Reviewer's report

Title: Dietary patterns in clinical subtypes of multiple sclerosis: an exploratory study

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Reviewer: Stefan Schwarz

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In this exploratory study, Ramsaransing and colleagues determined dietary intake in three groups of patients with MS ("benign multiple sclerosis", primary progressive, secondary progressive). Measurements included analysis of a food intake questionnaire, body mass index, and serum parameters of various vitamins and trace elements. The results were compared with normative data from the general population. The authors conclude from their results that magnesium, calcium, and iron intake may be related to disease progression, since intake of these micronutritients was lower in the group of patients with secondary progressive MS.

Nutritional factors are frequently discussed as potential co-factors for pathogenesis and course of patients with MS. This issue is also of particular importance for many patients and their organizations. So far, scientific evidence is inconclusive at best. Therefore, further research in this field is very welcome and of clinical interest.

I have, however, several rather severe doubts that the results of this study are valid. The following critical points should be addressed before this manuscript should be considered for publication.

1) The selection of the patient groups is problematic. The authors

analyzed three groups of patients with "benign" MS (which is a controversial concept), secondary progressive, and primary progressive MS. Patients with relapsing-remitting MS without a "benign course" were not included. Moreover, a control group of healthy age- and sex-matched controls was not included. All three groups were small (21/32/27 patients), regarding the high variability of dietary habits. The results from the three groups were compared with data from a large population sample which is another source of potential bias.

2) The method how the food diary was structured and analyzed is not

well explained. This is of critical importance. The many uncertainties and methodological difficulties of food questionnaires and protocols in general are not addressed by the authors. It is well known from an extensive range of literature that dietary protocols are notoriously incorrect and prone to many ways of biases. The authors state that "computerized analyses were performed based on a validated Dutch nutrient database". Is this procedure validated and generally accepted?

3) Did the authors analyze use of dietary supplements? Many people

with MS use them.

4) Was co-morbidity considered as a factor?

5) The authors analyzed the body mass index which is a rather

problematic parameter of nutrition, in particular, in persons with chronic disease in whom sarcopenia and malnutrition may well be present despite of "normal" BMI values.

6) Although dietary intake of different variables was lower in a

subgroup of patients, serum levels were not different. Any explanation?

7) The group of patients with secondary progressive MS apparently

had a higher level of disability. It is no surprise that sick, disabled people have a higher rate of malnutrition. This phenomenon could well explain the differences the authors found. The cause and effect relationship is quite difficult to estimate regarding this point.

8) In the discussion section, the authors cite various studies

suggesting relations between various dietary factors and MS. Actually, most of these studies are either speculative, problematic, or have many methodological flaws. The authors should make it more clear that up to now, relations between MS and dietary factors are still hypothetical.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I have no competing interests'.