

Reviewer's report

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

Version: 1 **Date:** 1 March 2009

Reviewer: Karen M. Spach

Reviewer's report:

The authors used 14 day food diaries to compare nutritional intake within multiple sclerosis disease subtype, to the general population and the RDA. The is well conceived as an exploratory study as indicated but more data analysis and comparisons should be performed to make this study useful to clinicians, MS patients and MS researchers.

Major Compulsory Revisions

For magnesium, calcium and iron, the levels are lowest in SPMS but intermediate in benign disease and highest in PPMS. How are this be reconciled with the fact that benign is not the intermediary disease subtype? Also, are these differences biologically relevant since the serum levels do not differ? The conclusion that "Magnesium, calcium and iron intake may be related to disease progression" is not supported by these data.

Based on the data, it seems folic acid is actually different between MS and Dutch populations and may be one of the most important nutrients to discuss.

Based on the information in Table 2, it appears MS patients have lower levels of iron (10 vs 14) but not calcium (917 vs. 800) compared to the RDA. In the results the authors state, "Compared to the daily recommended allowance it was found that the intake of folic acid, magnesium, zinc, calcium and selenium in MS patients is below the daily recommendation." It is of great concern that this is reported differently from what appears in Table 2.

Since the authors have food records, it might be very informative to determine which foods are the major sources of magnesium, protein, MUFA, copper and folic acid in the MS patient's diet compared to the general population. This could be a way to tease out more information from the data that has already been collected and make the results more relevant and useful to physicians, nutritionists and other health care providers for MS patients. At this point, the conclusions are tenuous at best.

The conclusion that "dietary counseling seems necessary to find and treat nutritional deficiencies in MS patients" is a strong recommendation with little to support it in the data.

Minor Essential Revisions

The authors used 14 day food diaries to compare nutritional intake with multiple

sclerosis disease subtype. Do they hypothesize that their present diet would affect disease subtypes or instead is the diet reflective of what they were eating in the years prior to disease onset? At what point is diet affecting MS; early childhood, early adulthood, just before disease onset, or present day? Migration studies suggest environmental influences on disease onset occur prior to or at puberty.

The authors have chosen benign, secondary progressive and primary progressive as the subtypes. The differences and similarities between the subtypes must be explained in greater detail. What is the rationale for comparing disease subtypes? Do some drugs work better for a certain subtype? This rationale needs to be discussed, why was this exploratory study undertaken and how can it help MS research/treatment?

In Table 2, the RDA column is difficult to compare to the other columns for protein, SAFA, MUFA, PUFA, total fat, linoleic acid, and carbohydrate. Consider using 2500 or 3000 kcal or the Dutch population values as a baseline. These comparisons must be corrected in order to make this data useful. Total kcal would also be useful.

Discretionary Revisions

Please discuss why the serum samples did not correlate with dietary intake.

Verify the chemical names of the vitamins are correct in the M&M Serum levels.

Table 2 – carbon hydrate = carbohydrate?

Change magnesium is abbreviated Mg in discussion but this abbreviation is not used consistently.

Paper should be read closely for spelling errors.

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

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:

I declare that I have no competing interests.