

THE USE OF BTS NIRVANA IN THE SENSORY STIMULATION OF A MINIMAL RESPONDER'S SUBJECT: A CASE REPORT.

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Objective

Aim of this study is to evaluate the effectiveness of the BTS NIRVANA in the sensory stimulation of a minimal responder's subject after an intensive rehabilitative cycle with a combined therapeutic approach, i.e. standard sensory stimulation training, physiotherapy in addition to Semi-immersive Virtual Training (S-IVT) with Bts-Nirvana System .

Material and Methods

A 50 years old man, affected by subarachnoid hemorrhage with subdural hematoma in the right parietal-front-temporal region. Leading to serious cognitive and motor outcomes. In fact, he is in a vegetative state, with spontaneous opening of the eyes, but he does not follow the examiner with his gaze, spastic tetraparesis with a dystonic attitude of the hand. He underwent two different rehabilitation trainings, during the first phase, he was subjected to conventional sensory stimulation (rhythmic sounds) along with physiotherapy; in the second phase sensory stimulation was performed with BTS Nirvana, a novel system aiding the rehabilitation process of patients affected by neuro-motor diseases by multisensory stimulation. BTS NIRVANA is a movement-based system providing patients with VR scenarios to interact with. The tool, connected to a projector or a big screen, reproduces an interactive series of exercises and thanks to an infrared video camera analyzing the patient's movements, it creates interactivity. We used the virtual scenario and an augmented sensorial (audio-video) and motor feedback (sensory motor-interaction).

Results

Only at the end of the use of the BTS Nirvana, in addition to standard sensory stimulation approach, we observed significant improvement in the motor and cognitive domains (Wakefulness, Control of Trunk and head, selective attention and spatial cognition). At the end of the use BTS Nirvana, he reassessed using CRS-r, which longitudinally evaluates the patient's state of consciousness, has shown an improvement in visual function scale, auditory function scale and arousal scale. During the first phase of treatment with conventional sensory stimulation, CRS-R score is 7 and at the end of the second phase with BTS Nirvana CRS-R score is 11.

Discussion and Conclusion

Virtual Reality technologies offer impressive opportunities both for the rehabilitation and assessment of different cognitive deficits, including Minimal Responder's subjects. The combined rehabilitative treatment of standard sensory stimulation training in addition to S-IVT with Bts-Nirvana System may be a promising approach in improving the level of consciousness, wakefulness, attention process, spatial cognition in a minimal responder's subject.



Bibliografia

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