Haapsalu Neurological Rehabilitation Centre

Implementation of vibroacoustic method in treatment of spasticity in patients with spinal cord and brain injuries: a pilot study

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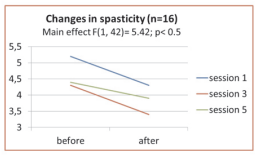
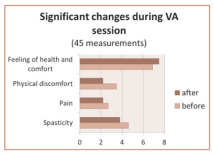
Objectives

This pilot study aims to explore the opportunities of implementing vibroacoustic (VA) therapy in the rehabilitation programme of patients with spinal cord and brain injuries and the effect of short-term intervention on spasticity. Current pilot study is a part of the wider research project at the Centre of Excellence in Health Promotion and Rehabilitation (CE) in Tallinn University haapsalu College which mission is to promote the research based rehabilitative methods of the working-age population. The research is carried out at the Haapsalu Neurological Rehabilitation Centre.

Results

ANOVA repeated measures analysis revealed statistically significant decrease in spasticity $F(1, 42) = 5.48$, $p < .05$; pain $F(1, 42) = 9.42$, $p < .01$; physical discomfort $F(1, 42) = 19.87$, $p < .001$; and increase in overall feeling of health and comfort $F() = 6.49$, $p < .05$; calmness $F(1, 35) = 12.70$, $p < .01$; alertness $F(1, 35) = 4.36$, $p < .05$). Changes in STAI-S and STAI-T were not significant. In the interviews patients emphasised the suitability of VA method after a psysiotherapy session to relax muscles and reduce the effort-related muscular pain.

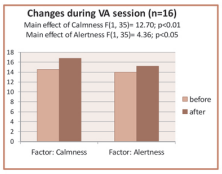




Methods

VA therapy is a therapeutic and relaxation method based on audio-tactile effect of lowequency sound vibrations and music (Skille, 1989; Skille & Wigram, 1995; Groke & Wigram, 2007). During a therapy session the patient was lying on a VA mattress with inbuilt transducers enabling to stimulate the whole body with low frequency sound (40Hz). The relaxing music or sounds of nature or the combination of both was added through the headphones to masque the sounds of the procedure room and provide musical support to the objectives of the therapy. The duration of the VA stimulation was 23 minutes and the number of sessions 4-5 over five days. The number of patients: 16 aged 22-69. The diagnostic criteria of involving patients in the study: lower limb spasticity at least 1.5 years and poststroke spasticity at least 6 months since the beginning of the condition.

The data analysis relies on the subjectively assessed indicators of the condition measured before and after the VA sessions: 1) 10-point scales for spasticity, pain, physical discomfort and overall feeling of health and comfort, 2) six 7-point bipolar semantic differential scales for measuring the state of health and comfort (factors: calmness and alertness), 3) anxiety scales STAI-S and STAI-T, and 4) interviews with patients at the end of treatment.



Conclusion

Although the pilot study was carried out with a relatively small number of patients, the initial results indicate that VA method can be a suitable component in the rehabilitation of patients with spinal cord and brain injuries with a significant effect on spasticity and subjective parameters of health.

Key words: evidence-based practice, adults, cerebrospinal injury, vibroacoustic therapy, spasticity.

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