ATORVASTATIN TREATMENT INFLUENCES POLYMORPHONUCLEAR LEUKOCYTE FUNCTION: A LONGITUDINAL STUDY

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Background: It is now widely established that inflammatory phenomena play a crucial role in the progression and clinical outcome of atherosclerotic disease [1; 2]. Thus, the attention is being focused on whether circulation levels of flogistic biomarkers may reflect the inflammatory activity in the atherosclerotic plaques. Besides their lipid–lowering action, the therapeutic effects of statins on atherosclerosis can be attributed to the ability to interfere with the inflammatory mechanisms involved in the induction and progression of vascular lesions [3]. Compelling evidence underlines the pivotal role of PMNs in the atherosclerotic process [4]. Moreover, it has been observed that statins may modulate the proinflammatory properties of PMNs, in particular, reducing the production of IL-8 and the angiotensin II type receptor (AT_1R) expression [5; 6]. **Aim:** The aim of this study was to investigate whether the treatment with: non-treatment, high and low doses (80-10 mg/die) of atorvastatin may affect functional responses in PMNs. For this purpose, the production of the pro-inflammatory cytokine interleukin-8 (IL-8) and the pattern of expression of AT_1R were investigated in a longitudinal study in PMNs obtained during statin treatment from vasculopathic patients undergoing peripheral vascular interventions. We have also evaluated the IL-8 serum levels considering several clinical and preclinical studies that have suggested an link between IL-8 circulating levels and cardiovascular risk [7]. **Methods and Materials:** 12 patients (2 F, 10 M; age (mean±SD: 67,7±6,8 years), with peripheral artery disease were randomized to treatment with: non-treatment, high and low doses (80-10 mg/die) of atorvastatin. PMNs were isolated from venous blood of patients one month before (visit 1), the day of the peripheral vascular intervention (visit 2), three and six months after (visit 3 and 4). The production of IL-8 was measured in resting, N-formyl-Met-Leu-Phe (fMLP) and LPS –stimulated PMNs and in frozen serum by means of ELISA technique. The expression of AT_1R by flow cytometric analysis, on the cell membrane was also evaluated. **Conclusions:** In our study we have observed an interference with the PMNs function and, in particular, with IL-8 production and AT_1R expression in treated patients *vs* the untreated group. This suggests that statins can modulate the vascular inflammatory process, the key mechanism in early stages of atherogenesis. Therefore, these results are suggestive for a protective role exerted by statins in limiting plaque development and progression in vasculopathic patients.