P74: SLEEP QUALITY IS ASSOCIATED WITH CEREBROVASCULAR FUNCTION IN INDIVIDUALS WITH MULTIPLE SCLEROSIS

Georgios Grigoriadis, Alexander J. Rosenberg, Sang Ouk Wee, Elizabeth C. Schroeder, Garett Griffith, Tracy Baynard

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P73
AORTIC BUT NOT PERIPHERAL PULSE WAVE VELOCITY IS IMPROVED AFTER HEART RATE TARGETED AEROBIC PHYSICAL TRAINING IN METABOLIC SYNDROME SUBJECTS

Ieva Slivovskaja, Jurate Balsyte, Ligita Ryliskyte, Jolita Badariene, Sokas Navickas, Aleksandras Laucevicius
Vilnius University, Faculty of Medicine, State Research Institute Centre For Innovative Medicine, Vilnius, Lithuania

Objective: To evaluate the response of aortic and peripheral arterial stiffness parameters to heart rate (HR) targeted exercise training in metabolic syndrome (MS) subjects.

Methods: This cohort study included 170 individuals with MS (mean age 53.3 ± 6.9 years, 55% women). The subjects were recruited using a 1:1 random sampling method and divided into intervention aerobic physical training (aPT) and control groups. Intervention group subjects participated in a 2-month duration HR targeted aPT programme. Subjects in both groups were investigated at baseline and after 2 months. Arterial stiffness parameters, such as aortic carotid–femoral pulse wave velocity (cfPWV), peripheral carotid-radial pulse wave velocity (crPWV) and aortic augmentation index, mean blood pressure in the aorta (MBP) were evaluated.

Results: After 2 months of aPT aortic stiffness decreased indicated by the reduction of cfPWV by 0.54 m/s (6.33 ± 0.05). Using a regression tree method the highest improvement of arterial wall after aPT was achieved when initial cfPWV was >10.1 m/s (2.21 ± 1.15 m/s) and cut-off value for positive effect was 8.6 m/s.

Conclusions: After 2 months of aPT arterial stiffness improved only in reduction of cfPWV and MBP. Therefore, it would be reasonable to measure cfPWV rather than crPWV in order to evaluate the aPT effect on arterial wall function in MS patients.

P74
SLEEP QUALITY IS ASSOCIATED WITH CEREBROVASCULAR FUNCTION IN INDIVIDUALS WITH MULTIPLE SCLEROSIS

Georgios Grigorakis 1, Alexander J. Rosenberg 2, Sang Ouk Wee 3, Elizabeth C. Schroeder 1, Garrett Griffith 1, Tracy Baynard 2
1University of Illinois at Chicago, Chicago, IL, USA
2California State University, San Bernardino, San Bernardino, CA, USA

Introduction: Individuals with multiple sclerosis (MS) exhibit impaired cerebrovascular function and have poor sleep quality. In the general population, poor sleep contributes to cerebrovascular dysfunction and is related to cardiovascular disease (CVD). Improving sleep quality may have beneficial effects in preventing CVD; however, the relationship between sleep quality and cerebrovascular function in MS has not been examined.

Purpose: To examine the effect of sleep quality on cerebrovascular function in individuals with MS.

Methods: Sixteen individuals with MS had sleep quality assessed with the Pittsburgh Sleep Quality Index. Individuals were categorized as having poor sleep quality (n = 6, score > 5) or good sleep quality (n = 10, score ≤ 5). Cerebrovascular function was assessed via transcranial Doppler ultrasound with the following hemodynamic outcomes: mean middle cerebral artery velocity (mMCAv), pulsatility index (PI), and resistance index (RI). An automated blood pressure cuff was used to measure baseline blood pressure (systolic, diastolic, mean; SBP, DBP, MAP) and heart rate in a seated position. End-tidal CO2 (EtCO2) was measured by gas capnography.

Results: Those with poor sleep quality had greater PI and RI, and lower mMCAv compared to those with good sleep quality (p > 0.05, table 1). No group differences were seen for weight, height, BMI, CO2, or hemodynamic variables.

Conclusion: Our results suggest that individuals with MS with poor sleep quality have worsened indicators of cerebrovascular function. Therefore, sleep quality may be related to the elevated CVD risk in individuals with MS, and it should be assessed in future studies evaluating cerebrovascular function in MS, including intervention studies.