E-Poster

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Evaluating the Effectiveness of Cognitive Remediation in Virtual Reality Coupled With Brain Stimulation After Acquired Brain Injury: A Single Case Experimental Design Study

Topic: Neurostimulation (rTMS, tDCS, etc.)

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BACKGROUND

Cognitive sequelae following a brain injury, whether traumatic or vascular, can result in activity limitations and participation restrictions, leading to an alteration in patients' independence in daily life. Many innovative cognitive remediations (CRs) are designed to address the critical need for symptom improvement in patients with acquired brain injuries. Given the heterogeneity of the induced lesions and deficits, individualized approaches must be proposed. To evaluate the efficacy and benefits of these new remediations, researchers are increasingly using single-case experimental designs (SCEDs).

This study aimed to evaluate the effect of an individualized cognitive training coupled with brain stimulation on behavioral performance for dysexecutive patients after acquired brain injury (ABI).

METHODS

A single case experimental design with multiple baselines across participants was conducted with four replications. Overall, five patients post traumatic brain injury (TBI), and 10 patients post stroke, were included. The primary outcome was the evolution of performance at GAS (Goal Attainment Scaling) assessed twice a week during 12 weeks for three individually chosen goals. The intervention consisted of concomitant transcranial Random Noise Stimulation (tRNS) and pseudo-ecological situation training for executive functions (Covirtua Cognition®) during 4 weeks. Trial registration: ClinicalTrials.gov (NCT04253522).

RESULTS

Among the 14 included participants, three achieved at least their short-term goals. One month after the end of the intervention, eight of them were able to achieve at least one of their goals.

CONCLUSION

This study showed moderate results, suggesting that cognitive training coupled with brain stimulation could improve long-term behavioral performance in some dysexecutive patients in chronic phase. Furthermore, the intervention seems more effective for domestic life related goal. The person-centered approach highlights the importance of providing more individualized care to each patient.

Statement of Disclosures

None

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