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Effects of immersive virtual reality rehabilitation program on motor and non-motor symptoms in patients with functional motor disorders

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Introduction: Functional motor disorders (FMDs) are highly disabling neurological conditions manifesting with motor and non-motor symptoms. Rehabilitation is essential in the multi-disciplinary management of these patients to regain functional abilities, manage nonmotor symptoms and improve their quality of life. A future direction for research is to develop interventions for treating the pathophysiological features of FMDs [1-2]. Virtual Reality is a powerful tool that may simultaneously address attention, belief/expectations, and a sense of agency. To date, no RCT studies have been performed on patients with FMDs.

Objective: We evaluate the effects of an ad-hoc 5-day immersive VR rehabilitation treatment (VRT) versus a 5-day of conventional treatment (CT) on motor, nonmotor symptoms and the self-perception of change.

Methods: 13 patients with a definite diagnosis of FMDs were randomly assigned to the VRT (n=6) or CT (n=7). The ad-hoc VR rehabilitation consisted of graded exergames using 3D VR system (5 days/week, 1 week); CT included exercises without VR [3]. Patients were evaluated pre-treatment and after 5-day treatment by the Simplified Functional Movement Disorders Rating Scale (S-FMDRS) (primary outcome), the Multidimensional Fatigue Inventory (MFI), a Brief Pain Inventory (BPI), and a 7-point Clinical Global Impression for self-perception of change.

Results: The VR group reported more remarkable changes than the CT in the S-FMDRS (VR group: -10.5 [-16.5;-4.5]; CT group: 0 [-5;0]), in MFI total score (VR group: -22 [-38;-8]; CT group: -12 [-12;-2]), in MFI reduced motivation subscales (VR group: -7 [-8;1]; CT group: 0 [-0.5;0]), in MFI mental fatigue subscales (VR group: -5 [-7;-1]; CT group: 0 [-1.5;1.5]) and BPI interference (VR group: -19.5 [-22.75;-6.5]; CT group: 0 [-1;3]). No side effects were reported during the VR treatment.

Conclusions: VR treatment is a feasible alternative to in-clinic SIBT for reducing motor and non-motor symptom severity in patients with FMDs.

References:

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