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ABSTRACTS

Restenosis: causes and mechanisms of development with different types of endovascular treatment

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Abstract
The article tells about the causes and mechanisms that lead to the development of restenosis in the result of various types of endovascular interventions. The use of bioresorbable stents looks promising in terms of reducing the incidence of restenosis after endovascular interventions.
Keywords: bioresorbable stents, restenosis, percutaneous coronary intervention.

Late and very late drug-elution stent thrombosis

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Abstract
The development of endovascular intervention in patients with coronary heart disease has enabled the solution of many problems. Since the beginning of the era of drug-eluting stents significantly reduced the number of restenosis. However, the results of prospective studies, there is evidence of late and very late stent thrombosis drug-eluting stents. This article deals with the late and very late stent thrombosis and compared stents with different antiproliferative coatings.
Keywords: late and very late stent thrombosis, thrombosis of drug-eluting stents, coronary heart disease, percutaneous coronary intervention, stenting.

Sex hormones metabolism in men through the prism of cardiovascular risk

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Abstract
This report examines modern views on the role of testosterone and estrogen in the continuum of cardio-vascular pathology in men, including lipid and nonlipid biomarkers of atherosclerosis, hemostasis, vasodilatation, anthropometric characteristics, manifestations of subclinical atherosclerosis, till the formation of coronary heart disease (CHD).
Keywords: estrogen, testosterone, men, cardiovascular disease.

Immunoinflammatory mechanisms of atherosclerosis: modern consepts

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Abstract
In recent years, equally with classical concepts of immunoinflammatory process of atherosclerosis, which include the activation of monocytes/macrophages, lymphocytes, production of inflammatory mediators, phagocytosis of oxidized LDL and the formation of foam cells, new aspects of atherogenesis, including dendritic cells are actively explores. Dendritic cells are the most potent antigenpresenting cells marrowy origin, they are divided into 2 subtype: myeloid and plasmacytoid. Myeloid dendritic cells are found in intima of coronary arteries, and in patients with CAD concentration of dendritic cells is much higher. Dendritic cells may present oxidized LDL as antigen to T-lymphocytes, activate phagocytosis of oxidized LDL by macrophages. The this review the latest data on the participation of oxidized LDL, T lymphocytes, monocytes/macrophages and dendritic cells in immunoinflammatory the process of atherosclerosis are presented.
Keywords: atherosclerosis, inflammation, dendritic cells, monocytes, macrophages.

Statins and nonalcoholic fatty liver disease: necessarily and safety?

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Abstract
Long time statins remain treatment of choice among hypolipidemic agents, used for dyslipidemia correction during atherosclerotic vascular disease. However many years remains open a question of possibility, and the main thing, efficiency and safety of statins usage for nonalcoholic fatty liver disease. Tens of studies were conducted to identify ratio between risk of alanine aminotransferase and aspartate transaminase increase and benefit of statins usage at this group of patients. According to the results of major clinical studies devoted to statins usage, including double blind and placebo controlled, statins should be considered not only as possible but essential and safe solution to decrease level of total cholesterol, LDL-C: so decrease level of cardiovascular events and levels of hepatic enzymes.
Keywords: nonalcoholic fatty liver disease, statins.

The estimation of nephroprotective effect of combined lipid-lowering therapy in decompensated type 2 diabetes

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Abstract
Aim. To estimate the comparative nephroprotective influence of combined and mono kinds of lipid-lowering therapy at patients with type 2 diabetes in decompensated stage.

Materials and methods. 5In study was included 68 patients with decompensated type 2 diabetes, not receiving lipid-lowering therapy. All patients were randomized on three comparable groups. The patients of the first group (26 persons) was admitted simvastatin 40 mg daily. The patients of the second group (18 persons) received the combined lipid-lowering therapy with simvastatin (40 mg daily) and ezetimibe (10 mg daily). In 24 patients of third group lipid-lowering therapy was not performed. In all patients the lipid panel, biochemical indicators of liver function, glomerular filtration rate and the intensity of microalbuminuria was determined before and after six months of treatment period.
Results. The improvement of indicators of lipid metabolism as well as during mono and combined lipid-lowering therapy was shown on patients with decompensated type 2 diabetes. It was marked the decrease in level of the general cholesterol, low density lipoproteins cholesterol, triglycerides, atherogenic index and insignificant increase in level of high density lipoproteins cholesterol. The marked decrease of low density lipoproteins cholesterol from 4.42±0.27 to 3.01±0.23 mmol/l at combined therapy in compare with from 3.58±0.29 to 3.14±0.16 mmol/l on simvastatin only was determined. The level of triglycerides decreased by 15.4% at simvastatin therapy in compare with 30.6% on combined therapy. The lipid-lowering therapy was accompanied by the increasing of glomerular filtration rate from 91.61±7.74 to 107.18±8.35 ml/min/1.73 m2 and the reduction r treatment. All kinds of therapy lead to the reduction of microalbuminuria to 32.4% at combined versus 17.6% at monotherapy. The assessment of a functional condition of a liver after lipid-lowering therapy in patients with decompensated diabetes showed their safety.
Conclusion. At patients with type 2 diabetes the beginning of lipid-lowering therapy in decompensated stage leads to the normalization of indicators of a lipid metabolism and renal function more expressive at combined therapy. The initiation of treatment in a decompensated stage is safe and doesn't influence on indicators of a liver function.
Keywords: 2 diabetes, decompensation, combined lipid-lowering therapy, nephroprotection.

Localization habits and composition of mineral deposits in atherosclerotic plaques of coronary arteries according to the scanning electron microscopy and X-ray diffractometry

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Abstract
The research objective is the detailed examination of morphology, localization and composition of calcificats of atherosclerotic plaques for revealing relationship of a calcification process with some key stages of an atherosclerotic lesion.
Materials and methods. Samples for examination were the atherosclerotic plaques explanted from five patients during an aortocoronary by-passing. In order to study the micromorphology and localization of mineral deposits, scanning electron microscopy was performed. The element content and the phase composition of calcificats were determined by energy dispersive X-ray microanalyses and X-ray diffractometry.
Main results. The calcareous infiltration of coronary arteries is interfaced to three stages/types of an atherosclerotic lesion. Massive calcificats of fibrous fields have stratose or tile structure,

include a lot of residual organic matter. Mineral deposites in the end-stage atheromatosis sites have conjoint structure with a minimum quantity of organic Carboneum. Fields of a hemorrhage and thrombogenesis also are subject to a petrification with formation of quaggy deposits with the high maintenance of organic matter. Formation of clumps of hydroxyapatite micro- and nanoparticles is an initial evolution phase of extensive calcificats in atherosclerotic plaques. Size distribution features of calcified particles testify to differences of mechanisms of their formation within plaques and in the field of contact to blood. In first case the mechanism of active hydroxyapatite synthesis with participation of membranous vesicles has been obliquely proved, in the second to be true - mineral nanoparticles formation most likely is process of a crystallization from solution.

Conclusion. Continuation of researches by means of methods applied in this work will allow to explore quantitative relationship
between types or stages of an atherosclerotic lesion of coronary arteries and an degree of petrification.

Keywords: atherosclerotic plaque, calcification, hydroxiapatite, fibrosis, focus of necrosis, hemorrhage, thrombosis.

Prediction of long-term outcomes in patient with myocardial infarction using locus 9p21.3 risk genotypes

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Abstract

Aim. The purpose of this study was to investigate association between 9p21.3 locus single nucleotide polymorphism (SNP) rs1333049 and long-term outcomes in patient with myocardial infarction didn't undergo of percutaneous coronary intervention (PCI) during hospitalization.

Materials and methods. A total of 500 patients (411 male, 89 female) with myocardial infarction age younger 65 old (mean 53.35 ± 7.79 years) were recruited. SNP rs1333049 (locus 9p21.3) was tested using real-time polymerase chain reaction (PCR) according to protocol (probes TaqMan, Applied Biosystems, 7900HT). All discharged patients were divided on two groups: patients underwent PCI were included in group 1, patients received conservative treatment (incl. thrombolytic) were joined in group 2. Follow-up period lasted two years.

Results. We revealed a direct strong association of the locus 9p21.3 rs1333049 with worse outcomes (recurrent MI, hospitalization due to acute coronary syndrome (ACS), recurrent PCI) in group 2 during follow-up period (6, 12, 24 months). In group 2 patients who carried of one copy of risk allele had significant higher relative risk of recurrent MI (1.13; 95%CI 1.07-1.19), ACS (1.32; 95%CI 1.15-1.51), PCI (1.23; 95%CI 1.10-1.37) during 1 year after MI. These differences saved after two years follow up for recurrent MI (1.26; 95%CI 1.12-1.63) and ACS (1.46; 95%CI 1.21-1.78).

Conclusion. Genetic markers can be used for risk stratification of patients with myocardial infarction as well as in secondary prevention after their discharge from hospital.

Keywords: myocardial infarction, single nucleotide polymorphism, rs1333049, locus 9p21.3, outcome, prognosis, percutaneous coronary intervention.