

Former studies on the ATR1 have also revealed that A1166C SNP in ATR1 gene located on the long arm of humans' 3d chromosome, plays role in developing premature CAD (association with 1166CC genotype).
 THE AIM OF THIS STUDY is to estimate the frequencies of some SNPs of RAS genes (AGT:M235T; ATR1:A1166C) within the Arab students of PFUR as these polymorphisms haven't been studied well enough among the Arabs.
 MATERIALS AND METHODES: The study was carried out on 27 apparently healthy and randomly selected Arab students, native from Syria and Algeria. The genetic analysis of the AGT:M235T and AGTR1:A1166C polymorphisms was performed by polymerase chain reaction (PCR) via SNP-express kits (LITEH, Russia).
 RESULTS: The results showed a high frequency of the TT genotype among the Arab students: 22.2% MM 235, 51.9% MT 235 and 25.9% TT 235 which differ from those obtained from previous study on Russian population from Kursk region: AGT:M235T: MM 22.2%, MT 58.9%, TT 18.8% [5].
 For ATR1, the results revealed that the frequency of 1166AA (66.7%) in Arabs is higher comparing to that in Russians (59.4%), while AC (34.8%) and CC (5.8%) frequencies within the Russians are higher comparing to those in Arabs AC (29.6%), CC (3.7%).
 CONCLUSION: This study shows that the TT235 genotype of the Angiotensinogen gene tends to be higher in Arab students comparing to the Russian population. However because of the small size of the sample, the power of the present study was statistically low, so further studies with larger samples are required.

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VASOACTIVE ACTIONS OF LYSOPHOSPHATIDIC ACID

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Introduction. Lysophosphatidic acid (LPA) is a recently discovered bioactive lipid mediator of high significance in immunobiology and hemostasis. Endothelium and activated platelets serve as the main source of LPA, which has diverse but yet elusive impact in the cardiovascular system. We aimed to analyze its potential vasoactive effects.
 Materials and methods. Thoracic (TA) and abdominal (AA) aortic segments were isolated from wild type (WT) and knockout (KO) mice deficient in LPA1 or LPA2 receptors, endothelial NO synthase (eNOS), cyclooxygenase-1 (COX1) or thromboxane A2 receptors (TP). In some experiments the endothelium was mechanically removed. Isometric tension changes of the vessels were tested via myography. Expression of LPA receptors in freshly isolated mouse aortic endothelial cells (MAEC) and vascular smooth muscle (VSM) were analyzed by quantitative real-time PCR. Release of thromboxane A2 was measured by Thromboxane ELISA.
 Results. The vasoactive effects of LPA depended on the integrity of the endothelium: it induced relaxation in intact vessels (both TAs and AAs), while in the absence of endothelium or eNOS LPA provoked vasoconstriction, which was more prominent in the AA. PCR analysis revealed the presence of mRNA encoding the 1, 2, 4, and 5 subtypes of LPA receptors in MAEC while in VSM LPA1 was predominantly whereas LPA3 and LPA4 moderately expressed. The LPA1-3 receptor agonist VPC31143 mimicked, whereas the LPA1/3 receptor antagonist Ki16425 inhibited all vasoactive effects of LPA. Genetic deletion of LPA1 but not that of LPA2 abolished LPA-induced relaxation. Blockade of the protein kinase B/Akt

pathway by wortmannin or MK-2206 failed to influence, whereas inhibition of phospholipase C β by U73122 or edelfosine abolished LPA-induced relaxation. Surprisingly, inhibition of COX by indomethacin and absence of either COX1 or TP abolished LPA- and VPC31143-evoked contraction in endothelium denuded AA segments. According to our Thromboxane ELISA experiments, application of VPC significantly elevated the release of thromboxane A2 in case of WT and TP KO vessels, however this effect was lacking in case of COX1 KO segments.

Conclusions. Our results indicate that in intact vessels LPA induces LPA1- and PLC β -dependent activation of eNOS and consequent relaxation of the VSM. In contrast, in the absence of endothelium or eNOS, LPA induces vasoconstriction by activating VSM COX1 and autocrine/paracrine release of a prostanoid, presumably thromboxane A2. This latter effect of LPA may contribute to the altered vascular reactivity in pathophysiological states associated with endothelial dysfunction.

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ИЗУЧЕНИЕ ФУНКЦИОНАЛЬНОЙ АКТИВНОСТИ МОНОНУКЛЕАРНЫХ КЛЕТОК ПЕРИФЕРИЧЕСКОЙ КРОВИ ДЛЯ ОЦЕНКИ У БОЛЬНЫХ ИКСОДВЫМ КЛЕЩЕВЫМ БОРРЕЛИОЗОМ И КЛЕЩЕВЫМ ЭНЦЕФАЛИТОМ ДЛЯ ОЦЕНКИ ЭФФЕКТИВНОСТИ ЛЕЧЕНИЯ

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STUDY OF FUNCTIONAL ACTIVITY OF PERIPHERAL BLOOD MONONUCLEAR CELLS TO ASSESS TREATMENT EFFICACY IN THE LYME BORRELIOSIS AND TICK-BORNE ENCEPHALITIS PATIENTS

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The functional status of lymphocytes is known to represent immune response to infectious agents, which can be assessed by some morphological features of the cells. The nucleoli are the sites of ribosomal RNA synthesis that localized in the nucleolus organizer regions (NORs) associated with the clusters of ribosomal genes of acrocentric chromosomes. The number and size of argyrophilic NORs correlate with the level of ribosomal DNA transcription and the degree of cell proliferation.

Lyme borreliosis (LB) and tick-borne encephalitis (TBE) are feral herd infections transmitted to humans via tick bites. The functional status of lymphocytes is known to represent immune response to infectious agents, which can be assessed by some morphological features of the cells. The nucleoli are the sites of ribosomal RNA synthesis that localized in the nucleolus organizer regions (NORs) associated with the clusters of ribosomal genes of acrocentric chromosomes 13, 14, 15, 21 and 22 (D and G groups). The number and size of argyrophilic NORs, which can be modified by some exogenous factors, correlate with the level of ribosomal DNA transcription and the degree of cell proliferation.

The objective of the study is to assess size characteristics of the argyrophilic NORs in phytohemagglutinin (PHA)-stimulated peripheral blood lymphocytes of LB and TBE patients.

MATERIALS AND METHODS. The blood samples were obtained from 7 TBE patients and 8 acute LB patients (a median age of 39 years) on the 1st and 30th day of the onset of illness before and after anti-LB antibiotic or specific anti-TBE immunoglobulin treatment. The control group, a median age of 38 years, was comprised of 9 healthy individuals without any history of LB or TBE and tick bites. Peripheral blood lymphocyte cultures were stimulated with PHA and incubated in 37°C for 72 h for the lymphocyte blastogenic response assay. Smears were dried in air and fixed in absolute ethanol. The silver staining method for argyrophilic NORs-associated proteins has been used to visualize the NORs in nuclei. Smears were examined with an optical microscope under a x100 oil immersion lens. The total area of argyrophilic NORs in the nucleus was estimated by the PC program "ImageJ". The number and size of the small ring-shaped and large "compact" NORs were assessed in 200 lymphocytes in each individual. A statistical analysis was conducted using the Statistica 10.0 standard software package. To detect statistically significant differences between independent or dependent groups, the nonparametric Mann-Whitney or