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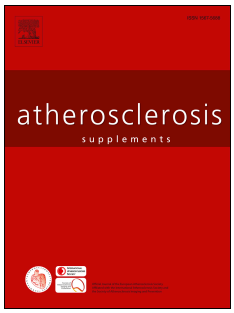

Pleiotropic effects of regular lipoprotein-apheresis

Helmut Sinzinger, Sabine Steiner, Kurt Derfler

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PLEIOTROPIC EFFECTS OF REGULAR LIPOPROTEIN-APHERESIS

[1]Helmut Sinzinger, [2]Sabine Steiner, [3]Kurt Derfler

[1]Institute for Diagnosis and Treatment of Lipid Disorders and Atherosclerosis (ATHOS), Vienna, Austria; [2]University of Leipzig, Dept. of Interventional Angiology, Leipzig, Germany; [3]Medical University of Vienna, Dept. of Internal Medicine III, Nephrology, Vienna, Austria

Correspondence address:
Helmut Sinzinger, MD,Prof.
Institute ATHOS
Nadlergasse 1
1090 Vienna, Austria
e-mail: helmut.sinzinger@meduniwien.ac.at
Telefon: +43 1 4082633

Abstract

Background

Lipoprotein(LP)-apheresis is the treatment of choice in patients suffering from severe familial hypercholesterolemia. A wide range of mechanisms has been claimed to be responsible for the known clinical benefit.

Methods

Patients suffering from heterozygous familial hypercholesterolemia undergoing LP-apheresis either with direct adsorption of lipoproteins (DALI) or dextran sulfate (DS) were examined. A total volume of 10 l blood was exchanged. Non-lipid effects, mainly concerning endothelial function (circulating endothelial cells, circulating endothelial progenitor cells, flow mediated vasodilation, microalbuminuria) as well as left ventricular ejection fraction and homocysteine were assessed.

Results

A single LP-apheresis session improves paradox contractile response in statin intolerant patients, but not in those on regular statin therapy. In contrast, over a 6-months follow-up after treatment initiation, all the examined parameters (circulating endothelial cells, circulating endothelial progenitor cells, flow mediated vasodilatation, homocysteine, microalbuminuria and left ventricular ejection fraction) improved. When available, a comparison between DS vs. DALI was performed. In none of the subgroups a significant difference was noted.

Discussion

These findings indicate that beyond the well known lipid/lipoprotein lowering action the broad spectrum of functional tests examined reflecting mainly endothelial function is significantly improved by LP-apheresis treatment on the long-term and seems to be a key underlying reason for the clinical improvement seen in these patients.

Key words: endothelial function; lipoprotein-apheresis; pleiotropic effects; microalbuminuria; left ventricular ejection fraction; homocysteine