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Autonomous control of cardiovascular reactivity in patients with episodic and chronic forms of migraine

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Abstract

© 2016, Mamontov et al.Background: The autonomous cardiovascular control can contribute to progression of migraine. However, current data on cardiovascular reactivity in migraine, especially severe forms, are essentially contradictory. The main aim of this study was to compare the autonomous regulation of circulation in patients with episodic and chronic migraine and healthy subjects. Methods: Seventy three migraine patients (mean age 35 ± 10) including episodic migraine (51 patients, 4–14 headache days/months) and chronic migraine (22 patients, ≥15 headache days/month) along with age-match control (71 healthy voluntaries) were examined. The autonomic regulation of circulation was examined with the tilt-table test, a deep breathing and Valsalva Maneuver, handgrip test, cold-stress vasoconstriction, arterial baroreflex and blood pressure variability. Results: The changes in heart rate induced by deep breathing, Valsalva Maneuver, and blood pressure in tilt-table test in patients with migraine did not differ from the control group. In contrast, the values of cold-stress-vasoconstriction forearm blood-flow reactivity ($p < 0.001$), the increase in diastolic blood pressure in handgrip test ($p < 0.001$), mean blood pressure in the late stage of the second phase of Valsalva Maneuver ($p < 0.001$) and blood pressure variability ($p < 0.005$) were all higher in patients with migraine than in the control group. Conclusion: Thus, both episodic and chronic migraine are associated with significant disturbances in autonomous control resulting in enhanced vascular reactivity whereas the cardiac regulation remains largely unchanged.

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