ABSTRACT NUMBER: 1872

The Effect of EEG-Amygdala-Related-Neurofeedback on REM Latency in Patients with Fibromyalgia

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SESSION INFORMATION

Date: Monday, November 6, 2017

Session Title: Fibromyalgia, Soft Tissue Disorders, Regional and Specific Clinical Pain Syndromes

Session Type: ACR Concurrent Abstract Session

Session Time: 4:30PM-6:00PM

Background/Purpose:

Fibromyalgia syndrome (FMS) is a condition characterized by widespread pain, sleep disturbance and chronic fatigue, and mood disorder .FMS was suggested to represent a prototype of central nervous system hypersensitivity (central sensitivity-CS). While the mechanisms underlying CS remain incompletely understood, a role for limbic and sleep related dysregulation has been argued. The aim of the current study was to examine the feasibility of fMRI-inspired *Electrical Finger Print (EFP)* of the amygdala as a probe for NeuroFeedback (amyg-EFP NF) training for FM patients. We expected to find improved sleep quality among trainees successful in downregulating amygdala activity.

Methods:

Thirty four FMS patients (3M:31F, average age 35.6 SD=11.82) underwent 10 sessions of amyEFP-NF, targeting down-regulation of the amygdala. Nine patients received rewarding sham NF and served as a control group. The 24 patients that received real feedback were divided into successful (succ+) (N=13) and unsuccessful (succ-) (N=12) feedback learners. Two interfaces were used to give the feedback: Auditory feedback and multi-modal virtual reality feedback. An objective outcome measure of sleep quality was taken using the WatchPAT device before and after NF training

Results: Repeated measures ANOVA for feedback learning provided significant results (F=3.23 p=0.05), indicating that succ+ subjects displayed improved ability to regulate their amyEFP signal following treatment, in comparison to succ- and sham participants. The three groups also differed in REM latency improvement: repeated measures ANOVA for REM latency was significant (F=3.557

p=0.04), indicating that only succ+ subjects displayed longer REM latency following amyEFP-NF. Furthermore, the change in REM latency was correlated with feedback learning only in the succ+ group (R=0.497 p=0.05)

Conclusion:

In order to improve the sleep quality of patients suffering from central sensitivity disorder we targeted the amygdala, a limbic hub that is known to be affected by sleep impairment. We show feedback-specific effect of improved REM latency, a well-known marker for mood disorder. This study provides novel evidence of neurofeedback specific effect on objective sleep measures in FMS patients.

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