

REPLY:

We appreciate your interest in our study and drawing the attention of neuroradiologists to our recent article, hence to the evolving field of neuroimmunology in the context of acute disseminated encephalomyelitis (ADEM), neuromyelitis optica spectrum disorder (NMOSD), and myelin oligodendrocyte glycoprotein (MOG) antibody-associated demyelinating diseases.

Our goal in the referenced article was to emphasize that children with NMOSD might present with clinical and MR imaging findings of ADEM and that neuroradiologists should be aware of this in the differential diagnosis. We think that as neuroradiologists it is our responsibility to suggest the possibility of NMOSD in our radiology reports so that the neurologists or pediatricians would consider antibody testing if they have not already done so. NMOSD is a relapsing autoimmune demyelinating disease, and the morbidity is high after every attack; therefore, antibody testing at the initial attack is tremendously important for timely diagnosis to avoid vision loss, paraplegia, and so forth. In the same context, neuroradiologists should be aware of the recent findings in the field of MOG antibody-associated demyelinating diseases, in which approximately 57% of children diagnosed with ADEM were tested positive for the MOG antibody in a recent large cohort study.¹ Therefore we believe that MOG antibody disease should also be in the differential diagnosis of ADEM in the neuroradiologists' reports when the imaging findings are suggestive.

We have known that ADEM is an umbrella term for immune-mediated acute demyelinating diseases of the CNS. As we have seen in NMOSD with historical progression from "NMO is a variant of MS" to "NMO is a distinct antibody-mediated disease targeting Aquaporin 4," we experience the same trend in MOG antibody-associated demyelinating disease in patients with seropositivity with unique and some overlapping imaging findings in patients diagnosed with ADEM. We believe that as more specific causative antibodies are discovered and as we observe different responses to treatments, there will be more emerging specific disease entities.

Thank you for your valuable contribution by highlighting a few recent important studies mainly focusing on impact of MOG antibody seropositivity in the course and treatment response of immune-mediated CNS diseases.²⁻⁴ We also recommend our recently published articles on detailed imaging analysis of MOG-related encephalitis/encephalomyelitis, myelitis, and optic neuritis.^{5,6} On the other hand, comparative studies particularly

focusing on brain MR imaging findings of immune-mediated CNS diseases in children are limited, and future studies with larger cohorts in which MOG-antibody and aquaporin 4-antibody status is specified are needed.

REFERENCES

1. Hennes EM, Baumann M, Schanda K, et al. **Prognostic relevance of MOG antibodies in children with an acquired demyelinating syndrome.** *Neurology* 2017;89:900–08 [CrossRef Medline](#)
2. Hacohen Y, Wong YY, Lechner C, et al. **Disease course and treatment responses in children with relapsing myelin oligodendrocyte glycoprotein antibody-associated disease.** *JAMA Neurol* 2018;75:478–87 [CrossRef Medline](#)
3. Dubey D, Pittock SJ, Krecke KN, et al. **Clinical, radiologic, and prognostic features of myelitis associated with myelin oligodendrocyte glycoprotein autoantibody.** *JAMA Neurol* 2019;76:301–09 [CrossRef Medline](#)
4. Lopez-Chiriboga AS, Majed M, Fryer J, et al. **Association of MOG-IgG serostatus with relapse after acute disseminated encephalomyelitis and proposed diagnostic criteria for MOG-IgG-associated disorders.** *JAMA Neurol* 2018;75:1355–63 [CrossRef Medline](#)
5. Salama S, Khan M, Levy M, et al. **Radiological characteristics of myelin oligodendrocyte glycoprotein antibody disease.** *Mult Scler Relat Disord* 2019;29:15–22 [CrossRef Medline](#)
6. Salama S, Khan M, Pardo S, et al. **MOG antibody-associated encephalomyelitis/encephalitis.** *Mult Scler* 2019;1352458519837705. [Epub ahead of print] [CrossRef Medline](#)

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