

Food allergies and multiple sclerosis

Mauricio Franco Farez

The evidence on the association between allergies and multiple sclerosis (MS) disease activity is scarce. In this issue of JNNP, Fakih and colleagues report that patients with MS and food allergies have a higher disease activity compared with patients with no known allergies.

Both genetic and lifestyle/environmental factors are known to contribute to the development and the severity of MS.¹ Previously, a series of studies addressed the relationship between food allergies and MS risk with conflicting results.²

In their *JNNP* article, Fakih *et al*³ show that patients with MS and self-reported food allergies have more relapses and a higher likelihood of gadolinium-enhancing lesions compared with patients with no known allergies. Using a well-validated cohort from a single centre, 1349 patients with MS were asked about environmental, food and drug allergies. The investigators aimed to determine whether the presence of known allergies was associated with clinical and radiological activity. Overall, only patients with MS and food allergies had a higher relapse rate and twice the likelihood of Gd-enhancing lesions on MRI. No effect of environmental and drug allergies was noted. However, a minor effect of drug allergies on Expanded Disability Status Scale (EDSS) and a trend to significance in MRI variables raises the question whether multicentric/more powerful studies will also find a milder positive association for other allergies.

The findings of Fakih *et al* are in the opposite direction with a previous report

showing an inverse association between self-reported food allergies and disease activity in a paediatric population with MS.⁴ Several factors could have accounted for divergent findings. First, although paediatric MS and adult MS share many clinical and radiological parallels, they differ in several key clinical and immunological features.⁵ Second, there is evidence for other lifestyle/environmental factors such as obesity and Epstein-Barr virus infection that exert a differential effect on disease risk based on age.¹ Third, since both studies rely on questionnaires without additional clinical or laboratory confirmation, there could be qualitative and quantitative differences of what parents report for their children and what an adult may report.

Regardless of a negative or positive association, this study opens a myriad of questions on the relationship between allergies and MS: is there a common environmental or genetic factor underlying this association? For example, both conditions are associated with gut microbiota dysbiosis and this could explain a potential association.⁶⁻⁷ Are MS immunological mechanisms explaining the abnormal immune response to food allergens? Or is it that food allergies that are associated with alterations in the gut microbiota early in life predispose to MS or to a more aggressive MS disease course? Future studies should confirm these interesting findings and start providing answers to some of these questions.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Commissioned; internally peer reviewed.

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To cite Farez MF. *J Neurol Neurosurg Psychiatry* Epub ahead of print: [please include Day Month Year]. doi:10.1136/jnnp-2018-319585

Received 5 November 2018

Revised 10 December 2018

Accepted 13 December 2018



► <https://doi.org/10.1136/jnnp-2018-319301>

J Neurol Neurosurg Psychiatry 2019;0:1.
doi:10.1136/jnnp-2018-319585

REFERENCES

- Correale J, Farez MF, Gaitán MI. Environmental factors influencing multiple sclerosis in Latin America. *Mult Scler J Exp Transl Clin* 2017;3:205521731771504.
- Monteiro L, Souza-Machado A, Menezes C, *et al*. Association between allergies and multiple sclerosis: a systematic review and meta-analysis. *Acta Neurol Scand* 2011;123:1–7.
- Fakih R, Diaz-Cruz C, Chua AS, *et al*. Food allergies are associated with increased disease activity in multiple sclerosis. *J Neurol Neurosurg Psychiatry* 2018;jnnp-2018-319301.
- Bourne T, Waltz M, Casper TC, *et al*. Evaluating the association of allergies with multiple sclerosis susceptibility risk and disease activity in a pediatric population. *J Neurol Sci* 2017;375:371–5.
- Lee J, Chitnis T. Pediatric multiple sclerosis. *Semin Neurol* 2016;36:148–53.
- Rachid R, Chatila TA. The role of the gut microbiota in food allergy. *Curr Opin Pediatr* 2016;28:748–53.
- Cekanaviciute E, Yoo BB, Runia TF, *et al*. Gut bacteria from multiple sclerosis patients modulate human T cells and exacerbate symptoms in mouse models. *Proc Natl Acad Sci U S A* 2017;114:10713–8.

Correspondence to Dr Mauricio Franco Farez, Center for Research on Neuroimmunological Diseases (CIEN), FLENI, Buenos Aires C1428, Argentina; mfarez@fleni.org.ar