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Research Article

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[Concentration Polarization of Ox-LDL and Its Effect on Cell Proliferation and Apoptosis in Human Endothelial Cells](#)

Background: Flow-dependent concentration polarization of native LDL is important in the localization of atherogenesis. However, ox-LDL plays a more important role than n-LDL in atherogenesis by inducing cell proliferation and apoptosis. We hypothesized that concentration polarization of ox-LDL may adversely affect vascular beds due to its toxicity to endothelial cell (EC) lining.

Methods: Using a parallel-plate flow chamber technique, we studied water filtration rate and wall concentration of ox-LDLs EC monolayers cultured on permeable or non-permeable membranes. ECs cultured on permeable and non-permeable membranes were examined in terms of cell viability, ox-LDL uptake, LOX-1 expression and cell apoptosis (Cytochrome c and Bcl-2 expression). We observed that the wall concentration of ox-LDL was about 16% higher in the permeable group than in the non-permeable group ($P < 0.05$). Cell proliferation (MTT assay) increased in response to low concentration of ox-LDL (1-5 μ g/ml), and fell drastically in response to higher concentration; all these changes were more pronounced in the permeable group than in the non-permeable group. The uptake of ox-LDL and LOX-1 expression by ECs were also significantly higher in the permeable group than in the non-permeable group of cultured cells.

Conclusions: These observations suggest that concentration polarization of ox-LDL occurs in an artery that is permeable to water, and ox-LDL concentration polarization can enhance ox-LDL accumulation into the arterial wall and accelerate EC proliferation at low concentrations and apoptosis at high concentrations, possibly via LOX-1 expression.

Letter to Editor

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[Mid-Ventricular Ballooning in Atherosclerotic and Non-Atherosclerotic Abnormalities of the Left Anterior Descending Coronary Artery](#)

In a series of meanwhile 10 cases rigid straightening of the mid-portion of the left anterior descending coronary artery without lumen reduction mid-ventricular or basal ballooning was reported, or both basal and mid-ventricular ballooning in one case. In all these patients wrap-around (recurrent segment) phenomenon of the left anterior descending coronary artery was not present. The abnormalities of the left anterior descending coronary artery are due to myocardial bridging without lumen reduction of the LAD, only seen in computed tomography. When stress or in some cases happiness appears myocardial ballooning can appear, lasts 2-4 weeks and disappear with a recurrence rate of nearly 10% despite beta blocking agents.

Research Article

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[Left Atrial Remodeling is Associated with Left Ventricular Remodeling in Patients with Reperfused Acute Myocardial Infarction](#)

Background: Left atrial volume (LAV) has been established as a sensitive marker of left ventricular (LV) diastolic function and as an independent predictor of mortality in patients with acute myocardial infarction (AMI). LA remodeling and its determinants in the setting of AMI have not been much studied.

Methods: We studied 53 patients with anterior AMI and a relatively preserved LV systolic function, who underwent complete reperfusion and received guideline-guided antiremodeling drug management. LA and LV remodeling were assessed using 2D echocardiography at baseline and 6 months. LAV indexed for BSA (LAVi) was used as the index of LA size and further LA remodeling.

Results: LAVi increased significantly at 6 months compared to baseline [28.1 (23.0-34.5) vs 24.4 (19.5- 31.6) ml/m², p=0.002] following LV end diastolic-volume index change [56.8 (47.6-63.9) vs 49.5 (42.0-58.4) ml/m², p=0.0003]. Other standard LV diastolic function indices did not show any significant change. Univariate analysis showed a strong positive correlation of LAVi change with BNP levels at discharge, LV mass index and LV volumes indices change, throughout the follow up period. Multivariate regression analysis revealed that BNP plasma levels was the most important independent predictor of LA remodeling (b-coef.=0.630, p=0.001).

Conclusions: Despite current antiremodeling strategies in patients with AMI, LA remodeling is frequently associated with LV remodeling. Additionally LAVi change in the mid-term reflects better than standard echocardiographic indices LV diastolic filling impairment.
