

Reviewer's report

Title: EEG spectral coherence data distinguish chronic fatigue syndrome patients from healthy controls and depressed patients - A case control study

Version: 1 **Date:** 5 March 2011

Reviewer: Susan Herman

Reviewer's report:

Major Compulsory Revisions

1. It is not entirely clear how subjects were selected for this study. Would move information about subject source to beginning of this section - "All subjects were participants in one or more of the following..." and then clarify as below.

It appears that the historical information available was very different for the different subject groups. Was a standardized history form used for entry into this database? Please clarify: Were the CFS patients recruited specifically for this study? Were they classified as CFS by patient interview, review of medical records, other? Same questions for depression patients. What proportion of the depression patients was on psychoactive medications? Did any of the depression patients have fatigue as a prominent symptom?

2. Results: What spectral coherence factors were assessed? Was every possible electrode pair compared at every possible frequency? Figure 2 shows the 10 coherence factor loadings, but the brain regions and frequencies seem to overlap (e.g. some factors at 2-8Hz, others at 6Hz, some at 4-10Hz.) What correction was performed for the thousands of statistical comparisons done in selecting the "pertinent" factors.

3. There is no discussion of the limitations of this study. In particular, there are very small numbers of subjects in some of the subgroups, relatively small number of subjects with depression should be addressed. There is no discussion of the possible limitations of the statistical methods employed.

Minor Essential Revisions

1. Abstract: Methods: artefact should be changed to artifact.

Discretionary Revisions

1. The Background section contains some information that is not relevant to this manuscript. For example, the paragraphs on hypothalamic function and autonomic nervous system are not necessary to understand the goals or results of this study, and should be removed.

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.