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Intercortical inhibition in area of extrastriate cortex in strabismus

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Introduction & Aim: Interocular suppression is a common visual disorder in anisometropic and strabismic patients, however still little is known about the neuronal mechanisms of this disorder. The aim of the study was to explore cortical activation in subjects with interocular suppression related to strabismus.

Method: In this study, 24 young subjects with corrected refractive errors were examined: 12 subjects with normal visual acuity and stereopsis (GN) and 12 subjects with strabismus (with strong interocular suppression and stereoblind) (GS). Cortical activity was measured with 64 active channels (QuickAmp128). Reversed checkerboard patterns (box size 15') were presented with a frequency of 0.79 Hz. Three different visual conditions: Dominant eye (DE), non-dominant eye (NDE) and both eyes (BE) were tested in two groups: GN vs. GS. To examine mechanism of interocular cortical event-related potentials (ERPs) were analyzed.

Results & Conclusions: Subjects with strabismus presented lower cortical activity compared to normal (smaller amplitudes of ERPs) in the area of extrastriate cortex (components P1, P2), both during binocular viewing and monocular one. It may prove a general intercortical inhibition in strabismic subjects. In strabismus, P2 component was marginal, what may suggest visual-processing deficits in the neural way between primary visual cortex and higher regions of brain. It can also imply weaker representation of objects and shapes in visual memory.

Biography

Monika Czaińska is an Optometrist and a PhD candidate from Adam Mickiewicz University in Poznań, Poland. She is interested in Binocular Vision, Vision Therapy and motor deficits in subjects with Binocular Disorders.

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