BIOTIN-DEFICIENCY AND LOWER BIOTIN RANGES IN MS PATIENTS - WHERE IS THE CONNECTION?

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BACKGROUND

After further studies 2016 confirmed effects of high dose biotin in chronic MS the question arose, if biotin deficiency is frequent in MS. Low biotin levels are rare. Biotin is synthesized by intestinal bacteria in amounts, comparable to nutritional intake. Anagnostouli (1999) first reported lower values for biotin in CSF and serum in MS. It could be argued, that biotin deficiency is a risk factor for MS because biotin is an limiting coenzyme in fatty acid synthesis. In the present study we tested if low biotin levels are more frequent in MS and therefore might prove to be a risk factor for onset of the disease and a interesting biomarker for microbiome diversity.

OBJECTIVES

Blood serum can be tested easily to evaluate biotin levels. Levels with 100-200 ng/l are suboptimal, lower than 100 ng/l require substitution.

Patients and Methods / Material and Methods

Biotin serum levels from 146 MS-patients, and a control group with 82 patients were checked (Elisa).

RESULTS

In 58.5% we found normal ranges, in 28.7% suboptimal ranges, 12.8% had ranges under 100 ng/l. The average biotin range in 146 MS patients was 260.9, median 222.5, in the control group 335, median 278 with a significant difference (p<0.001).

CONCLUSION

These findings suggest a high probability of lower biotin levels in MS patients. As a limiting coenzyme for myelin synthesis and mitochondrial function low biotin levels might be a risk factor for MS. As biotin substitution is a simple and low cost procedure, further investigations should prove the therapeutic potential of biotin supplementation in MS.

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