EXERCISE TRAINING REVERSES ACETYLCHOLINESTERASE ALTERATIONS IN METABOLIC SYNDROME PATIENTS

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Metabolic Syndrome (MetS) is characterized by a low-grade chronic inflammation, which has been considered basic point in the development of cardiovascular diseases. The cholinergic system plays important roles in the regulation of inflammatory process, whereas regular exercise training has been shown as adjuvant tool to control this process. However, nothing is known about it relating to MetS. Therefore, the objective of this study was to investigate the role of acetylcholinesterase (AChE) as a marker of low-grade chronic inflammation and the effect of exercise training on this enzyme of MetS patients. We studied 20 MetS patients who performed regular concurrent exercise training for 30 weeks. AChE and myeloperoxidase (MPO) activities were determined in total blood and plasma, respectively, from MetS patients before and after the exercise intervention as well as from a control group (n=20). An increase in AChE and MPO activity in MetS patients before exercise intervention were observed (P<0.001). However, these alterations were reversed by exercise training (P<0.05). Additionally, a positive correlation between the MPO and AChE activities was observed (r=0.46). Taken together, these results suggest that there is an association between inflammation and the increase of the AChE activity in MetS patients as well as regular exercise training had a protective effect by regulating cholinergic enzyme and reducing the inflammation degree. This modulation can be involved in the beneficial effects of exercise and the mechanisms of this link are encouraged to be investigated in further studies.

Acknowledgements: The authors wish to thank Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Fundação de Amparo à Pesquisa do Rio Grande do Sul (FAPERGS), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), FINEP research grant “Rede Instituto Brasileiro de Neurociência (IBN-Net)” and “Instituto Nacional de Ciência e Tecnologia” (INCT) for financial support.

Keywords: Metabolic Syndrome; Acetylcholinesterase; Exercise training