Correspondence

How MRI can contribute to the diagnosis of acute demyelinating encephalomyelitis in children

To the Editor

I totally agree with Daoud et al[1] that acute demyelinating encephalomyelitis (ADEM) in children has a protean clinical presentation with the risk of relapse and conversion to multiple sclerosis (MS). It is not always feasible to sharply make a distinction between MS, a critical differential diagnosis, and a growing problem in children, and ADEM on clinical backgrounds. Hence, MRI could help facilitate that distinction. However, 2 points regarding the practical utility of MRI to achieve that distinction ought to be considered by Daoud et al.[1]

First, there are 4 current sets of MRI criteria, namely, Barkhof criteria, KIDMUS criteria, Callen MS-ADEM criteria, and Callen diagnostic MS criteria. Each has its own sensitivity and specificity. The Callen MS-ADEM criteria were found to have the best combination of sensitivity (75%) and specificity (95%). The KIDMUS criteria were noticed to have higher specificity (100%), but much lower sensitivity (11%). However, the Barkhof criteria were shown to have a sensitivity of 61% and a specificity of 91%. The Callen diagnostic MS criteria were demonstrated to be the most sensitive (82%), but were only 52% specific for distinguishing a first attack of MS from ADEM. The new Callen criteria for MS-ADEM have been found to be the most useful for differentiating the first attack of MS from ADEM.[2] Daoud et al[1] did not address their adopted MRI criteria in the study. This might cast some suspicions on the precision of their data.

Second, the total lesion number in MRI cannot differentiate ADEM from MS, but periventricular lesions are more frequent in children with MS. Relying upon combined quantitative and qualitative analyses, a recent Canadian study has advocated that the following criteria could be helpful to distinguish MS from ADEM: Any 2 of the following: 1. Absence of a diffuse bilateral lesion pattern. 2. Presence of black holes. 3. Presence of 2 or more periventricular lesions. Using these criteria, MS patients at first attack could be distinguished from monophasic ADEM patients with 81% sensitivity, and 95% specificity.[3]

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Reply from the Author

No reply was received from the author.

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