Neuroscience in Psychiatry

EPV0628

Neurofeedback treatment for Attention Deficit Hyperactivity Disorder in adults

B. Fernández*, J. Barros, E. Machado, E. Maldonado, A. R. Moreira and H. J. Gomes

Psychiatry, ULSNE, Bragança, Portugal
*Corresponding author.
doi: 10.1192/j.eurpsy.2024.1288

Introduction: Attention-deficit/hyperactivity disorder (ADHD) is one of the most prevalent neurodevelopment disorders in the world. Clinical guidelines for ADHD recommend multimodal treatment approaches, with current evidence suggesting that medication, including methylphenidate and various amphetamine formulations, in conjunction with psychosocial treatment are most effective in the short-term and long term. Over the last decade, an increasing number of studies investigating non-pharmacological treatments have been published, such as cognitive therapy, Neurofeedback (NF), Transcranial direct current stimulation with the aim of treating ADHD patients.
Objectives: We comprehensively reviewed literature searching for studies on the effectiveness and specificity of NF for the treatment of ADHD. The aim of this review is to understand if there is scientific evidence in using of electroencephalogram (EEG)-Neurofeedback for treating patients with ADHD.
Methods: We did a non systemathic review using pubmed and google schoolar databases in order to analyze the influence and effects of therapy in patients diagnosed with ADHD and under treatment based on EEG Neurofeedback. We analyzed 18 systhematic reviews and metha-analysis and 2 case control studies.
Results: Accourding to the systhematic reviews results showed positive and significant effects in the visual memory, attention and visual recognition (spatial working memory). EEG also showed improvement in upper alpha activity in a resting state (open-eyed) measured from the occipital area, which similarly indicated improvement in the cognitive domain (attention). Compared to non-active control treatments, NF appears to have more durable treatment effects, for at least 6 months following treatment.
Conclusions: In conclusion, it is possible to affirm that a neuromodulating effect of the therapy positively influences cognitive processes, mood, and anxiety levels in patients with ADHD and is associated with significant long-term reduction in symptoms. Though limitations exist regarding conclusions about the specific effects of NF, the review documents improvements in school, social, and family environments. However, future efforts should focus on implementing standard neurofeedback protocols, ensuring learning, and optimizing clinically relevant transfer and more studies are needed for a properly powered comparison of follow-up effects between NF and active treatments and to further control for non-specific effects.

Disclosure of Interest: None Declared

EPV0630

Cognitive Neuroscience of Autism Spectrum Disorder: The Neurobiology of Empathic Process

C. Pinheiro Ramos*, J. Marta, M. J. Freire, S. Mendes and A. Gamito

Setúbal Hospital Center, Setúbal, Portugal
*Corresponding author.
doi: 10.1192/j.eurpsy.2024.1289

Introduction: Autism Spectrum Disorders (ASD) is diagnosed when an individual displays irregularity in three key domains: social development, communication, and repetitive behavior/obsessive interests.
The theory of mind-blindness in ASD suggests that individuals on the autism spectrum exhibit deficiencies in the typical empathic process, relative to their mental age.
Empathy comprises two primary components: firstly, the capacity to attribute mental states to both oneself and others, and secondly, experiencing an emotional response that aligns with the mental state of the other person.
Objectives: This study aimed to synthetase the latest evidence about the neuropsychiatric basis of empathy in ASD.
Methods: A review was conducted, drawing on reputable sources (PubMed and Web of Science databases).
Results: A neural basis of empathy has built on a model first proposed by Brothers. It was suggested that social intelligence was a function of three regions: the amygdala, the orbitofrontal and medial frontal cortex, and the superior temporal sulcus and gyrus - the "social brain". Abnormalities in autism have been found in the amygdala, the orbito and the medial frontal cortex.
Amygdala has been implicated primarily in fear perception of facial expressions, as well as in the recognition of other emotions such as sadness and "social" emotions. In addition to fear perception, the amygdala has also been implicated in related processes including eye gaze, affective memory, olfactory learning, and social judgment.
To date, findings on amygdala structure in autism have been mixed, with studies indicating reduced and increased volumes, as well as nonsignificant differences.
Conclusions: ASD is one of the most heterogeneous neurodevelopmental disorders, and cognitive theories as well as structural findings have linked likely frontal lobe abnormalities to the social and cognitive profiles of autism.
Future studies may elucidate existing data by taking advantage of new and infrequently used data acquisition technologies such as Transcranial Magnetic Stimulation.

Disclosure of Interest: None Declared