The clinical biochemistry of hypo-lipidemic therapy and mechanisms of action of statins: the fatty acids, statins and diabetes mellitus.

V.N. Titov

The Russian cardiologic R&D production complex of Minzdrav of Russia, 121552 Moscow, Russia
correspondence to: Titov Vladimir Nikolaevich
e-mail: vn_titov@mail.ru

Abstract: In liver, statins inhibit synthesis of specific pool of cholesterol which is formed de novo by hepatocytes for monolayer of polar lipids at the surface of forming lipoproteins of very low density. The statins, decreasing content of non-esterified cholesterol in monolayer, activate hydrolysis of triglycerides in lipoproteins of very low density, formation of lipoproteins of low density and their absorption by cells through apoB-100 receptors. The statins, activating absorption of lipoproteins of low density, restore functional action of essential polyenoic fatty acids. The essential polyenoic fatty acids, fibrates and glitazones form in cells effective oleic version of metabolism when mitochondrions predominantly oxidize oleic fatty acid. The statins, non-activating oxidation in peroxisomes and inhibiting activity of stearil-KoA-desaturase, form in cells less effective palmitic variant of metabolism of fatty acids under oxidation of palmitic fatty acid in mitochondrions. The fatty acids are not enough under hydrolysis of exogenous triglycerides to synthesize optimal amount of ATP. The fatty acids accumulated in adipocytes are to be used. This is the cause of formation by statins the resistance to insulin. Functionally, lipoproteins of very low density and lipoproteins of low density are phylogenetically different. The former ones transfer fatty acids to cells in the form of triglycerides and the latter ones in the form of ethers with alcohol cholesterol. The statins normalize absorption of essential polyenoic fatty acids by cells which manifest a physiological action named a pleotropic one.

Key words: statins, cholesterol, lipoproteins of very low density, lipolysis, insulin, resistance to insulin

The evaluation of ratio of oncomarkers in search of initial focus of tumor: On the occasion of fiftieth anniversary of discovery of alpha-fetoprotein as an oncomarker

Yu.P. Reznikov¹, V.V. Maslenikov¹, A.A. Roppelt², V.I. Butvilovskaya², A.Yu. Rubina²

¹The polyclinic № 1 of the administrative department of the President of the Russian Federation, 119002 Moscow, Russia; ²The V.A. Enchelhart institute of molecular biology of the Russian academy of sciences, 119991 Moscow, Russia; ³The M.V. Lomonosov Moscow state university, 119991 Moscow, Russia
correspondence to: Yu.P. Reznikov
e-mail: immlab@yandex.ru

Abstract: The article presents research data testifying the dominant value of HAFP behavior in diagnostic of oncological diseases. The importance of study of profile of main oncomarkers in patient is demonstrated. The method of hydrohelium biochips, developed in the institute of molecular biology, was used to determine 9 key oncomarkers. The application of this method made it possible to essentially complete the information map in 8 patients according to clinical interpretation of disease. In economically justified variant, this method is able to shorten period of study of patient, to specify character of pathological process and to transfer examination load of patients to the out-patient level.

Key words: oncomarker, initial focus, tumor

The polymorphism of genes of synthesis and metabolism of estrogens and the risk of breast cancer

E.V. Petchkovskiy¹, A.S. Shadrina¹, U.A. Boyarskih¹, I.A. Selezneva², T.V. Sinkina², A.F. Lazarev², V.D. Petrova¹, M.L. Filipenko¹

¹The institute of chemical biology and fundamental medicine of the Siberian branch of the Russian academy of sciences, Novosibirsk, Russia; ²The Altai branch of the N.N. Blokhin Russian oncological research center of the Russian academy of medical sciences, Barnaul, Russia
correspondence to: A.S. Shadrina
e-mail: weiner.alexserg@gmail.com

Abstract: The genetic polymorphism of enzymes of synthesis and metabolism of estrogens can input into predisposition to breast cancer. The purpose of actual study was to analyze the associations of polymorphic loci CYP171B1rs10556836, CYP1A1rs1048943, CYP1A2rs762551, CYP19A1rs2470152 and
CYP17A1rs743572 with risk of development of breast cancer in Russian residents of the Western-Siberian region of Russia. The rates of alleles and genotypes of the given loci were determined in sampling of women suffering with breast cancer (n=670 females) and in control group (480 females without oncological diseases). The sub-groups of patients with breast cancer in pre-menopause and postmenopause were analyzed separately. The border-line association of locus CYP17A1rs743572 is demonstrated with increasing of risk of breast cancer during pre-menopause (allele C: p=0.04). Among the rest of polymorphic loci no association was detected.

Key words: breast cancer, polymorphism, CYP1B1, CYP1A1, CYP1A2, CYP19A1, CYP17A1

KL-1301-023
The dynamics and prognostic value of cerebral natriuretic peptide and C-reactive protein under acute cardiac infarction depending on tactic of treatment
M.Kh. Makhoyeva1, M.M. Fedorova1, A.G. Avtandilov1, S.P. Semitko2, V.V. Dolgov1, A.P. Roitytman1
1The Russian medical academy of post-graduate education of Minzdrav of Russia, 123995 Moscow, Russia; 2The N.I. Pirogov Russian national research medical university Minzdrav of Russia, 117997 Moscow, Russia
correspondence to: M.Kh. Makhoyeva
e-mail: makoeva12@mail.ru
Abstract: The sampling consisted of 102 patients with acute cardiac infarction with ST elevation up to 6 hours from the onset of disease. The subjects were divided into three groups: group I with primary stent procedure, group II with deferred stent procedure during 24 hours after effective thrombolytic therapy and group III with isolated effective thrombolytic therapy. The Doppler-echocardiography was applied to all patients. In every group the evaluation was carried out to dynamics NT-proBNP and C-reactive protein. In group III with isolated effective thrombolytic therapy in sub-acute period of cardiac infarction NT-proBNP increased more than twice in comparison with groups of patients with stent procedure. The values of C-reactive protein were lower than in groups I and II. The dynamics of NT-proBNP and C-reactive protein depend on mode of regeneration of coronary blood flow and level of increase of NT-proBNP corresponds the type of diastolic dysfunction of left ventricle of heart.
Key words: acute cardiac infarction, cerebral natriuretic peptide, C-reactive protein, diastolic dysfunction

KL-1301-026
The clinical diagnostic importance of detection of vascular endothelial growth factor in evaluation of progression of pyelonephritis in children
V.V. Bazarniy, M.V. Avertchenko
The Ural state medical academy of Minzdrav of Russia, 620028 Yekaterinburg, Russia
correspondence to: V.V. Bazarniy
e-mail: vlad-bazarnyi@yandex.ru
Abstract: The article deals with evaluation of clinical diagnostic importance of detection of vascular endothelial growth factor under pyelonephritis in children. The study was implemented on sampling of 60 patients with various degree of compensation process. The level of vascular endothelial growth factor increased significantly in patients proportionally to severity of process and its value correlated with velocity of glomerular filtration and vascularization of kidney.
Key words: chronic pyelonephritis, vascular endothelial growth factor

KL-1301-027
The difference of conformation of apoB-100 in lipoproteins of low and very low density. The modified lipoproteins and destructive inflammation in intima of arteries: A lecture
V.N. Titov1, V.A. Ameliyushkina1, T.I. Kotkina1, A.V. Aripovskiy2
1The Russian cardiology R&D production complex of Minzdrav of Russia, 121552 Moscow, Russia; 2The state research center of applied microbiology and biotechnology of Rospotrebnadzor of Russia, Obolensk, Moscowskaya oblast, Russia
correspondence to: V.N. Titov
e-mail: vn_titov@mail.ru
Abstract: The formation of ligand occurs in phylogenetically earlier lipoproteins of very low density and later lipoproteins of very low density when apoB-100 takes active conformation in association with essential polyenoic fatty acids, in form of ethers with alcohol cholesterol, palmitic and oleic triglycerides. In lipoproteins of low density apoB-100-domain-ligand is formed, in lipoproteins of very low density apoE/B-100-ligand is formed. The ligand lipoproteins absorb cells using apoE/B-100 and apoB-100 receptor endocytosis. In cases
of excess of palmitic triglycerides and lipoproteins of very low density of the same name in blood, damage of primary structure of post-heparin, hepatic lipoprotein lipase and co-enzymes apoC-II and apoC-II, phenotype E2/E2 blood accumulates pre-ligand lipoproteins rich in triglycerides.

In case of pathology of apoB-100-receptor post-ligand lipoproteins of low density with low content of triglycerides are cumulated. All non-ligand lipoproteins in a physiological way denature neutrophils. The presence of pathology induces modification in case of action of other agents (glyco-toxins). The pre-lipoproteins form in the intima of arteries soft voluminous plaques and such destructive inflammatory process as athero-thrombosis. The post-lipoproteins form flat plaques and destructive inflammatory atheromatosis. The atherosclerosis can be labeled as disease of conformation.

The surplus of palmitic saturated fatty acids in food, phenotype E2/E2 and deletion of gene apoB-100-receptor are causes of intima lesion. The non-ligand lipoproteins form destructive process, dying foam cells and macrophages - inflammatory component. The atheromatosis is a result of realization of biological function of endoecology, support of «purity» of intercellular medium.

Key words: apoB-100, conformation, fatty acid, atheromatosis, athero-thrombosis, modified lipoproteins

KL-1301-0

The evaluation of oxidative modification of proteins in patients with chronic disseminated dermatosis

T.V. Kopitova, G.A. Panteleyeva, O.N. Dmitriyeva, E.V. Kotkova

The Nizhny Novgorod branch of the state research center of dermatovenerology and cosmetology of Minzdrav of Russia, 603950 Nizhny Novgorod, Russia

correspondence to: T.V. Kopitova

e-mail: nnikvi@mail.ru

Abstract: The analysis was made concerning oxidative modification of proteins of blood serum and erythrocytes in patients with chronic disseminated dermatosis. The high degree of total oxidative modification of proteins was established in patients with psoriasis and atopic dermatitis. The increase of level of oxidized derivatives of apoproteins in compound of lipoproteins of low density under psoriasis, atopic dermatitis and pemphigus was detected. The increase of amount of carbonyl derivative of oligopeptids under psoriasis was revealed. In patients with resistance to applied therapy the statistically significant decrease of total oxidative modification of proteins of blood serum and erythrocytes was detected. This occurrence is possibly related to derangement of process of proteolytic destruction of proteins.

Key words: protein, oxidative modification, chronic disseminated dermatosis

KL-1301-044

The condition of the system «Peroxide oxidation of lipids-antioxidant defense» in mixed saliva of patients with chronic generalized periodontitis

I.A. Butiyugin, I.A. Volchegorskiy

The Southern Ural state medical university of Minzdrav of Russia, 454092 Chelyabinsk, Russia

correspondence to: I.A. Butiyugin

e-mail: butiyugin@inbox.ru

Abstract: The comparative analysis was made concerning conditions of the system «Peroxide oxidation of lipids-antioxidant defense» in mixed saliva of patients with chronic disseminated periodontitis of light (n=45), mean (n=36) and severe (n=18) degrees. The control group consisted of 25 clinically healthy persons with intact periodontium. The study revealed that in comparison with control group, in patients with chronic disseminated periodontitis occurred an increasing of content of heptane-soluble diene conjugates, isopropanol-soluble ketodienes and conjugated trienes, ceruloplasmin and a decreasing of level of α-tocopherol, especially under severe degree of disease. The study also established a non-linear U-dependence between indicators of the system «Peroxide oxidation of lipids-antioxidant defense» in mixed saliva and severity of affection of tissues of periodontium in patients with chronic disseminated dermatosis.

Key words: chronic disseminated periodontitis, peroxide oxidation of lipids, antioxidant defense

KL-1301-048

The diagnostic of chronic infection Helicobacter pylori in children

S.Yu. Tereschenko, I.A. Olkhovkiy

1The research institute of medical problems of the North of the Siberian branch of of the Russian academy of medical sciences, Krasnoyarsk, Russia; 2The Krasnoyarsk branch of the hematologic research center of Minzdrav of Russia, 660036 Krasnoyarsk, Russia

correspondence to: S.Yu. Tereschenko
Abstract: The epidemiological studies testify an extremely high prevalence of chronic infection of children with Helicobacter pylori in Russia. The affection consists from 50% to 80% depending on region and age of examined children. The currently in force recommendations “Maastricht IV” concerning diagnostic and treatment of Helicobacter pylori infection adult patients are applied not in its fullness to children adolescent population. At the same time recently published joint conciliatory document of the European and North American associations of pediatric gastroenterologists is oriented to populations with low prevalence of Helicobacter pylori infection and particular profile of drug resistance. Hence, an urgent need exists to develop modern local algorithm concerning diagnostic, treatment and control of eradication of Helicobacter pylori infection among children and adolescents in Russia. The review presents analysis of admissibility of application in Russia’s conditions of the international conciliatory documents concerning diagnostic of Helicobacter pylori infection in children. The data from conciliatory document of the European (ESPGHAN) and North American (NASPGHAN) associations of pediatric gastroenterologists, particular orginal research studies and one’s own clinical experience were used. The advantages and shortcomings of actual methods of laboratory diagnostic of Helicobacter pylori infection are discussed. The approaches to application of particular diagnostic methods are considered. The enhanced indications to detection of infection and implementation of eradication therapy are proposed.

Key words: Helicobacter pylori, symptom, chronic infection, clinical laboratory diagnostic, characteristics of child and adolescent age, serological test, respiratory test with urea, test on Helicobacter pylori antigen in feces, adaptation, international recommendations, Russia

KL-1301-053

The rate of detection and diagnostic significance of antibodies to Borrelia Burgdorferri in patients with eyes diseases of inflammatory nature

G.I. Kritchevskaya, E.S. Vakhova, O.B. Vylivannaya, G.A. Davydova
The Helmholtz Moscow research institute of eyes diseases of Minzdrav of Russia, 105062 Moscow, Russia
correspondence to: G.I. Kritchevskaya
e-mail: gkri@yandex.ru

Abstract: The eyes diseases appear at any stage of Lyme borreliosis and clinical manifestations are polymorphic and non-specific. The study examined prevalence of B. burgdorferi s.l. infection in patients with different eyes diseases and evaluated diagnostic significance of antibodies to B. burgdorferi in clinical practice. The sampling included 57 patients with conjunctivitis, keratitis, uveitis,chorooretinitis, optical neuritis of unclear etiology. The blood serum of patients was analyzed to detect presence of IgMand IgG-antibodies to B. burgdorferi s.l. The positive results were confirmed in Western blot (two-sweep method). The immune enzyme analysis detected antibodies to B. burgdorferi in 7 out of 57 examined patients (12.3%). The Western blot confirmed presence of antibodies only in 3 serums out of 57 (5.3%). The high rate of false positive results was established during immune enzyme analysis detecting IgM-antibodies to B. burgdorferi. On the basis of comprehensive examination ophtalmo-borreliosis was diagnosed in two out of three patients seropositive to B. burgdorferi. In one seropositive patient co-infection B. burgdorferi provoked exacerbation of chronic uveitis of unclear etiology. It is appropriate to include in plan of examination of patients with inflammatory eyes diseases of unclear genesis the detection of antibodies to B. burgdorferi using two-sweep test (study of serums with immune enzyme analysis, confirmation of positive results in Western blot).

Key words: Lyme diseases, diagnostic, ophtalmo-borreliosis, immune enzyme analysis, Western blot

KL-1301-057

The shortcomings of technical regulation in sphere of circulation of medical devices for diagnostic in vitro in the Russian Federation: The state of affairs and proposed solutions

I.N. Manzenyuk1, G.A. Shipulin1, V.V. Menshikov2
1The Central research institute of epidemiology of Rospotrebnadzor of Russia, Moscow, Russia; 2The I.M. Sechenov first Moscow medical university of Minzdrav of Russia, 119992, Moscow, Russia
correspondence to: I.N. Manzenyuk
e-mail: gor.manzenik@pcr.ru

Abstract: The article presents analysis of international and national trends in area of development of normative legal documents in sphere of circulation of medical devices for diagnostic in vitro. The comparative analysis was made concerning certain principles of formation of nomenclature of medical devices for diagnostic in vitro in the international practice and in the Russian Federation. The necessity of reformation of national normative legal base in this issue is demonstrated.

Key words: medical device, diagnostic, in vitro, technical regulation, normative legal document