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Abstracts

Articles appearing in the July 2019 issue

Pilot study of a ketogenic diet in relapsing-remitting MS

Objective To assess the safety and tolerability of a modified Atkins diet (KD^{MAD}), a type of ketogenic diet (KD), in subjects with relapsing multiple sclerosis (MS) while exploring potential benefits of KDs in MS.

Methods Twenty subjects with relapsing MS enrolled into a 6-month, single-arm, open-label study of the KD^{MAD}. Adherence to KD^{MAD} was objectively monitored by daily urine ketone testing. Fatigue and depression scores and fasting adipokines were obtained at baseline and on diet. Brain MRI was obtained at baseline and 6 months. Intention to treat was used for primary data analysis, and a per-protocol approach was used for secondary analysis.

Results No subject experienced worsening disease on diet. Nineteen subjects (95%) adhered to KD^{MAD} for 3 months and 15 (75%) adhered for 6 months. Anthropometric improvements were noted on KD^{MAD}, with reductions in body mass index and total fat mass ($p < 0.0001$). Fatigue ($p = 0.002$) and depression scores ($p = 0.003$) were improved. Serologic leptin was significantly lower at 3 months ($p < 0.0001$) on diet.

Conclusions KD^{MAD} is safe, feasible to study, and well tolerated in subjects with relapsing MS. KD^{MAD} improves fatigue and depression while also promoting weight loss and reducing serologic proinflammatory adipokines.

Classification of evidence The study is rated Class IV because of the absence of a non-KD control group.

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Different MRI patterns in MS worsening after stopping fingolimod

Objective To analyze MRI images in patients with MS who experienced worsening of neurologic status (WNS) after stopping fingolimod (FTY).

Methods In this retrospective study, demographic, clinical, and radiologic data of patients with MS who experienced WNS after stopping FTY were retrospectively collected. We introduced the "δExpanded Disability Status Scale (EDSS)-ratio" to identify patients who, after FTY withdrawal, showed an inflammatory flare-up exceeding the highest lifetime disease activity level. Patients with δEDSS-ratio >1 were enrolled in the study.

Results Eight patients were identified. The mean (SD) age of the 8 (7 female) patients was 35.3 (4.9) years. The mean FTY treatment duration was 3.1 (0.8) years. The mean FTY discontinuation–WNS interval was 4 (0.9) months. The 4 patients with δEDSS-ratio ≥ 2 developed severe monophasic WNS (EDSS score above 8.5), characterized by clinical features and MRI findings not typical of MS, which we classified as "tumefactive demyelination pattern" (TDL) and "Punctuated pattern" (PL). Conversely, patients whose δEDSS-ratio was between 1 and 2 had clinical features and brain MRI compatible with a more typical, even if aggressive, MS relapse. In patients with TDL and PL, the flare-up of inflammatory activity led to severe tissue damage resulting in T2 but also T1 lesion volume increase at 6-month follow-up.

Conclusions Peculiar MRI features (TDL and PL), different from a typical MS flare-up, might occur in some patients who experienced WNS after stopping FTY. Further studies, also involving immunologic biomarkers, are necessary to investigate TDL or PL pathophysiology.

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