Biotin-deficiency and suboptimal biotin ranges seem to be frequent in MS patients

Dr. Walter Maier-Janson, Doctor of medicine, Neurological practice, Ravensburg, Germany

Neurologische Praxis
neurologie-rv.de

ABSTRACT

After the first pilot study was reported about the effects of high dose biotin in chronic multiple sclerosis (Frederic Sedel et al 2015, 4 159-69) the question arose, if biotin deficiency is a frequent condition in MS patients. Low biotin levels are uncommon; however, certain conditions pose a higher risk of biotin deficiency. These include chronic alcoholism, pregnancy, long-term medication with anticonvulsant drugs or antibiosis and malabsorption.

It could be argued, that biotin deficiency is a risk factor for MS sufferers due to the fact, that biotin is an important limiting coenzyme in fatty acid synthesis. In the present study we tested the hypothesis, that decreased biotin levels are more frequent in MS patients and may represent a possible risk factor for disease outcome.

OBJECTIVES

Blood serum can be tested easily to evaluate biotin deficiency (Elisa). Levels above 200 ng/l are optimal, 100-200 ng/l suboptimal, those lower than 100 ng/l require substitution. Biotin in a low dose is safe, inexpensive and is a problem free supplement to common immunomodulatory therapies.

METHODS

A small group of patients diagnosed with MS were asked whether they agreed to a blood serum test in order to check their biotin levels.
The procedure costs were paid for by the patients.

32 patients were investigated in the study (26 female/6 male), average age 45,12, Extended disability status scale (EDSS) average 2,61.
24 patients had been diagnosed with relapsing-remitting MS (RRMS), 7 with primary progressive or secondary progressive MS (PPMS/SPMS) and one person with a diagnosed clinical isolated syndrome (CIS).

DOWNLOAD STUDY WITH QR-CODE

Neurologische Praxis
neurologie-rv.de

RESULTS

In 9 cases we found optimal ranges with more >200 ng/l

(average 259,5 ng/l)

In 13 cases suboptimal ranges 100-200 ng/l (average 140,9 ng/l)

9 cases had treatment estimated ranges under 100 ng/l (average 85,5 ng/l)

CONCLUSIONS

These findings suggest a high probability of frequent biotin deficiency (29,1% in this small pilot study) or suboptimal biotin ranges in MS patients (40,6%).

As a limiting coenzyme for myelin synthesis, biotin deficiency and suboptimal levels might be a relevant risk factor for MS and possible key player for disease prevention and outcome. As biotin substitution is a simple and low cost procedure, further investigations could prove the therapeutic potential of biotin supplementation in diagnosed MS.