PEA/PLD ASSOCIATION, REDUCE INFLAMMATORY PROCESS ASSOCIATED TO EXPERIMENTAL MOUSE MODEL OF ATHEROSCLEROSIS, INDUCED BY CAROTID ARTERY LIGATION

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Atherosclerosis, a disease of the large arteries, is the primary cause of heart disease and stroke. In westernized societies, it is the underlying cause of about 50% of all deaths. Increasing evidence has highlighted the roles of oxidative stress and inflammation in the promotion of atherosclerotic disease. Palmitoylethanolamide (PEA), an endogenous fatty acid amide belonging to the N-acyl ethanolamine family, has anti-inflammatory and neuroprotective effects. However, PEA lacks direct capacity to prevent formation of free radicals. Polydatin (PLD) that is a natural precursor of resveratrol has antioxidant activity. Thus, the combination of PEA and PLD could have beneficial effects on inflammatory process and oxidative stress. The aim of this study was to investigate the effect of PEA in association with PLD in murine model of atherosclerosis induced by carotid artery ligation. This model shows that 14 days after carotid artery ligation there is a significant structural change within the vessel, and that there is an important involvement of the inflammatory pathway in the progression of this disease. In this study we demonstrated that PEA/ PLD association treatment reduces atherosclesosis lesion, adhesion molecules (ICAM-1 (vehicle 7.5 ± 0.7 treatment 2 ± 0.1, $p< 0.05$), V-CAM (vehicle 6.5 ± 0.7 treatment 2.5 ± 0.7, $p< 0.05$)) expression, proinflammatory cytokines (TNF-α (vehicle 6 ± 0.1 treatment 2 ± 1.41, $p< 0.05$), IL-1β (vehicle 7 ± 0.1 treatment 1.5 ± 0.7, $p< 0.05$)) production, iNOS (vehicle 23914,89 ± 1063,071 treatment 14762,48 ± 3955,329, $p< 0.05$) and PAR formation (vehicle 7 ± 1.41 treatment 2 ± 0.1, $p< 0.05$), NF-kB expression (vehicle 23631,95 ± 7257,002 treatment 275,028 ± 106,1056, $p< 0.05$) and apoptosis (BAX (vehicle 6 ± 0.1 treatment 1.5 ± 0.7, $p< 0.05$), Fas-L (vehicle 22853,57± 959,0419 treatment 12836,61 ± 915,4346, $p< 0.05$)) activation. Our results show that treatment with PEA/PLD 30 mg/Kg is able to reduce vascular damage and attenuates the inflammatory process.