OCS9: NEUROSCIENCES: FROM RESEARCH TO PRACTICE

Moderator: Marisa Freitas (ESTSP.IPP)

OC36: Auditory event-related potentials in autism with generalized epilepsy and family members: case report

Susana Coutinho[1], David Tomé[1,2], Paula Lopes[1], João Marques-Teixeira[2]

[1]Laboratory of Audiology, Department of Audiology, School of Allied Health Technologies, Polytechnic Institute of Porto, Portugal
[2]Laboratory of Neuropsychophysiology, Faculty of Psychology and Educational Sciences, University of Porto, Portugal

Presenting author: susana-rmc@hotmail.com

Introduction: last fifteen years revealed an exponential growth in endophenotype and biomarkers research field in autism and epilepsy. The main goal seems to establish the relationship between neurobiological processes underlying pathological mechanisms and clinical expression, to define better treatment strategies but also accurate diagnosis. Comorbidity of autism with epilepsy occurs in 30% of cases. However, little is known on the common neurophysiopathological mechanisms and possible biomarkers.

Objectives: very scarcely is known concerning auditory event-related potentials (AERPs) as possible biomarkers of autism associated with epilepsy. Our aim is to explore putative neuropsychophysiological trait markers in a case study of autism with generalized epilepsy, and its unaffected family members compared to a control group.

Materials and Methods: N100 and N200 from the AERPs, were recorded to pure-tones and vocal stimuli in a conventional auditory oddball paradigm in a teenager with autism and generalized epilepsy (15 years old), his sister and mother with no disorder (with 13 and 42 years old, respectively), and in four gender and age-matched controls (M = 21.0 years; SD = 5.03).

Results and Discussion: results revealed a reduced N100 and N200 with a slight early latency to rare stimuli for the participant with autism and its family members in fronto-central electrodes (Fz and Fpz), large effect size (r>0.6), compared to controls.

Conclusion: our case and closest relatives showed similar results of frontal N100 and N200. Future empirical studies could confirm our findings, and reveal these components as putative electrophysiological biomarkers candidates for autism with epilepsy.

References

1. Bomba, M. (2004). Cortical Auditory Evoked Potentials In autism: a review. *International Journal of Psychophysiology, 53*, 161-169.
2. Pereira, A., Pegoraro, L.L., & Cendes, F. (2012). Autism and epilepsy: models and mechanism. *Journal of Epilepsy and Clinical Neurophysiology, 18*, 92-96.
3. Tuchman, R., & Rapin, I. (2002). Epilepsy in autism. *Lancet Neurology, 1*, 352-358.