

Press Release



AAN 67th ANNUAL MEETING ABSTRACT

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Abstract Title: Multiple Sclerosis Patients Differ from Healthy Controls on Antioxidant and Anti-inflammatory Nutrients from Self-reported Diet History

Press Release Title: People with Multiple Sclerosis Have Lower Levels of Key Nutrients

Objective: To determine if diets and nutrition of MS patients and healthy controls (HCs) differ and if foods and nutrients are related to the proportion of CD4+ T-cells producing interleukin-17 (IL-17) or interferon-gamma (IFN γ)

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Background: The recent increasing incidence of multiple sclerosis (MS) has led to the hypothesis that dietary or nutritional changes related to inflammation and neurological health may contribute to risk of the disease.

Design/Methods: Participants in a vitamin D3 supplementation study were white females, aged 18-60 years, with 25-hydroxyvitamin D levels ≤ 30 ng/mL and body mass index (BMI) < 30 kg/m² at screening, and either had relapsing-remitting MS or were HCs. At baseline, participants completed the validated Block 2005 Food Frequency Questionnaire© about diet and nutrition intake over the prior year and then initiated oral vitamin D3 5,000 IU/day for 90 days. Immunostaining and flow-cytometry were used to assess the proportion of CD4+ T-cells producing IL-17 or IFN γ at baseline and end-of-study for a subset of participants.

Results: 27 MS patients and 30 HCs were enrolled and differed on BMI (25.3 kg/m² vs 23.6 kg/m², respectively, $p=0.03$). MS participants had lower mean intake of food folate (243.9 mcg vs 321.4 mcg, $p=0.01$), alpha-tocopherol (6.7 mg vs 8.1 mg, $p=0.03$), magnesium (254.3 mg vs 321.2 mg, $p=0.01$), lutein-zeaxanthin (3634.7 mcg vs 5384.6 mcg, $p=0.01$), and quercetin (5.8 mg vs 11.6 mg, $p<0.001$). Dietary sodium intake was similar but MS participants had lower mean % of kilocalories from fat (36.7% vs 40.3%, $p=0.04$). Daily servings of fats, oils, sweets and sodas was negatively correlated with baseline CD4+ IFN γ + cells (Pearson's $r=-0.54$, $p=0.003$).

Conclusions: MS patients and HCs differ on nutrients with antioxidant or anti-inflammatory properties important for neurological health. Whether these differences are a cause or result of MS is not clear.

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