THE PRACTICAL APPLICATION OF MARKER -2proPSA AND HEALTH INDEX OF PROSTATE phi IN DIAGNOSTICS OF PROSTATE CANCER
A.V. Ruzhanskaya¹, S.A. Evgina¹, I.I. Skibo²
¹The department of clinical laboratory diagnostic of “Beckman Coulter, Ltd.”, Moscow; ²The laboratory complex “Helix, Ltd”, St.Petersburg
correspondence to: A.V. Ruzhanskaya
e-mail: aruzhanskaya@beckman.com
Abstract: The article demonstrates that prostate-specific antigen (PSA) has some limitations in detection of cancer of prostate. It was demonstrated that isoform of free PSA 2proPSA has higher specificity in comparison with total PSA (tPSA) and percentage tPSA (% free PSA) in detection of cancer of prostate. The application of Prostate Health Index including such indicators as -2PSA, free PSA and tPSA makes it possible to increase degree of detection of cancer of prostate, to increase specificity and to decrease number of optional biopsies. Besides, correlation was established between value of Prostate Health Index and degree of aggressiveness of forms of cancer of prostate.
Key words: cancer of prostate, prostate-specific antigen, -2proPSA, Prostate Health Index

THE ASSOCIATION OF LEPTIN WITH DISLIPIDEMIA IN GROUP OF ETHNIC KIRGHIZ
The academician M. Mirrakhimov national center of cardiology and therapy, Bishkek, Kyrgyzstan
correspondence to: A.S. Kerimkulova
e-mail: alinakg@gmail.com
Abstract: The article deals with results of evaluation of relationship between leptin and lipid indicators in group of ethnic Kirghiz. The sampling included 322 ethnic Kirghiz (145 males and 177 females) aged from 30 to 75 years. To all patients was applied general clinical examination, anthropometric examination (height, body mass, waist circumference, thighs circumference). The body mass index was calculated. The level of glucose (on an empty stomach), lipids spectrum and leptin of blood serum were measured. The average age of patients consisted 57.7±9.6 years and average level of leptin was 7.8 ng/ml. The patients were allocated to three groups depending of tertile of leptin (<3; 3.0-5.51; ≥5.52 ng/ml in males; 9.6; 9.6-16.6; ≥ 16.7 ng/ml in females). In patients from upper tertile as compared with patients from lower tertiles are noted high values of triglycerides (p<0.001), total cholesterol (p<0.001), in males and triglycerides (p=0.02) in females. Leptin correlated with body mass index (in males: r=0.68, p<0.001; in females: r=0.74, p<0.001), concentration of triglycerides (in males: r=0.301, p<0.001; in females: r=0.194, p<0.001). Leptin correlated with total cholesterol in males (r=0.214, p<0.05) and with cholesterol of lipoproteins of high density in females (r=0.156, p<0.05). The level of leptin in group of ethnic Kirghiz is associated with dislipidemia, obesity, including abdominal obesity.
Key words: leptin, dislipidemia, obesity, abdominal obesity

THE DIAGNOSTIC POSSIBILITIES OF SALIVA
E.V. Kochurova, S.V. Kozlov
The I.M. Sechenov first Moscow medical university of Minzdrav of Russia, 119119021, Moscow, Russia
correspondence to: E.V. Kochurova
e-mail: evrochurova@mail.ru
Abstract: Saliva is a clinically informative biological fluid which contains multitude of bio-markers. This characteristic makes it possible to carry out numerous analyzes for developing mode to test patient in situ, express-tests included. The diagnostic by saliva is a new area of more simple application both markers and analyzers that can be useful in diagnostic of diseases of oral cavity, oncological diseases included. The using of saliva expands perspectives for making clinical diagnosis and establishment of dynamics and monitoring of disease.
Key words: bio-marker, saliva, diagnostic
THE MARKERS OF LIPID TRANSPORT SYSTEM OF BLOOD AND ANNUAL PROGNOSIS OF CARDIAC INFARCTION

O.V. Gruzdeva1, V.N. Karetikova1,2, O.E. Akbasheva3, Yu.A. Dyleva1, E.I. Palitcheva1,2, E.G. Utchasova1, E.V. Belik1, N.G. Brazovskaya3, O.V. Barbarash1

1 The research institute of complex problems of cardiovascular diseases of the Siberian branch of the Russian academy of medical sciences, Kemerovo, Russia; 2The Kemerovo state medical academy of Minzdrav of Russia, Kemerovo, Russia; 3The Siberian state medical university of Minzdrav of Russia, Tomsk, Russia

correspondence to: O.V. Gruzdeva
e-mail: grouzov@cardio.kem.ru

Abstract: The sampling included 133 patients with diagnosis of cardiac infarction with peak of segment ST. After a year after old cardiac infarction, in 38 patients were established such unfavorable outcomes of disease as progressive stenocardia, decompensation of cardiac failure, repeated cardiac infarction and lethal outcome. It is established that among all indicators of lipid profile detected at hospital period of cardiac infarction only three indicators are prognostically significant in groups of patients with different outcomes levels of free fatty acids, oxidized modified lipoproteins of low density and antibodies to them. During hospital period, augmentation of concentration of free fatty acids, oxidized modified lipoproteins of low density and antibodies to them increases risk of development of distant complications of cardiac infarction. The mathematical model is proposed comprising as predictors free fatty acids and antibodies to oxidized modified lipoproteins of low density. This model makes it possible on the basis of biochemical data obtained during hospital period, to calculate individual cumulative risk and to develop long-term prognosis of probable outcome of cardiac infarction.

Key words: cardiac infarction, stenocardia, free fatty acid, oxidized modified lipoproteins of low density, antibodies to oxidized modified lipoproteins of low density

THE POSITIONAL ISOMERS OF TRIGLYCERIDES IN OILS, FATS AND APOB-100 LIPOPROTEINS: PALMITIC AND OLEIC MODES OF METABOLISM OF FATTY ACIDS-SUBSTRATES FOR ENERGY ACQUIRING

T.I. Kotkina, V.N. Titov
The Russian cardiologic R&D production complex of Minzdrav of Russia, 121552 Moscow, Russia

correspondence to: V.N. Titov
e-mail: vn_titov@mail.ru

Abstract: Even total resemblance of content of fatty acids in triglycerides has both no standing for their functional unity nor even identity of their physical chemical characteristics. The etherification of fatty acids in various positions of three-atomic glycerin separates triglycerides on palmitic and oleic substrates for energy acquiring by cells. The kinetic parameters of biochemical reactions under palmitic mode of metabolism of fatty acids are always low. The myocytes in biological reaction of exotrophy experience deficiency of exogenous fatty acids which in vivo is to permanently supply through activation of biological reaction of endotrophy - enhancement of lipolysis in adipocytes. The biological role of insulin is to prevent formation in vivo of palmitic mode of metabolism of saturated and monoenic fatty acids. Under this condition, the necessity to activate lipolysis and to increase in blood plasma concentration of unesterified fatty acids forms syndrome of resistance to insulin. The surplus of palmitic fatty acid in food and deficiency of insulin show in vivo unidirectional apophysiological action. The formation of palmitic mode of metabolism of energy substrates - portion of pathogenesis of atherosclerosis, metabolic syndrome, obesity, non-alcoholic fatty infiltration of liver, and partially essential arterial hypertension.

Key words: fatty acid, triglyceride, metabolism

THE NEW INTERNATIONAL CRITERIA OF CARDIAC INFARCTION AND HIGHLY SENSITIVE TROPONINS: NEW POSSIBILITIES AND NEW PROBLEMS

V.V. Velkov
“Diakon”, 142292 Pushkino, Moscow oblast, Russia

correspondence to: V.V. Velkov
e-mail: vvv@diakonlab.ru

Abstract: The article deals with short review of main provisions of international recommendations concerning new diagnostic criteria of cardiac infarction and algorithms of highly sensitive measurement of circulating concentrations of cardiac troponins. The particular attention is paid to methods of serial highly sensitive measurement of levels of troponins making it possible to confirm or to exclude cardiac infarction during 1-3 hours after admission of patient. The perspectives and problems related to implementation of highly sensitive troponins into common practice of laboratory diagnostic are discussed.
The conformation of apoB-100 in phylogenetically and functionally different lipoproteins of low and very low density: algorithm of formation of phenotypes of hyperlipoproteinemia (a lecture)

V.N. Titov, V.A. Amelyushkina, T.A. Rojkova

The Russian cardiology R&D production complex of Minzdrav of Russia, 121552 Moscow, Russia

correspondence to: V.N. Titov
e-mail: vn_titov@mail.ru

Abstract: The cells’ malabsorption of three classes of lipoproteins - chylomicrons and lipoproteins of low and very low density, - form under electrophoresis six phenotypes of hyperlipoproteinemia. In phylogenesis, cells absorb lipoproteins in a consecutive way by apoE/B - 48, apoB-100 and apoE/B-100 receptor endocytosis. The domain-ligand in lipoproteins of very low density is forming when apoB - 100 takes active conformation “deformed bilayer apoprotein-lipid” in association with domain apoE apoE/B -100 ligand is formed. Another active conformation apoB-100 in domain is globule with lipids in “pocket” forming apoB-100 ligand. In blood 9 subclasses are formed: pre-ligand and post-ligand chylomicrons, lipoproteins with low density and lipoproteins with very low density. The ligand lipoproteins bind receptors of membrane and absorb cells. Both pre-chylomicrons, pre-lipoproteins with low density, pre-lipoproteins with very low density and post-chylomicrons, post-lipoproteins with low density, post-lipoproteins with very low density remain in blood. The sub-classes of lipoproteins form at electrophoregram 6phenotypes of hyperlipoproteinemia: phenotype I - pre-chylomicrons + pre-lipoproteins with very low density; phenotype IIa - post-lipoproteins with low density; phenotype III - pre-lipoproteins with very low density; phenotype IV - post-chylomicrons + pre-lipoproteins with very low density; phenotype V - pre-chylomicrons + post-chylomicrons + pre-lipoproteins with very low density + post-lipoproteins with very low density. The formation under electrophoresis of primary phenotypes and secondary types of hyperlipoproteinemia occurs according single algorithm. In a physiological sense, the major mass of palmitic and oleic lipoproteins with very low density absorb cells without transformation into lipoproteins with low density. Only linoleic and linolenic lipoproteins with very low density which are formed after binding of apoB-100 of triglycerides the same name and which are not much in blood acquire density of lipoproteins with low density physiologically. Under high content of triglycerides in blood main mass of lipoproteins with low density consists of aphysiologic palmitic lipoproteins with very low density with hydrated density lipoproteins with low density. the cause of hyperlipoproteinemia of phenotype III is genotype e2|e2 apoE; hyperlipoproteinemia of phenotype V - genotype e4/e4 and probably toxic inhibition of activity (synthesis) phylogenetically late stearil-KoA-desaturase-2.

Key words: hyperlipoproteinemia, electrophoresis, lipoproteins, conformation apoB-100, apoE and fatty acids

THE MOLECULAR GENETIC DIAGNOSTIC OF GAUCHER DISEASE TYPE I

K.A. Lukina, I.S. Fevralyeva, E.P. Sysoyeva, A.B. Sudarikov, E.A. Lukina

The hematological research center of Minzdrav of Russia, 125167 Moscow, Russia

correspondence to: K.A. Lukina
e-mail: kira-l@list.ru

Abstract: The Gaucher disease is a hereditary enzymopathy underlaid by deficiency of activity of acidic β-glycosidase, a lysosomal enzyme participating in degradation of products of cell metabolism. The actual study was carried out to characterize genotypes of patients with Gaucher disease in the Russian Federation. The study group consisted of sampling of 122 adult patients with Gaucher disease type I. The technique of allele-specific polymerase chain reaction in real time was applied to screening for detection of four most frequent mutations of gene of acidic β-glycosidase (N370S, 84GG, L444P, IVS2+1). The results of molecular genetic studies demonstrated that in Russian patients the most frequent is mutation N370S and genotype N370S/other mutation. the second allele is presented by mutation not included into number of most frequent mutations of gene of acidic β-glycosidase.

Key words: Gaucher disease, mutation, gene, glucocerebrosidase, genotype, molecular genetic analysis
Abstract: Nowadays, two methods of detection of mutations of beta-globin gene are applied: amplification of refractory mutation system and reverse dot-blot-hybridization. The study was implemented to comparatively analyze effectiveness of these methods of molecular diagnostic in detection of thalassemic mutations in Azerbaijan. The examined sample consisted of 82 patients with both homozygous and heterozygous thalassemia and drepanothalassemia as well. In examined patients 146 mutant alleles were detected; 132 were thalassemic ones (16 various mutations) and 14 ranked among hemoglobinosis S (cod6(A>T)). The comparison of effectiveness of mentioned methods made it possible to conclude that both compared methods fit the diagnostic of thalassemic mutations. However, the method of inverse dot-blot-hybridization has a number of advantages and is the best choice for Azerbaijan.

Key words: beta-globin gene, mutation, method, amplification of refractory mutation system, reverse hybridization,