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Cardiovascular activity in migraine patients: Influence of age and headache chronification

O Grosu*, S Odobescu, I Moldovanu, L Rotaru

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Introduction

Heart rate variability (HRV) is a useful tool to evaluate cardiovascular activity in different pathologies including migraine. Reduced HRV over 24 hours predicts increase in cardio-vascular morbidity.

Objectives

To evaluate and analyze cardiovascular activity by mean of HRV in migraine patients and elucidate the influence of age and chronification.

Methods

Study group consisted of 65 pts with migraine: 40 pts with chronic (CM) and 25 pts with episodic migraine (EM), mean age 47.7±11.29 (CM) and 47.6±12.6 years (EM). All the patients underwent 24-hour ambulatory ECG monitoring with evaluation of HRV. The analyzed time domain parameters were: VAR, CBBP, avNN, SDNN, RRNN, SDANN, SDNN index, RMSSD and pNN50 % and frequency domain parameters: LF, HF and VLF. All expressed as mean, day time and night time values.

Results

CM patients had increased VAR (946.8±433.4 vs. 785.6 ±214.4, $p<0.05$), SDNN index (53,1±17.8 vs. 45.7±8.6, $p<0.05$) and VLF (2013.05±1151.5 vs. 1567.32±526.6, $p<0.05$). In the middle age (40-50 years old) EM patients had increased Heart rate (84.8±8.6 vs. 77.5± 7.9, $p<0.05$) and CM patients increased: avNN (837.6±93.7 vs. 787.0 ±78.3, $p<0.05$), SDNN index (60.1±15.0 vs. 45.8±5.63, $p<0.05$) and VLF (2724.4±1449.1 vs. 1618.2±509.9, $p<0.05$). In the advanced age (50-59 years old) CM patients had increased HF (30.6±13.1 vs. 19.7±11.9, $p<0.05$). Compared between groups (EM40-50 vs. EM 50-59) - EM50-59 patients had reduced pNN50% and CBBP and CM 50-59 patients had reduced pNN50%, SDNN index, VLF, LF, HF but increased HF(%). Conclusions CM patients presented an increased HRV and parasympathetic activity compared with EM in whole study sample and in the 40-50 age group but just parasympathetic hyperactivity in the 50-59 age groups. Older CM patients presented more reduction in total HRV, sympathetic and parasympathetic influence (day time), except HF (%) night time which reflect strong vagal influence probably as a consequence of chronification process.

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Reference

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Institute of Neurology and Neurosurgery, Moldova, Republic of