EFFECTS OF ATORVASTATIN ON THE FUNCTIONAL PROPERTIES OF FOREARM ARTERIES IN HYPERCHOLESTEROLEMIC PATIENTS

Pustina L., 2° anno di corso del Dottorato in Scienze Farmacotossicologiche, Farmacognostiche e Biotecnologie Farmacologiche, XVI ciclo. Durata del Dottorato in anni: 4. Sede di servizio: Dipartimento di Scienze Farmacologiche, Università degli Studi di Milano, Via Balzaretti 9, 20133 Milano.

Several studies, concerning arterial functionality in dyslipidemic, diabetics or hypertensive asymptomatic patients, have shown the beneficial effects of pharmacological treatments on functional and hemodynamical properties of peripheral arteries. Aim of the present study was to evaluate the effects of six month treatment of atorvastatin (10 mg/die) on forearm blood flow (FBF) and arterial compliance (FAC_{AUC}) in asymptomatic hypercholesterolemic patients. The effects of atorvastatin treatment on rest and post ischemic FBF and vascular resistance as well as on FAC_{AUC} responses to reactive hyperemia (RH-FAC_{AUC}), to glyceryl trinitrate (GTN-FAC_{AUC}) and to acetylcholine (ACh-FAC_{AUC}) were evaluated on the non-dominant arm using plethysmographic methods that allow the direct assessment of the non-linear "compliance-blood pressure" curve. Atorvastatin significantly lowered plasma total cholesterol (-19%), LDL cholesterol (-25.8%), triglycerides (-23.5%) and Apo B (-18.6%) levels and significantly raised HDL cholesterol levels (10.8%). Systolic blood pressure, heart rate and body mass index as well as were not affected. Atorvastatin did not affect the functional properties of forearm arteries, neither in terms of rest and post ischemic blood flow nor in terms of vascular resistance. Also in terms of forearm arterial compliance no significant variation in forearm arterial compliance parameters, such as basal and post-ischemic FAC_{AUC}, peak of time, time of peak maintenance and descent time were observed. Finally, also ACh-FAC_{AUC} and GTN-FAC_{AUC} were not significantly affected by the hypolipidemic treatment. In fact, although vasodilator agents significantly raised ACh-FAC_{AUC} and GTN-FAC_{AUC} at each time point, no absolute- and percent-variations were observed after 3 and 6 months of treatment with atorvastatin. These data suggest that, in moderately hypercholesterolemic asymptomatic patients, a short term hypocholesterolemic treatment with atorvastatin 10 mg/die, although able to improve the lipid profile, cannot significantly alter forearm arterial functionality.