Atherosclerosis and Dyslipidaemias
An official Journal of the Russian National Atherosclerosis Society (RNAS)
2012 №3 (8)
ABSTRACTS

Endovascular treatment of unprotected left main coronary artery disease

A.Yu. Kantorova, E.V. Merkulov, V.M. Mironov, V.V. Solomyaniy, D.V. Pevzner, A.N. Samko, R.S. Goloshchapov-Aksenov

Cardiology Research Complex, Moscow, Russia

Abstract
Coronary artery bypass surgery is considered as the gold standard treatment of unprotected left main coronary artery (ULMCA) disease. Over the last 20 years, improvement in stent technology and operators experience explained the increased number of reports on the results of percutaneous coronary interventions (PCIs) for the treatment of left main (LM) coronary artery lesion. The recent data comparing efficacy and safety of PCIs using drug-eluting stent and coronary artery bypass surgery showed comparable results in terms of safety and a lower need for repeat revascularization for coronary artery bypass surgery. Patient selection for both techniques is fundamental and directly impacts the clinical outcome. Further randomized trials must be conducted to precise the indications of both techniques of revascularization in the treatment of LM disease.
Keywords: left main coronary artery disease, bifurcation lesions, coronary bypass grafting, percutaneous coronary interventions.

Endothelial progenitor cells and atherosclerotic process

A.E. Semenova, I.V. Sergienko, A.L. Dombrovskiy, A.V. Rvacheva.

Russian Cardiology Research Complex, Moscow

Abstract
Practical use of endothelial progenitor cells (EPC) looks promising since it was found that these cells took an active part in endothelial function and new vessel growth. It is shown that EPC decrease is an independent predictor of cardiovascular morbidity and mortality. Different ways of EPC quantity increase and functional improvement are the subjects of investigation.
Keywords: endothelial progenitor cells, vasculogenesis, endothelial function, cardiovascular disease.

Monocytes in the development and destabilization of atherosclerotic plaques

D.N. Nozadze, A.V. Rvacheva, E.I. Kaznacheeva, I.V. Sergienko

Russian Cardiology Research Complex, Moscow

Abstract
This review describes the role of monocytes in the formation of atherosclerotic lesions. Invasion of monocytes into the vascular wall and its further transformation is regulated by many factors, some of which are considered as a potential target of drug therapy in patients with

atherosclerosis. In this paper, described the role of chemokines, integrins, selectins and such cells as T and B lymphocytes, dendritic cells in the process of atherosclerosis. We present the mechanisms by which cellular homeostasis is supported by an atherosclerotic plaque. It is demonstrated that different subclasses of monocytes play a different role in the formation of atherosclerotic lesions.
Keywords: CCR2+CX3CR1low monocytes, CCR2-CX3CR1high monocytes, atherosclerotic plaque, integrins, selectins, scavenger receptors, colony stimulating factor.

The influence of chemokines on the formation of atherosclerotic lesions by regulating the function of leukocytes.

I.V. Sergienko, D.N. Nozadze, E.I. Kaznacheeva

Russian Cardiology Research Complex

Abstract
This paper describes the processes that regulate the function of leukocytes in the formation of atherosclerotic plaque. In particular, it illustrates the role of MCP-1, interleukin 8, fraktalkin, macrophage migration inhibitory factor, arterial colony stimulating factor-1. The authors describe the mechanisms that are included in the early and advanced stages of atherosclerotic process and different role of the various subclasses of monocytes, which are known to be differently involved in the formation of atherosclerotic plaque.
Keywords: MCP-1, fraktalkin, interleukin 8, macrophage migration inhibitory factor, heteromeric complexes of chemokines.

High dietary content of palmitic fatty acid is the major cause of increase in low-density lipoprotein cholesterol and arrterial intima atheromatosis .

V.N. Titov

Russian Cardiology Research-and-Production Center, Russia, Moscow

Abstract
According to an increase in the rate constant of hydrolysis by post-heparin lipoprotein lipase individual blood serum triglycerides are arranged as follows: palmitoyl-palmitoyl-palmitate – palmitoyl-palmitoyl-oleate – palmitoyloleyl- palmitate – oleyl-palmitoyl-palmitate – oleyl-oleyl-palmitate – oleyl-oleyl-oleate. Left and right shifts can be identified in this spectrum of TG isoforms: PPP – PPO – POP – OPP – OOP – OOO. Left shift to palmitic TG occurs when a) animal food, beef and fat diary products are consumed, i.e., the content of palmitic saturated fatty acid (FA) is 15% over other FA and b) in endogenous syndrome of insulin resistance. Blood level of lowdensity cholesterol and apoE and apoC-III contents are high. Right shift with prevalence of oleic TG occurs at low dietary contents of beef and fat diary products and high contents of fish, seafood and olive oil, physiological levels of carbohydrates, normally functioning insulin and high physical activity. Right shift initiates the effects of insulin, □-3 essential polyenic FA, glutazol and fibrates which increase the activity of □9-stearyl-CoAdesaturase- 2 and conversion of palmitic saturated FA into monounsaturated oleic FA. Left shift results into a palmitic metabolic pathway of energy substrate, while right shift leads to a more effective oleic pathway.
Keywords: fatty acids, triglycerides, insulin resistance 9-stearyl-CoA-desaturase.

Heterozygous familial hypercholesterolemia in St.-Petersburg due to defects of the low density lipoprotein receptor gene.

B.M. Lipovetsky, M.Yu. Mandelshtam.

Institute of the Human Brain, Institute of the Experimental Medicine, St.Petersburg, Russia

Abstract

Aim – to analyze how commonly Familial hypercholesterolemia (FH) is transmitted from one of parents-probands to children; to evaluate peculiarities of the blood lipid spectra in males and females suffering from FH and their sons and daughters; to compare the frequency and expression of clinical features in differentiated groups and, when possible, to establish the nature of genetic defect underlying FH.

Materials and methods. During last two decades we have followed 60 probands with FH and two groups of their children: 40 persons with heterozygous FH (group 1) and 43 persons without this pathology (group 2). Blood lipid spectra was measured several times in all subjects. In 47 probands we have studied the coding region of the low density lipoprotein receptor (LDLR) by conformation-sensitive electrophoresis of DNA and by DNA sequencing.

Results. FH was transferred to half of the progeny (50% of children) both from fathers and from mothers. Clinical features of hypercholesterolemia were mainly observed in the group of males-probands older than 40 years. In 93% of these persons coronary heart disease was registered and during our observation 38% of them finished by lethal end-point. In the group of sons with FH (age 31±3.5) and in the group of daughters with FH (age 40±3.1) clinical manifestations were recorded in singletons. Out of 47 probands studied genetically LDL receptor gene mutations were revealed in 29.

Conclusion. In persons with FH the most important risk factor for coronary heart disease must be considered male sex and age after 40-45 . Out of 29 probands with different variants of the genetic defect only two variants were repeated (in 10 persons), all other variants (each of them) spread only in the single family.

Keywords: probands, Familial hypercholesterolemia (FH), low density lipoprotein (LDL), low density lipoprotein (LDL) receptor.