Frequent consequences of magnesium deficiency in the body are irritability, sleep disturbances, heart failure, and constipation.

Zinc, for example, activates about 200 different enzymes that are responsible for a wide range of biochemical reactions of the body - cell division and maturation (wound healing, growth, and development), insulin synthesis, male hormone testosterone (zinc is needed for sexual activity and libido), inhibition inflammatory processes, neutralization of carbon dioxide and carbon monoxide. Possible consequences of zinc deficiency are frequent colds and infectious diseases, allergic reactions, dermatitis, weight loss, hair loss, loss of visual acuity, and prolonged wound healing. Zinc deficiency also can delay the sexual development of boys, sperm losing the ability to fertilize the ovum (infertility) in men, premature births and often giving birth to weakened children with weight loss in women.

Of course, by normalizing the concentration of at least one element, we can affect hundreds of reactions in the body, and if you harmonize dozens of elements, a person can recover or feel much better. It also can solve the problem of weight (for those, who needs to lose weight or gain weight), stop the process of hair loss, eliminate negative skin manifestations, and problems with internal organs. This normalizes mood, eliminates irritability, depression, restores the success of children and adults in learning and concentration, improves mental and physical development, and helps athletes achieve better results. Microelement analysis on hair or nails determines the presence of deficiencies of useful elements or excess toxic substances, helps diagnose chronic processes in the body that have developed over several months and even years. Such a diagnosis is a good screening for a person's health.

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CLINICAL AND DEMOGRAPHIC CHARACTERISTICS OF PATIENTS WITH ESSENTIAL HYPERTENSION, TAKING INTO ACCOUNT THE AGTR1 1666 A>C GENE POLYMORPHISM

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Essential hypertension (EH) is a heterogeneous disease, is a heterogeneous disease with polyetiological mechanism of development. Scientific studies have repeatedly proved that blood pressure depends on cardiovascular and environmental factors, as well as genetic markers that affect the individual risk of developing this pathology. Genetic factors in the development of EH play a critical role in the initiation of disease, therefore special importance in modern medicine is given to molecular genetic methods of analysis with the identification of polymorphic sites.

The aim of the study was to analyze the clinical and demographic parameters of patients with EAG taking into account the AGTR1 1666 A>C gene polymorphism.

The study included patients with stage II EH, 1-3 degrees of blood pressure, medium and high risk; aged 40-70 years. After screening for inclusion and exclusion criteria, 100 patients have been selected, 72 of whom have been genotyped: 51 women, 21 men, the average age of patients was 57,86 ± 1,81 years. The control group consisted of 48 healthy individuals: 30 women, 18 men, the mean age was 49,11 ± 8,62 years, who did not differ in sex and age and with the group of patients ($p>0,05$). Statistical analysis was performed using the means of free and open environment RStudio. The significance of the mean differences was assessed using the t-test Welch. The results were considered significant at $p<0,05$.

The results of the analysis of clinical and demographic indicators taking into account polymorphic variants of the AGTR1 gene showed that the gender distribution among C allele carriers in both groups was equally dominated by men 2,5 times (71% vs. 29%), among AA genotype carriers were dominated by men in both groups as well: 2,3 times more in the group of patients, 1,4 times more in the control group. Both male and female patients carrying the C allele were found 2 times more often (66,6% vs. 33,3%) compared with the control group, male patients AA genotype carriers were 1,29 times more (70% vs. 59%) than in the group of healthy individuals, while the number of female patients with AA genotype did not differ and was lower by 11%

compared to women with the same genotype of the control group. The distribution of patients by gender and BMI showed that female patients with EH AA genotype carriers had significantly higher BMI compared with healthy representatives of the same genotype at 23,94% ($p<0,001$). Burdened heredity by EH as a risk factor was observed in the vast majority (77%) of individuals in both groups, and in C allele carriers this parameter met 14% more often than in carriers of AA genotype (84% vs. 70%). Type 2 diabetes mellitus (DM 2) was detected in one third of patients with C allele and AA genotype, while this pathology was not observed in the examined of control groups at all. Smokers were 4,1 times more likely to be found in patients with the AA genotype than in patients in the control group of the same genotype (25% vs. 6%). The results of analysis of blood pressure levels showed that the value of SBP and DBP in patients carriers of AA genotype and patients carriers of C allele exceeded the ones of control group ($p<0,001$): in patients carriers of the AA genotype, SBP and DBP were higher by 29,68% and 20,41%, respectively; in patients with C allele carriers - by 38,72% and 31,47%, respectively. In addition, in the group of patients carriers of the C allele, blood pressure was higher than that of carriers of the AA genotype ($p<0,05$).

Consequently, the results of the analysis of blood pressure levels taking into account the AGTR1 A1166C polymorphism showed that the values of SBP and DBP in the group of patients C allele carriers were higher than in carriers of AA genotype: SBP – by 5,38%, DBP – by 5,15%. However, the A1166C polymorphism of the AGTR1 gene was not associated with BMI, burdened heredity, DM 2 and smoking. Thus, the data obtained were ambiguous regarding the effect of mutations in the AGTR1 gene (A1166C) on the clinical current of EH and the association with individual clinical and demographic indicators.

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MODERN WAYS TO IMPROVE DIAGNOSIS FOR ALCOHOLIC LIVER DISEASE

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By an assessment of the WHO in 2005, 4% of the burden of disease and 3.2% of all deaths globally were attributable to alcohol. The prevalence of alcoholic liver disease (ALD) takes over 40% of the whole hepatic pathology. The mortality related to ALD increases every year. Despite dramatic advances in medical technologies, current diagnostic context still requires a substantial improvement, especially in timely decision making for liver transplantation.

The aim of present study was to improve present diagnostic methods for ALD, using the combination of clinical and pathomorphological scales.

The total number of ALD patients was 40, aged 25 to 55 years, 32 male, 8 female, with an average duration of the disease about 5.5 years. The patients were divided into two groups according to MELD score (Model for End-Stage Liver Disease): group 1 - MELD≤30 (n=20); and group 2 - MELD≥30 (n=20). Examination methods included physical examinations, biochemical lab tests and liver biopsy. Obtained data were analyzed statistically using the Kaplan-Meier method.

METAVIR score was as following: group 1 - 45% of patients have shown A3 stage of histological activity index (HAI), due to the much expressed inflammatory process in liver. The number of patients with A1-A2 HAI A1 and A2 was 52% in this group. There was only one patient with no signs of inflammation at all (3%). At the same time, 34% of these patients were defined with cirrhosis, and 66% - mild stages of liver fibrosis: F0 (no fibrosis) - 13%, F1 (minimal fibrosis) - 22% and F2 (moderate fibrosis) - 31%.

The majority of patients of group 2 (84%) had high values of HAI - A3, as compared to group 1 ($r<0.05$). The number of patients with HAI A1 and A2 was 9% and 7% correspondingly, which is significantly higher, than in group 1 ($r<0.05$). 100% of group 2 patients where having the last stage of fibrosis, i.e. they were cirrhotics.

The Kaplan-Meier survival curve has demonstrated that one-, two- and three-months survival in group 1 was respectively 83%, 72% and 58%, while in group 2 these figures were significantly lower: 65%, 21% and 14% ($r<0.05$).