Author's response to reviews

**Title:** Carbamazepine reduces memory induced activation of mesial temporal lobe structures: a pharmacological fMRI-study

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PDF covering letter
Re: Submission of the manuscript ‘Carbamazepine reduces memory induced activation of mesial temporal lobe structures: a pharmacological fMRI-study’

Dear Dr. Godlee,

we would like to resubmit our revised manuscript ‘Carbamazepine reduces memory induced activation of mesial temporal lobe structures: a pharmacological fMRI-study’ as Original Article to *BMC Neurology*.

We have answered to all questions raised by the reviewer and have added important information to our manuscript. The references were updated.

Yours sincerely

Dr. H. Jokeit          Dr. M. Okujava          Dr. F. Woermann
Response to the reviewers' comments

1. correlation between type of lesion and number of activated voxels:

We reanalyzed the data and compared the ipsi- and contralateral number of activated voxels between patients with and without hippocampal sclerosis. Ten of 21 patients had unilateral hippocampal sclerosis as revealed by T2 weighted MRIs. Patients with hippocampal sclerosis had fewer activated voxels ipsilateral to the side of seizure onset compared with patients without hippocampal sclerosis (Mann-Whitney U Test for independent samples, p = 0.013). Contralateral to the side of seizure onset there was no difference in the number of activated voxels (p = 0.1). The effect of lesion type on the number of activated voxels is discussed in our paper *Neurology 2000 in press*.

2. influence of polytherapie on number of activated voxels

We reanalyzed the data and compared the ipsi- and contralateral number of activated voxels between patients with only CBZ medication and patients who received GBP or LTG as add-on therapy. There was no difference between both groups neither ipsi- (Mann-Whitney U Test for independent samples, p = 0.67) nor contralaterally (p = 0.13).

3. correlation between spatial visual memory and CBZ levels

We reanalyzed available data and correlated the learning performance of the Rey Visual Design Learning Test with CBZ serum level. A non-parametric correlation analysis revealed \( r = -0.279 \) (p = 0.09, two tailed). This is a negative trend as probably expected by the reviewer but failed the threshold of significance. It has to be added that there was considerable interindividual variability in the test performance because of the broad range of intellectual abilities of the patients. We will deal with this topic in forthcoming studies.

The comments on point 1 and 2 were incorporated in the revised version of the manuscript. The types of lesions are now given in the *methods* section.

We thank the reviewer for the valuable comments.

Hennric Jokeit
Michael Okujava
Friedrich G. Woermann