PRE- INTRA- AND POST-TREATMENT EEG IMAGING OF EMDR - PREVALENT ACTIVATION OF ASSOCIATIVE COGNITIVE AREAS FOLLOWING TREATMENT EFFICACY

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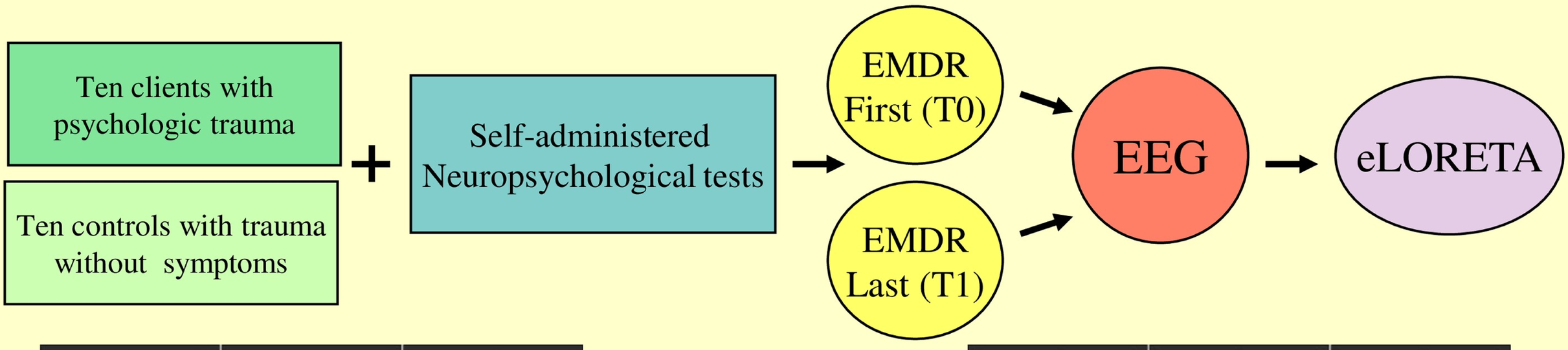
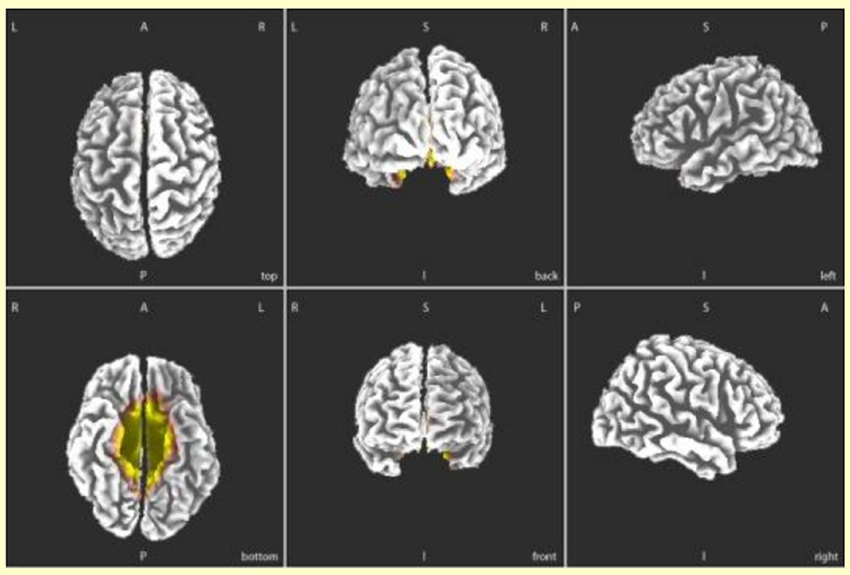
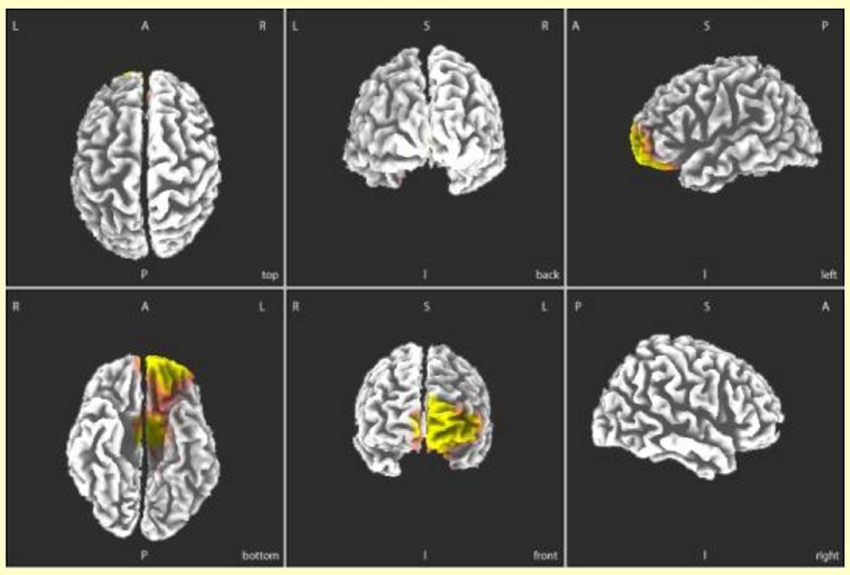
Recent investigations supported clinical efficacy of EMDR and it has been recommended as first-line treatment for trauma by more than 20 randomized studies. EEG was used for the first time to fully monitor neuronal activation during whole EMDR sessions including the autobiographical script. The present study describes differences in EEG activation during the first EMDR session (T0) and during the last one (T1) between 10 clients with psychological trauma. EEG activations in clients were also compared to those of a control group of asymptomatic subjects undergoing the same EMDR procedure.



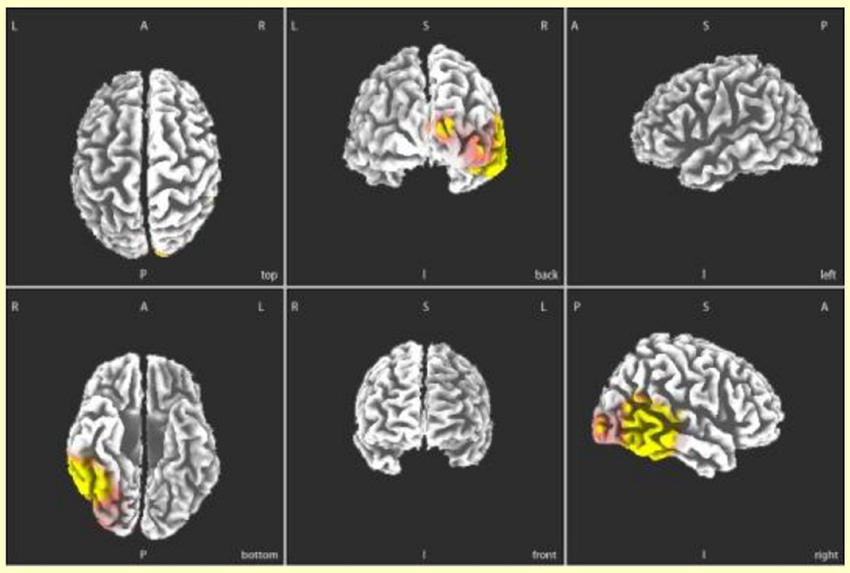


Cortical activation in Pats at T0 vs Ctrls at T0 during autobiographical script at first EMDR (Theta band)

Impact of Event Scale score at T0 = 41

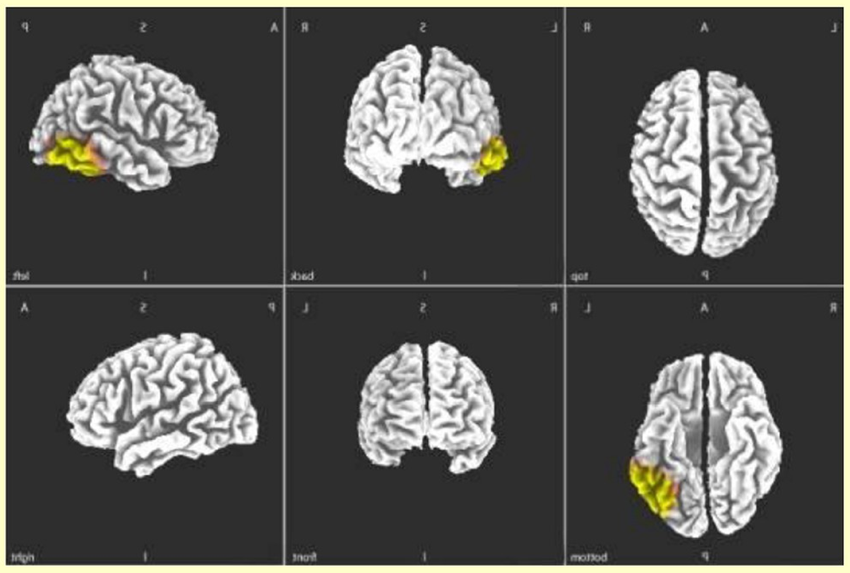


Cortical activation in Pats at T0 vs Ctrl at T0 during bilateral ocular stimulation at first EMDR (Gamma band)



Cortical activation in Pats at T1 vs Pats at T0 during autobiographical script at last EMDR (Theta band)

Impact of Event Scale score at T1 = 13 ($p<0.001$)



Cortical activation in Pats at T1 vs Pats at T0 during bilateral ocular stimulation at last EMDR (Gamma band)

Conclusions

The implemented methodology made possible for the first time to image and represent on the cortical surface the specific brain activations associated with the therapeutic actions contemplated by EMDR protocol. These findings suggest the cognitivization of traumatic events following successful EMDR therapy with the maximal neuronal firing shifting from prefrontal-limbic to parieto-occipital associative cortex. Our results also support the evidence of distinct neurobiological patterns of brain activations during bilateral ocular stimulation.

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