Reviewer's report

Title: Origins of electromagnetic hypersensitivity to radiation emitted by WCDMA mobile phones

Version: 1 Date: 3 June 2012

Reviewer: søren kjærgaard

Reviewer's report:

General remarks
This study addresses a very relevant public health problem in a world of increasing use of radio frequency technology. I believe that after some major revisions it will reach a level adequate for publication.

Major Compulsory Revisions
Methods /subjects
The selection process should be described in more detail including numbers responding and how the process was performed. Data from the questionnaire screening should be presented divided for EHS and non-EHS subjects. It is actually not evident from the description whether the non-EHS subjects, themselves, think they are hypersensitive.

The authors omit several cases in the analysis due to outliers etc. It is however not possible to see for certain, whether this is based on the pre- or a post exposure data. If the subjects were pre-screened and then omitted it is acceptable. If these subjects actually participated in exposure sessions, there is a need for further analyses. Omission of data after the experiment has been performed is a serious issue and has to be very specifically addressed in results and discussions. One solution is to include the subjects in the analyses to see whether their inclusion actually changes the results. If not the conclusions may be maintained – if it does changes anything – there should be a serious discussion of the issue as it will certainly change the impact of findings.

Methods/experimental procedures
Randomization, actual exposure orders (sham versus EMF), time between exposures, time of the day of sessions and the balancing of these should be described in further details to evaluate the soundness of the protocol.

Paragraph 3:
Mean, sd, max and min temperature and humidity should be given divided for subject groups and for sham versus exposure. Significance testing is not enough to evaluate the overall power of the study. The given average and sd(?)throughout the whole study is of no interest.

Methods/data analysis
The authors should address the question about correction for multiple analyses
both in methods/data analysis and in the discussion. If any correction is performed the one significant will probably become insignificant.

Methods/data analysis

How two percentages of responders can be analysed using wilcoxon or mann-whitney should be explained as the question is a binary one calling for other analyses. This needs either much more explanation or calls for a statistical help. The revision of analyses should be reflected in figures and other sections. One could for each person calculate percentage of correct hits during sham and exposure which might be used for comparison in such analyses. However a statistician might find better approaches.

Discussion

The authors should discuss the non-findings also in the light of the validity of the screening tool to identify EHS subjects. Essentially the conclusion should be that this tool is not adequate for identification of

Minor Essential Revisions

Title:

Should address the major issue – whether subjects defined as electromagnetic hypersensitive (EHS) reacts or reacts stronger than non- EHS. Eg. Electromagnetic hypersensitive subject’s reaction to radio frequency-emf from WCDMA mobile phones. The study may have originally have intended to look for origins or mechanisms of EHS but as there were no significant physiological reactions this is not relevant. Essentially this is an exposure effect study in two subject groups.

Background paragraph 4.

Needs clarification and reduction – the first five lines are redundant and repetition of statements in Paragraph 2. The argument for the study could be stressed better if the authors point to the relevant deficits in prior studies.

Background paragraph 5.

Should be revised or omitted – informations either given before or in the methods section. Instead a specific purpose and a specific hypothesis/hypotheses should be formulated.

Methods/subjects

Paragraph 1 line 2 Use of the word accredited should be followed by a reference to the accrediting board behind it (eg. WHO)

Methods/experimental procedures

Paragraph 3 Third sentence should be removed as it is repeated (more clearly) at Methods/subjective symptoms

Methods/subjective symptoms etc.

First sentence is evident as it is sensations and should be removed.

Results/physiological variables
Paragraph 2 is a repetition of paragraph 1 with a lot of p-values and should be erased – the significant finding given could be included in paragraph 1.

Figure legend Fig 3: The use of o and x is confusing as o indicates exposure period not exposure to emf.

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests