posterior reversible encephalopathy syndrome. *Mayo Clin Proc.* 2015;90(10):1366-1371.
2. Neeb L, Hoekstra J, Endres M, Siegerink B, Siebert E, Liman TG. Spectrum of cerebral spinal fluid findings in patients with posterior reversible encephalopathy syndrome. *J Neurol.* 2016;263(1):30-34.

¹ Department of Neurology, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA

Corresponding Author:

Ramani Balu, MD, PhD, University of Pennsylvania Perelman School of Medicine, 3 West Gates building, 3400 Spruce St, Philadelphia, PA 19104, USA.
Email: Ramani.Balu@pennmedicine.upenn.edu