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Orthostatic tolerance and results of Autonomic testing in children with Migraine with and without Aura

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Background: Symptoms and signs of autonomic nervous system (ANS) dysfunction and orthostatic intolerance are common in patients with migraine. Despite the clinical signs of involvement of ANS in the pathophysiology of migraine, the mechanism of autonomic dysfunction was not fully explained. One of the methods to establish a sympatho-vagal balance is examination low frequency (LF) and high frequency (HF) spectrum of heart rate variability.

Aims: The aim of the study was to establish LF/ HF ratio in children with migraine (without and with aura) during an orthostatic challenge. Prospective research, approved by Bioethical Commission of Jagiellonian University.

Material and methods: The examination was performed in 86 children with migraine during a headache-free period and in 32 children without headaches and syncope, constituting an age-matched control group. HRV was evaluated during rest, during a 10-min 70 degrees head-up passive tilting and during 3-min active standing test, using Task Force Monitor 3030i/3040i.

Results: In all 47 children with migraine with aura head-up tilt test was negative for syncope. In 2/39 children with migraine without aura and in 2 controls head-up tilt-induced syncope occurred. Postural orthostatic tachycardia syndrome (POTS) was diagnosed in 4/24 children with migraine with sensory aura and in 1 child with migraine without aura. Results of LF/ HF ratio did not differ between groups with migraine with aura and controls, but they were significantly higher in group of 24 children with migraine with sensory aura during tilting.

Conclusions: Predominance of sympathetic nervous system activity during tilting, as well as more common POTS in patients with migraine with sensory aura as compared with healthy volunteers and patients with migraine without aura, indicate differential autonomic reactivity. In spite of poor orthostatic tolerance reported by patients with migraine, active standing did not reveal differences between migraine patients and healthy volunteers.

Speaker Biography

Aleksandra Gergont is a certified specialist in neurology and child neurology. She has completed her PhD from the Jagiellonian University in Krakow, Poland which is one of the oldest Universities in Europe. She is active in teaching and mentoring. In addition to education, she practices clinical pediatric neurology. She also conducts clinical research and is focusing upon dysfunction of autonomic nervous system. She directs autonomic laboratory at the Department of Pediatric Neurology, where she performs cerebrovascular Doppler examination and head-up tilt tests. Her research interests have been focused primarily on migraine, syncope and rare diseases, as well as vascular disorders. She is a member of Polish Child Neurology Association and she holds leadership position in its regional branch in Krakow. She is also a member of Polish Society of Clinical Neurophysiology. She is not only author and co-author of several publications but also reviewer.

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