High Dose Biotin As Treatment for Progressive Multiple Sclerosis

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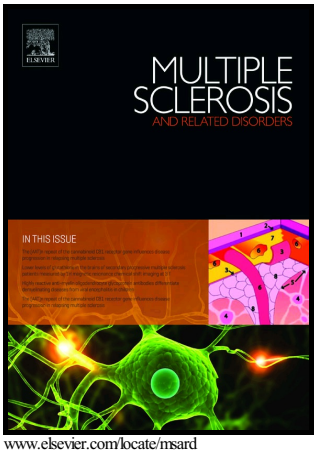

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High Dose Biotin As Treatment for Progressive Multiple Sclerosis

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Abstract:
Background: Published data suggested high dose biotin improved patients with progressive MS. We wished to determine benefits and side effects of administering daily high dose biotin to patients with progressive multiple sclerosis in a large MS specialty clinic.
Methods: Forty-three patients with progressive multiple scleroses were prescribed pharmaceutical grade biotin as a single daily dose of 300 milligrams/day. Brain MRIs were performed at baseline and after one year on biotin. Quantitative neurologic exams (EDSS) and blood work monitoring for biotin toxicity were performed at baseline and every three months thereafter.
Results: High dose biotin was safe, and well tolerated, with no evidence of toxicity on blood work and no new lesions on brain MRIs. None of the patients' EDSS scores improved. One-third of patients (38%-43%) worsened, most often with increased lower extremity weakness, worsened balance, and more falling, with two patients worsening sufficiently to increase their EDSS scores by 0.5. Several worsened patients improved after stopping biotin.
Conclusion: High dose biotin was safe and well tolerated, but of no demonstrable long-term benefit. More than one-third of patients worsened while on biotin, most likely due to their disease, but in some patients also possibly due to the inability of their injured central nervous systems to respond to the increased metabolic demands induced by biotin.

Key words: Multiple sclerosis; Progressive multiple sclerosis; Biotin.

1.1 Introduction: A major therapeutic deficit in the current armamentarium of medications for patients with multiple sclerosis (MS) is the lack of effective treatment for the progressive phase of the disease. A recently approved medication, ocrelizumab, was able to modestly delay disease progression in persons with primary progressive multiple sclerosis,1 but this drug is costly and may result in serious side effects. Results of a phase 3 trial of the sphingosine-1 phosphate