

PW04-01

VOLUMETRIC CHANGES IN PTSD AND IN A SUBGROUP OF PTSD PATIENTS NOT RESPONDING TO EMDR PSYCHOTHERAPY

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Background: Several studies have reported limbic structures volume decrease in Post-Traumatic Stress Disorder (PTSD). However, in PTSD the effect of therapy on brain structures has seldom been investigated. The aim of the study was to evaluate the grey matter (GM) loss in occupational related PTSD and to assess the volumetric differences between patients responding (R) and non-responding (NR) to psychotherapy.

Methods: Pre-EMDR MRI data of 21 train drivers who did develop PTSD (S) and 22 who did not develop PTSD (NS) after person-under-the-train accidents were compared. Within S further comparisons were made between 10 R to Eye Movement Desensitisation Reprocessing (EMDR) therapy and 5 NR. Data were analysed by optimised voxel-based morphometry as implemented in Statistical Parametric Mapping.

Results: As compared to NS, S showed a significant GM volume reduction in precuneus, lingual gyrus, posterior cingulate and parahippocampal cortex. The R>NR comparison highlighted a significant GM reduction in NR in bilateral posterior cingulate, left middle frontal cortex and right parahippocampal, insular and temporal cortices.

Conclusions: Comparing two large groups of subjects significant GM volumetric reductions were found in PTSD in posterior limbic structures. NR showed, as compared to R, volume reduction in cortical structures including posterior cingulate and parahippocampal cortex. These latter two structures seem to be the hallmark for both PTSD diagnosis and therapy outcome prediction.