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ABSTRACTS

Characteristics of lipid metabolism in patients with chronic kidney disease and the effect of lipid-lowering drugs on renal hemodynamics

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Abstract
This review presents data on lipid disorders in patients with chronic kidney disease and chronic renal failure. A description of the results of studies that examine the influence of lipid-lowering therapy on the progression of chronic kidney disease.

Keywords: chronic kidney disease, dyslipidemia, chronic renal failure.

Biochemical markers of atherogenic shifts in lipoprotein profile: the relationship with biological and chronological vascular aging

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Abstract
Aim. To explore the relationship between atherogenic shifts in lipoprotein profile, if any, and vascular aging.
Materials and methods. Totally 202 subjects of both sexes aged 30–75 years without clinical manifestations of atherosclerosis-related diseases which didn't receive regular cardiovascular therapy were included into the study. Depending on biological age of vessels (flexible or stiff) and chronological age (years) patients were divided into 4 groups. Pulse wave velocity (PWV) > 10 m/s was used as a measure of arterial stiffness. Lipid and apolipoprotein (apo) AI and B levels were determined by routine laboratory methods. The low densities lipoproteins subfractions distribution was analyzed using Lipoprint LDL System.
Results. In subjects qualified as «young» with stiff vessels in comparison with «young» ones with flexible vessels higher levels of total cholesterol (C) and low density lipoprotein (LDL)-C were found. In subjects qualified as «old», triglycerides (TG) concentration was higher and Lp (a) – lower in those with stiff than with flexible vessels. The subfractional lipoprotein analysis revealed: the VLDL portion was higher in subjects with stiff arteries irrespective of age. In «old» subjects with stiff vessels the portion of the largest particles within intermediate density lipoprotein (IDL) range was the lowest as compared to all other groups. On the other hand, in «old» subjects with elevated arterial stiffness significantly more small particles of IDL-B, and especially IDL-A subfractions, were found.
Conclusion. The increased arterial stiffness at chronologically old patients was associated with elevated portion of small dense IDL particles, by the size close to potentially atherogenic LDL.
Keywords: arterial stiffness, biological age, chronological age, pulse wave velocity, lipoproteins.

Relationship of blood osteonectin concentration with inflammatory, oxidative and lipid biomarkers in coronary atherosclerosis and its complications

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Abstract

Aim. The studying the blood osteonectin concentration in coronary atherosclerosis and its complications, and its associations with key atherosclerosis biomarkers.

Materials and methods. Concentrations of stromal stem cells protein-marker osteonectin were studied with help of proteome technology «PureProteome Protein A and Protein G Magnetic Beads» by direct method of biomagnetic protein separation with magnetic microspheres in 42 men with coronary atherosclerosis (CA) with coronary heart disease (CHD) with stable angina pectoris II–IV FC, in 20 men with acute myocardial infarction (MI) and in 45 age control men without CHD.

Results. Concentrations of blood osteonectin were higher in men with CA and stable angina pectoris (up to 2.7-fold, $p < 0.01$) and in men with MI (up to 3.0-fold, $p < 0.01$) in comparison with control group men. Significant correlations ($p < 0.05$) of blood osteonectin with some key biomarkers of atherosclerosis (lipid, inflammatory and oxidative) and with CA were revealed.

Conclusion. These results indicate that osteonectin as marker of stromal stem cells with osteogenous potential, probably, plays important role in atherogenesis and is one of the new biomarkers of CA and its complications.

Keywords: osteonectin, proteome technology, coronary atherosclerosis, lipid, inflammatory and oxidative biomarkers of atherosclerosis.

Adiponectin, dyslipoproteinemia, insulin: the relationship and impact on the risk of angina recurrence in men after myocardial revascularization

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Abstract

Aim. The aim of this study was to examine the relationship of adiponectin levels with other hormonal and metabolic parameters and their influence on the risk of early recurrent angina in patients with coronary artery disease after myocardial revascularization.

Materials and methods. The study included 101 patients with coronary artery disease (CAD), male from 35 to 65 years (mean age 52,4 ± 7,5 years).

Results. All patients underwent surgery coronary artery bypass grafting without cardiopulmonary bypass. Patients were divided into three groups according to the level of adiponectin (tertiles). Independent associations with adiponectin levels hormonal and metabolic parameters were identified. The most significant negative correlation was identified between the levels of adiponectin and triglycerides (r= —0,36; p = 0,043), levels of stimulated insulinemia (r = —0,40; p = 0,02) and glucose level 120 min after loading (r= —0,36; p = 0,039). Adiponectin was the only one factor associated with insulin resistance, which influenced the clinical outcome during the year after surgery.

Conclusion. Definition of early predictors and markers of abdominal aortic calcification can significantly affect the individual treatment program that will certainly influence on the outcome of both conservative and surgical treatment of peripheral atherosclerosis.

Keywords: adiponectin, dyslipoproteinemia, insulin, coronary artery disease.

Quantitative assessment of intermediate stenosis of coronary arteries by single photon emission computed tomography with attenuation correction in comparison with fractional flow reserve

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Abstract

Background. Fractional flow reserve (FFR) is currently used to determine the management of intermediate coronary artery stenosis. FFR more 0,80 used in clinical practice to guide revascularization. Advances in nuclear medicine single photon emission computed tomography with attenuation correction (SPECT/CT) require revaluation quantitative parameter noninvasive imaging in compared with FFR in the diagnosis of the functional significance intermediate stenosis coronary artery.

Materials and methods. In this study, 70 patients (mean age 57 ± 5 years, 50 men, and 20 women) with ischemic heart disease and 50 to 70 % coronary stenosis (target vessel). All perfusion scans were performed using a camera (BrightView XCT Philips) equipped with a low-energy, high-resolution collimator and with cardiac gating. Antianginal medication was discontinued 48 hours before the study, and patients abstained from caffeine for 24 hours prior to the study protocol one day stress (bicycle test)/rest use with 900 MBq (25 mCi) of technetium 99m-MIBI. Coronaroangiography (CAG), which was defined as angiographic moderate (50–70 %), was assessed by quantitative coronary angiography (QCA) and pressure wires received FFR.

Results. Normal FFR > or = 0,8. Summed difference scores (SDS) in the left anterior descending (LAD) artery, right coronary artery (RCA) and ramus circumflexus (RCX) artery territory according to the 17 segment model were calculated with attenuation correction (AC) and no correction (NC). In order to evaluate the sensitivity and specificity used ROC- analysis. NC value SDS > 3 predicts the existence of a reliable, persistent perfusion defects with a sensitivity of 96,4 % and a specificity of 84,2 %, the images attenuation correction (AC) SDS > 4 (96,7 % and 90,1 %, respectively).

Conclusion. Method of SPECT/CT can be used to determine the hemodynamic significance of intermediate coronary artery stenosis. Quantitative assessment of myocardial perfusion SDS determined at SPECT/CT with attenuation correction is more sensitive and specific for the coronary artery stenosis evaluation.

Keywords: coronary artery disease, intermediate stenosis of coronary arteries, single photon emission computed tomography, attenuation correction, fractional flow reserve.

Efficacy and safety of the selective ß-blocker bisoprolol in patients with cardiovascular and broncho-obstructive diseases

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Abstract

Objective. To investigate the safety and efficacy of selective β-blocker bisoprolol in patients with cardiovascular and broncho-obstructive disease.

Materials and methods. The study included 31 patients with cardiovascular and broncho-obstructive (chronic obstructive pulmonary disease (COPD) and asthma) diseases and 35 patients suffering from cardiovascular diseases (hypertension, ischemic heart disease, cardiac arrhythmias). Safety Based β-Blockers (β-B) was assessed by a 4-hour spirometric tests with β-B, the results of computer spirometry, using a questionnaire and COPD Assessment Test (CAT) scale Medical Research Council Scale (MRC). Efficacy of this drug was determined using ambulatory blood pressure monitoring, Electrocardiographic Holter monitoring, as well as the dynamics of clinical symptoms and exercise tolerance (test with a 6-minute walk).
Results. According to the 4-hour spirometric tests with β-B only two patients with cardiovascular disease (CVD) and broncho-obstructive disease a marked decline in forced expiratory volume in one second (FEV1). During the 12-week study in patients with cardiorespiratory pathology there was no reduction of bronchial patency according to the results of computer spirometry (baseline forced expiratory volume in the 1st s (FEV1) – 76 ± 17 % at the end of the observation period FEV1 – 79 ± 19 %). In the combined antihypertensive therapy with bisoprolol significantly reduced both systolic and diastolic blood pressure showed a trend toward an increase in distance traveled from 460 ± 83 to 485 ± 72,9 meters. In our study shows rhythm, slows and antiarrhythmic effects of bisoprolol in patients with CVD and the broncho-obstructive disease. According to the questionnaire CAT and MRC scale was a significant reduction in the severity of symptoms on a 12 week treatment with bisoprolol (on a scale of CAT from 11,5 ± 8,8 to 7,7 ± 6,6 points, on a scale MRC c 1,7 ± 0,8 to 0,9 ± 0,6 points (p = 0,01)).
Conclusions. Long-term use of bisoprolol in patients with CVD and broncho-obstructive disease proved safe, effective and justified when indicated. Nevertheless, the need to control the parameters of respiratory function and identification of patients at high risk of bronchial obstruction, even against the background of a single dose of highly selective β-B.
Keywords: cardiovascular disease, broncho-obstructive disease, beta-blockers.

Morphofunctional state of the liver and heart in patients in the subacute period of myocardial infarction

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Abstract
Purpose. To estimate morphofunctional changes in the liver and heart against the background of acute coronary pathology.
Materials and methods. 115 patients with myocardial infarction have been investigated: ultrasound examination of heart and liver and biochemical study of the blood. According to the results of inspection two 2 groups of patients have been formed: patients with the myocardial infarction and nonalchoholic fatty liver disease (n = 41) and patients with the myocardial infarction without the diseases of liver (n = 74).
Results. Patients with the myocardial infarction and the fatty liver disease had the more pronounced left ventricular remodeling, disturbance of hepatic blood flow in combination with the phenomena of the venous plethora of the liver.
Conclusion. The systole-diastolic dysfunction of myocardium and the visceral deposition of the blood indicate the development of the concealed heart failure.
Keywords: myocardial infarction, nonalcoholic fatty liver disease, hepatic blood flow, diastolic dysfunction.

Lipoprotein (a) as the only risk factor in young men with myocardial infarction

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Abstract
In the treatment and prevention of coronary heart disease that patients of middle and older age groups can have, the important task is to identify the classic risk factors and attempt to modify them. However there are cases when young men without classic risk factors can have such disease. In such situations an important diagnostic point is to identify hidden non-traditional risk factors. Here is a case of demonstration of coronary heart disease as an acute myocardial infarction that a young man without risk factors but with a significant increase in the level of lipoprotein (a) has and possible approaches to therapy that reduce the level of this indicator.
Keywords: atherosclerosis, coronary heart disease, myocardial infarction at a young age, risk factors, lipoprotein (a), treatment of hyperlipidemia (a).