CLINICAL AND PSYCHOLOGICAL CONFIRMATION OF STABILIZING EFFECT OF NEUROFEEDBACK IN MIGRAINE

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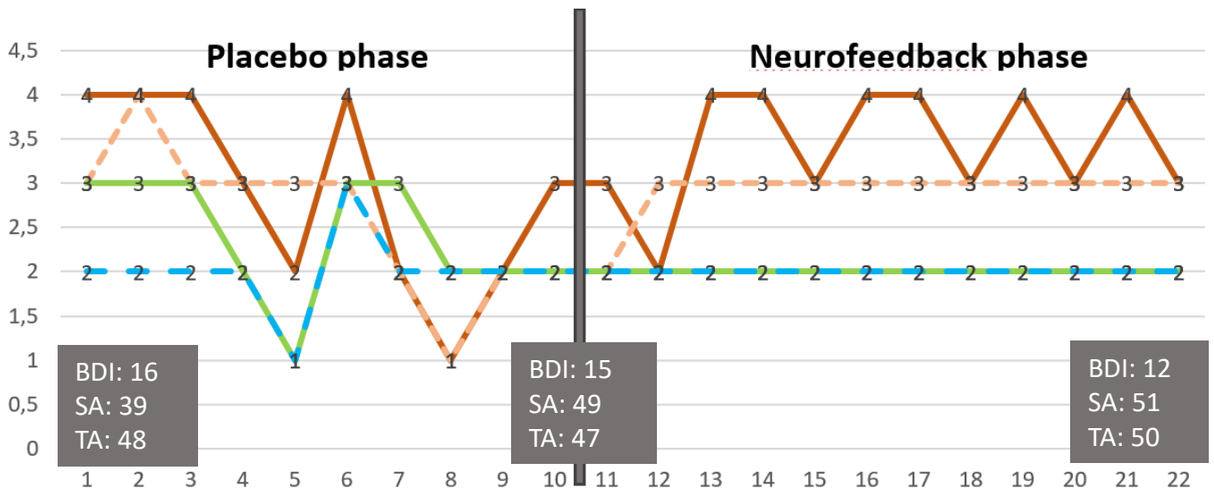
Background: Neurofeedback in migraine aims to improve neurophysiological state, which is linked to psychosomatic, emotional and cognitive regulation. Objective and complex evaluation of neurofeedback effects is feasible.

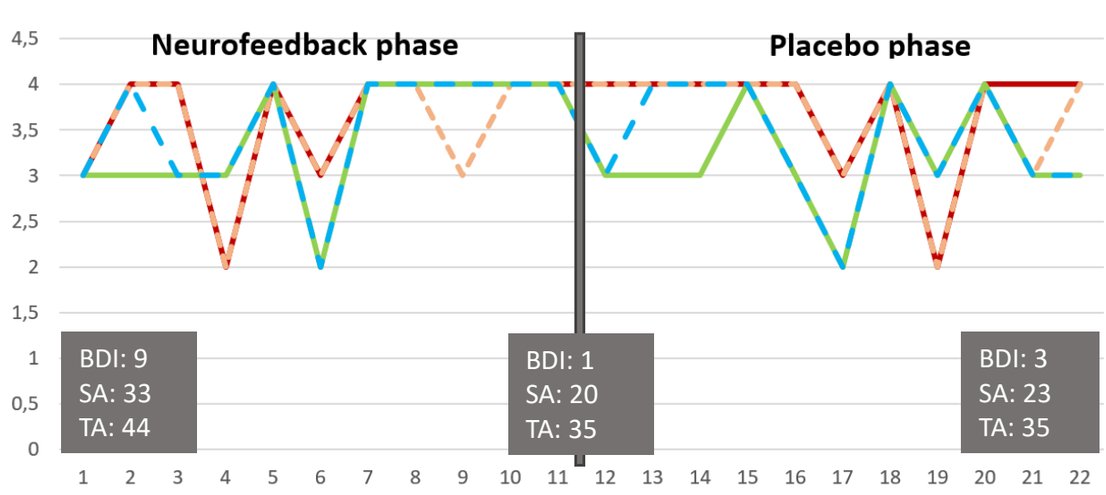
Methods: A single case design cross-over placebo-controlled study with blinded evaluator included 3 females with frequent migraine (N., E., T.), 1 of whom (T.) also had TTH. Study had 4 phases: evaluation (≥2 weeks), treatment 1 (5 weeks), treatment 2 (5 weeks), evaluation (≥2 weeks). Treatment 1 and 2 included 10 infra-low frequency neurofeedback and 10 sham-neurofeedback sessions at T3T4 site in randomized order. Detailed psychological assessment was performed a baseline, at phase switch and in the end. Every day participants filler a computerized diary about pain, aura, mood, stress, copings. Before each session they received questionary "well-being, activity, mood" (rating of the current state between antonym adjectives, in Russian).

Results: The main finding was reduction of migraine (but not TTH) frequency during real, but not sham neurofeedback phase: 11% vs. 31% days in N. (p=0.1), 15% vs. 30% days in E. (p=0.046), T. after the start of neurofeedback had only TTH. Another detected phenomena was reduction of day-to-day shifts in cognitive function domains of "well-being, activity, mood" (easy/difficult to think, attentive/unfocused). In N. and E these domains had co-dynamic with mood (good/bad mood, happy/sad), while in T. – with anxiety (tensed/relaxed, nervous/calm).

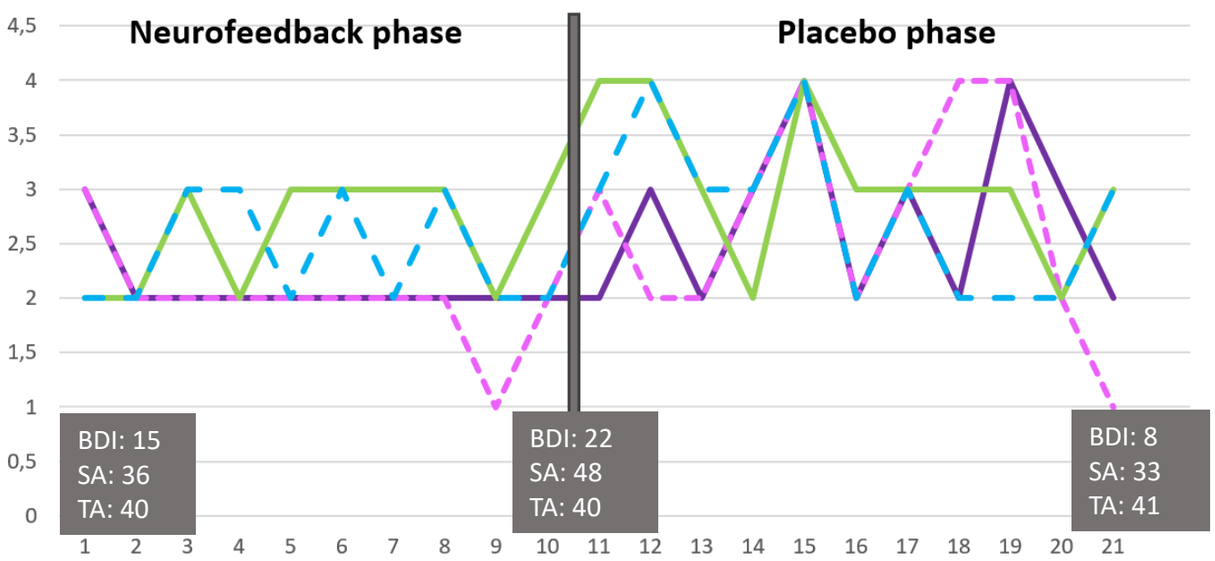
Dynamics of cognitive functioning and mood in patient N.



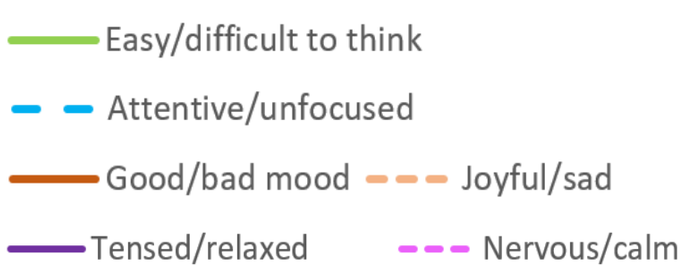
Dynamics of cognitive functioning and mood in patient E.



Dynamics of cognitive functioning and anxiety in patient T.



BDI – Beck depression inventory
SA – State Anxiety from the State-Trait Anxiety Inventory
TA – Trait Anxiety from the State-Trait Anxiety Inventory



Conclusion: Infra-low frequency neurofeedback from interhemispheric site resulted in decrease in migraine frequency and in reduction of shifts in psychological state. Thus, the treatment had multimodal stabilizing effect.