IMPLEMENTING NOVEL TECHNOLOGIES FOR THE TREATMENT OF NEUROCOGNITIVE DEFICITS

FOFI CONSTANTINIDOU

Background
It is estimated that 240 million individuals annually require cognitive rehabilitation services. Therefore, it is imperative to develop cost-efficient and effective methodologies to address this significant global need. Novel technologies such as non-invasive brain stimulation (tDCS) have been used for treating executive functioning in patients with brain injuries. tDCS is used as an add-on neuromodulation in combination with other established treatments such as the Categorization Program (CP). CP is a cognitive rehabilitation intervention designed to systematically remediate cognitive deficits using a hierarchical structure.
Aim/Objectives: To provide research evidence using the CP and tDCS in chronic brain injury and discuss current initiatives integrating the two methodologies.
Methods: Single group, open label, before-after trial with 4 and 12 week follow-up. 21 adult patients (15 males) with chronic moderate to severe brain injury under 65 who received the CP Training with a duration of 12 weeks for approximately 3 hours of treatment/week.

Main outcome measures
CP dependent measures and neuropsychological testing.
Results: Repeated MANOVA resulted in significant gains on the CP Tests demonstrating improvement in conceptual knowledge and decision-making. Gains were maintained at 4 and 12 weeks follow-ups.

Conclusions/take home message
Systematic cognitive training implementing the CP protocol in chronic brain injury as a single modality is effective. The digitalized CP with AI integration creates accessible and effective interventions designed to reduce disparities in persons with acquired brain conditions. Combining tDCS with the CP could result in additive effects. The workshop concludes with a presentation of the BRAINN project (www.ucy.ac.cy/brainn) exploring the feasibility of a novel integrative approach combining the digitalized CP with tDCS for the treatment of neurocognitive deficits associated with Long-COVID.