

Letters

COMMENT & RESPONSE

In Reply We thank Budhram and Kim for their observations on our article.¹ We agree with their comment regarding the role of differential diagnosis between a relapse and an acute infection of the central nervous system. This remains a crucial point in treating patients with multiple sclerosis, especially while they are receiving treatment with disease-modifying drugs. They correctly underline how an appropriate and fast treatment could reduce the neurological complications of central nervous system infections. Therefore we believe that our case report is useful in valuing the role of a deep anamnesis and emphasizes the need to explore all possible differential diagnoses when a new neurological symptom is reported from patients.

As Budhram and Kim pointed out, romboencephalitis by *Listeria monocytogenes* (LM) has also been reported in immunocompetent patients. Indeed, our patient could not be classically defined as immunocompromised, but the length of the incubation period (around 3 weeks) that preceded neurological symptoms suggests the presence of other facilitating factors.² We speculated that dimethyl fumarate (DMF) could have influenced the dissemination of LM infection through mechanisms that were not directly caused by immunosuppression and particularly involving the gastrointestinal tract. An association with gut microbiota by DMF has been demonstrated.³ This could have led to a more favorable milieu for LM.^{4,5} The local reduction of an inflammatory response at the gastrointestinal level could have facilitated LM gain access from the gut into the vessels.⁶

Despite the specific association of DMF with immunosurveillance, with this article we aimed to make the scientific community aware of this event and, because LM infection could be prevented (with a listeria-free diet), we strongly believed

it could be helpful for clinicians who are treating patients with multiple sclerosis. Further investigations on DMF effects on the mucosal immune system and on gut microbiota may increase our understandings, thus improving the treatment and safety of treated patients.

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