

Atherosclerosis and Dyslipidaemias
An official Journal of the Russian National Atherosclerosis Society (RNAS)
2014 №3 (16)
ABSTRACTS

Russian research program for early diagnosis and treatment of familial hypercholesterolaemia: Rationale and Design of the Russian FH Registry (RuFH)

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Abstract

Familial hypercholesterolaemia (FH) is an autosomal dominant genetic disorder, associated with significantly elevated levels of low-density lipoprotein cholesterol (LDL-C), and resulting in a 20-fold increased lifetime risk for premature cardiovascular disease. True prevalence of FH in the Russian Federation is unknown which leads to low percentage of diagnosed and treated cases. Research is needed to determine the prevalence of FH, specific diagnostic algorithms and optimal treatment strategies. The main aim of the present study is to evaluate the extent to which FH is underdiagnosed and undertreated in the Russian Federation for reduction of cardiovascular risk related to atherosclerosis in the country. As a first step, total cholesterol (TC) and LDL-C levels will be determined in a random sample from Moscow population (n=18 000). It is expected that $TC \geq 7.5$ mmol/L will be detected in 10 % of cohort. During 2014, approximately 500 patients will pass through non-invasive clinical examination at the Russian Cardiology Research and Production Center, including patient demographics, past medical history, family history of hypercholesterolemia, physical findings, current lipid-lowering therapies, blood tests, genetic analysis, echocardiography, carotid duplex ultrasound and exercise SPECT imaging in selected cases. On the basis of the Moscow Program four major Federal Medical Centers will be involved, and FH Registry will be created as a national, multi-center initiative to screen FH patients, control their diagnosis and management, and track clinical-reported outcomes over time. Establishment of National Guidelines for the diagnosis and treatment of FH on the basis of these data and implementation those into clinical practice in different regions of Russia will allow improving patient care. As an expected outcome, this program will raise awareness and increase appropriate assessment and treatment of FH patients in Russia, leading to a timely detection of the disease and therapy initiation.

Keywords: familial hypercholesterolemia, cholesterol, prevention, registry, atherosclerosis, treatment, prevalence

Cardiac allograft vasculopathy and system atherosclerosis - similarities and differences

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Abstract

The current situation on the etiology, pathogenesis, clinical features, principles of prevention and treatment of cardiac allograft vasculopathy in comparison with systemic atherosclerosis is presented.

Keywords: cardiac allograft vasculopathy, atherosclerosis.

The immune status of patients of elderly and senile age with a chronic diseases of the digestive system in combination with atherosclerosis in abdominal aorta

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Abstract

Aim. The study of subpopulations of lymphocytes and the concentration of cytokines in peripheral blood of patients at elderly and senile age with chronic diseases of the digestive system depending on the expression of atherosclerosis in the basin of the abdominal aorta was held.

Material and Methods. A clinical-immunological study of 210 elderly and senile patients with chronic diseases of the digestive system.

Results. It was found that patients with the atherosclerosis of unpaired visceral arteries had increased levels of T-cytotoxic CD3+HLA-DR+ lymphocytes and increased concentrations of interleukin 1 and tumor necrosis factor α .

Conclusion. Severity of changes in the immune status of patients at elderly and senile age with chronic diseases of the digestive system depends on the prevalence of atherosclerosis in the basin of the abdominal aorta.

Keywords: atherosclerosis, abdominal aorta, immunity, lymphocytes.

Renal artery stenting experience in the department of endovascular diagnostic and treatment at Institute of Clinical Cardiology

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Abstract

Constrictive renal artery atherosclerosis is a cause of renovascular hypertension in 80 % of cases.

Materials and methods. Renal artery stenting was performed in 38 patients in the department of endovascular diagnostic and treatment during the period from January 2010 till March 2013. Angiographic and antihypertensive efficacy and safety of the method was evaluated.

Results. During in-hospital period, a significant decrease in SBP and DBP was achieved. Follow-up of 24 patients in October-November 2013 showed stent restenosis in one patient.

Conclusion. Angioplasty with stenting in atherosclerotic renal artery stenosis is a safe and effective method of blood flow restoring and leads to good immediate (angiographic and clinical) and long-term results.

Keywords: hypertension, renal artery stenting.

An abdominal aortic calcification in peripheral arterial occlusive disease: risk factors and Markers

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Abstract

Purpose. The objective of the study was to determine the strength predictors and markers of an abdominal aortic calcification in patients with peripheral arterial occlusive disease.

Materials and methods. A total of 193 patients with peripheral arterial occlusive disease were included in the study. The study group included 108 patients with objective sign of an abdominal aortic calcification. The control group was presented by 85 patients with peripheral arterial occlusive disease without an abdominal aortic calcification. An abdominal aortic calcification have been verified by CT-imaging. Multivariate logistic regression identified predictors and markers of an abdominal aortic calcification. Odd ratios were adjusted for patient demographics, comorbidities and laboratory values.

Results. Multivariate predictors and markers of an abdominal aortic calcification included female gender, systolic arterial hypertension, smoking duration, hyperhomocysteinemia, a high serum C-reactive protein level, ischemic heart disease, cerebrovascular disease and osteoporosis.

Conclusion. Identification of an abdominal aortic calcification predictors and markers might significantly influence the treatment strategy, short and long-term outcomes in patients with peripheral arterial occlusive disease follow vascular interventions.

Keywords: calcinosis, abdominal aorta, peripheral arterial occlusive disease, atherosclerosis, risk factor, marker.

Modulation of Low Density Lipoprotein Self-association with Pluronic Block Copolymers

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Abstract

Aim. A key factor of atherogenesis is the accumulation of cholesterol in the intima of main arteries. It is known that low density lipoproteins (LDL) are responsible for the transport of cholesterol in the body. It was previously shown that only LDL associates (aggregates) causes lipid accumulation in cultured cells, i.e. atherogenic. Aim of this study was to find inhibitors of the association of LDL isolated from the blood of patients with coronary heart disease.

Materials and methods. We used Pluronic block copolymers P85, L61 and F68. The total LDL fraction

was isolated from serum of patients with cardiovascular diseases. Degree of association of LDL was measured by recording the fluctuations of light transmission through the device. The average size of the formed associates evaluated by quasi-elastic scattering on the laser device Autosayzer 2 Malvern.

Results. Multivariate predictors and markers of an abdominal aortic calcification included female gender, systolic arterial hypertension, smoking duration, hyperhomocysteinemia, a high serum C-reactive protein level, ischemic heart disease, cerebrovascular disease and osteoporosis.

Keywords: lipoproteins, lipoprotein association, Pluronic, atherosclerosis.

The impact of the early statin use of different generations on the functionality of the cardiovascular system in acute myocardial infarction

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Abstract

Aim. Verification of hypothesis about the positive impact of early prescription of statin of II-III generations for men with primary Q-myocardial infarction (Q-MI) on the functionality of the cardiovascular system (CVS); comparison of the efficiency of statins depending on the nature and dosage of medicine.

Methods. In accordance with the inclusion-exclusion criteria 99 men aged 40–70 years with Q-IM without cardiac complications and clinically significant somatic diseases were selected. Randomization for statins intake was made, 4 groups were formed: atorvastatin 10 mg/day (n=17), atorvastatin 20 mg/day (n=16), fluvastatin 80 mg/day (n=33) and a control group (n=33). Statins were prescribed starting with the first day of admission of patients without taking into account plasma lipids levels. Functional state of the CVS was evaluated twice: in 18–21 days and in 8 weeks after MI by means of the 6-minute walk away (TSMW) test and the method of veloergometry accompanied by the calculating of double product (DP) and chronotropic reserve (CHR) at the highest point of exercise stress and before discharge from the hospital. Differences in covered distances according to repeated TSMW were evaluated with the help of 3 endpoints, DP and CHR changes were evaluated with the help of 2 endpoints.

Results. Early atorvastatin prescription doses being 10 mg and 20 mg/day, fluvastatin dose being 80 mg/day for patients in the acute period Q-MI for 8 weeks were marked with a reliable increase in CVS functionality and physical status of the patient. According to DP and CHR indicators early prescription of atorvastatin doses of 10, 20 mg/day for patients with Q-IM has a more distinct positive effect on the functional abilities of the myocardium compared with fluvastatin dose of 80 mg/day.

Conclusions. Prescribing atorvastatin doses of 10 mg, 20 mg/day, fluvastatin dose of 80 mg/day for patients with Q-IM since the first days of the disease within 8 weeks showed no significant differences in the effects on the functional status of patients assessed by TSMW. The DP and CHR levels at the height of submaximal physical stress reflect the significant positive impact of statins on the functional ability of the heart muscle more rapidly.

Keywords: acute Q-myocardial infarction, statins, cardiovascular system functional status.