

The following chapter will present longitudinal research data justifying high efficacy of the proposed BMT method in treatment of one of the common psychosomatic complaints – insomnia and anxiety.

Brain Music Neuro-Feedback for Treatment of Insomnia and Anxiety

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Introduction: The close relationship between insomnia and anxiety is well established. Anxious patients have difficulties maintaining sleep, they spend less time in deep sleep and their sleep is more fragmented than that of normals. Traditional approaches have emphasized pharmacological treatment of insomnia. Benzodiazepines have become the most widely prescribed of all pharmaceuticals. Concern has been expressed however about their potential to cause dependency associated with self-dosing management. A non-pharmacological method – “brain music neuro-feedback” has been recently developed for treatment of some psychosomatic symptoms. This method allows establishing the most effective rhythmic and tonal parameters creating meditative conditions in patients by influencing the bioelectrical brain activity in the process of music therapy depending on the individual EEG. The music therapy session lasts 90 minute and during the first 45 minutes a music therapist composes two musical episodes while a patient's EEG is being recorded. The first musical episode brings the patients to the meditative condition. The second episode has a definite musical form and a memorable melody that helps to register it in patients' memory. During the last 45 minutes of the session patients are instructed to listen to their own individual music interfered with disturbing non-musical background with gradual increase in volume of foreign sounds. Patients' objective is to concentrate on the music and to be able to ignore these disturbing sounds. At the end of the session an EEG driven unique music is recorded on a personalized compact disc with listening instructions catered to each individual. Brain music neuro-feedback because of its more favorable side-effect profile may represent a possible alternative for therapeutic management of insomnia and anxiety. The purpose of the present study was to assess the effectiveness of brain music neuro-feedback for treatment of insomnia in anxious patients using objective actigraphic measures and psychometric testing.

Methods: Twenty volunteers who had complained of symptoms of insomnia of at least two years duration and who had scored above 50 on the Zung Self Rating Anxiety Scale were recruited for participation in the study. Patients were divided into two groups on a double-blind randomized basis. Experimental group I comprised ten insomniacs (7 females and 3 males, aged $41.6.0\pm 5.8$) who were provided with their authentic “brain music”. Placebo group II consisted of ten patients (7 females and 3 males, aged 43.8 ± 6.7) who received compact discs with brain music of a different subject. The duration of the treatment, which entailed listening to the music on a daily basis, was six weeks. Athens Insomnia Scale and actigraphy were used for assessment of subjective and objective quality of sleep. Forty eight-hour actigraphic recordings were performed before and after 4 weeks of brain music. Average sleep onset latency (SOL), total sleep time (TST), and amount of intervening wakefulness were determined. Affective status of the patients was controlled by using the CES-Depression Scale. Participants from both groups had slightly elevated scores (19.6 ± 3.8 and 20.1 ± 5.4 respectively; $p>.05$). Statistical analysis was performed using the independent samples’ t-test in the SPSS statistical software package with significance set at $p<.05$. Bonferroni correction was used for multiple variable analysis.

Results: Both authentic and placebo brain music reduced anxiety scores with more pronounced effects observed in the experimental group (58.1 ± 2.8 vs. 31 ± 4.6 and 60 ± 5.6 vs. 46.5 ± 6.1 respectively, $p<.01$). There was a dramatic improvement in sleep quality as judged by the Athens Insomnia Scale ($p<.001$). However there was no significant difference between the positive effects of authentic and placebo brain music on subjective quality of sleep. Interestingly some actigraphic parameters characterizing insomnia in anxious patients were found to be significantly improved only in the experimental group of patients who were using authentic brain music. Amount of intervening wakefulness was significantly less following brain music treatment ($p=.02$). The patients had a significant increase in TST ($p=.004$). SOL remained unchanged before and after brain music treatment ($p>.05$).

Conclusion: In this study a 6 week regimen of brain music therapy was shown to be of value in reducing symptoms of anxiety and insomnia as evidenced by psychometric testing. Objective actigraphic measures of insomnia have been improved in the group of anxious insomniacs treated with endogenously generated brain music. Brain music is a useful alternative to pharmaceutical therapy for treating these conditions.