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Objective

Over the past decades, there has been an enormous effort to develop various behavioral approaches for the rehabilitation of schizophrenia. Among these approaches, cognitive rehabilitation plays a key role, relying on the evidence that neurocognitive deficits are core features of the illness. The aim of this presentation is to discuss the feasibility and the rational for the use of neurofeedback as a bio-behavioural and rehabilitation tool to overcome neurocognitive impairments in schizophrenia.

Methods

Current literature on the efficacy of neurofeedback was reviewed. Studies focusing the neurophysiology and the use of neurofeedback in schizophrenia and disorders associated with similar neuro and social cognitive impairments (e.g., attention deficit/hyperactive disorder, Autism) were taken into account.

Results and Conclusion



Neuropsychophysiological feature

Neurobehavioral dysfunction

Neurofeedback Protocol

Research shows that a variety of neurofeedback protocols have been used successfully in the treatment of several mental disorders. The scheme presented above summarizes possible neurophysiological features, behavioral dysfunctions usually associated with this features (in schizophrenia and in other neuropsychiatric illness) and suggested neurofeedback protocols. While it is clear that neurofeedback had a positive effect on behavioral and cognitive measures in different populations, few studies reported its use with schizophrenic patients. Moreover, neurophysiological abnormalities in schizophrenia are inconsistent, although some studies have shown reduction of alpha power, excessive theta and decreases on the P300 amplitudes concomitant with executive and attentional problems. These findings, as well as recent data showing the social cognitive correlates of Mu suppression should be taken into consideration in the formulation of Neurofeedback protocols for patients with schizophrenia. Neurofeedback may be a promising method for the rehabilitation of people with schizophrenia given that it was shown to be effective improving attention, executive functioning, motivation and self-control in other neuropsychiatric disorders. This review highlights the need for controlled studies to investigate the replication of these cognitive and behavioral outcomes in schizophrenia.

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