AAN 74th ANNUAL MEETING ABSTRACT

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Abstract Title: Ketogenic Diet as a Strategy for Improved Wellness and Reduced Disability in Relapsing Multiple Sclerosis

Press Release Title: Ketogenic Diet May Reduce Disability, Improve Quality of Life in People with MS

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Objective: Assess the safety and tolerability of a ketogenic diet (KD) in patients with relapsing MS and secondarily explore the impact on patient-reported, laboratory and clinical outcome metrics.

Background: Dietary changes impact human physiology and immune function and have potential as therapeutic strategies in MS. Ketogenic diets mimic a fasting state and have been shown to impact immune regulation.

Design/Methods: 65 subjects with relapsing MS enrolled into a 6-month prospective KD intervention. Adherence to diet was monitored with the use of daily urine ketone testing. At baseline, patient-reported fatigue, depression and quality of life scores were obtained in addition to fasting adipokines and pertinent MS-related clinical outcome metrics. Baseline study metrics were repeated at 3 and/or 6 months on KD.

Results: 83% adhered to the KD for the full study period. Subjects exhibited reductions in fat mass from baseline to 6 months on-diet (41.3 ± 16.1 vs 32.0 ± 14.1 kg, $p<0.001$) and a significant decline in fatigue and depression scores. MS quality of life physical (67 ± 16 vs 79 ± 12, $p<0.001$) and mental (71 ± 17 vs 82 ± 11, $p<0.001$) composite scores improved on diet. Improvements were noted in EDSS scores (2.3 ± 0.9 vs 1.9 ± 1.1, $p<0.001$), 6-minute walk (1631 ± 302 vs 1733 ± 330 feet, $p<0.001$), and 9-hole peg test (21.5 ± 3.6 vs 20.3 ± 3.7 seconds, $p<0.001$). Fasting serum leptin was lower (25.5 ± 15.7 vs 14.0 ± 11.7 ng/mL, $p<0.001$) and adiponectin was higher at 6 months on KD (11.4 ± 7.8 vs 13.5 ± 8.4 mcg/mL, $p=0.002$).

Conclusions: KDs are safe and tolerable over a 6-month study period and yield improvements in body composition, fatigue, depression, quality of life, and neurologic disability in persons living with relapsing MS. KDs induce a reduction in pro-inflammatory adipokines and an elevation in anti-inflammatory adipokines.

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