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«БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

# ХИСТ

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медико-фармацевтичного  
конгресу студентів і молодих вчених

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Материалы IV Международного  
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конгресса студентов и молодых учёных

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Abstract Book of 4<sup>th</sup> International  
Medical Congress for Students and  
Young Scientists

Altrawneh O.

## THE ROLE OF HORMONAL IMBALANCE IN FATTY TISSUES IN THE PROGRESSION COURSE AND PROGNOSIS IN PATIENTS WITH HYPERTENSION AND TYPE 2 DIABETES

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Arterial hypertension (AH) is often associated with diabetes mellitus type 2 (DM2), which contributes to the progression of target organ damage. In spite of sufficient progress in the study of pathogenesis, clinical manifestations, diagnosis and treatment of AH in combination with DM2 is the most common cause of cardiovascular complications. Therefore, the search for new components in the pathogenesis of this comorbidity is relevant.

Aim. To study the role of adipocytokines (omentin and resistin) on the progression of metabolic disorders and comorbid disease course of AH and DM2.

Materials and methods. 64 patients were examined with stage II 2 degrees of AH. The average age was  $54,3 \pm 4,3$  years old. The patients were divided into groups: 1st group- 31 patients with AH and DM2, 2nd group, 33 patients with AH without DM2. The control group (n = 20) was the most comparable in age and sex to the patients surveyed.

Indices of the lipid spectrum: total cholesterol (TC), serum triglyceride (TG), high-density lipoprotein cholesterol (HDL), cholesterol, low-density lipoprotein (LDL). The concentration of insulin was determined using kits «Insulin ELISA» («DRG», Germany), a solid-phase immunoassay. The fasting venous blood glucose (FBG) was determined by standard biochemical methods. The level of glycosylated hemoglobin (HbA1c) was determined by turbidimetric method (Human, GmbH, Germany). Insulin resistance (IR) was evaluated by HOMA model. Indicators of omentin and resistin were determined by enzyme immunoassay.

Results. It was established that the omentin level in patients of 1st and 2nd group is 1.2 times lower than in the 2nd group and 1.6 times lower than in the control group ( $p < 0,05$ ). A negative correlations of omentin with BMI ( $r = -0,46$ ,  $p < 0,001$ ), FBG ( $r = -0,46$ ,  $p < 0,001$ ), insulin levels ( $r = -0,52$ ,  $p < 0,001$ ), HOMA ( $r = -0,58$ ,  $p < 0,001$ ), an indicator of TC ( $r = -0,52$ ,  $p < 0,001$ ) and LDL ( $r = -0,56$ ,  $p < 0,001$ ) and positive correlation with HDL ( $r = 0,54$ ;  $p < 0,001$ ).

Content of resistin in the blood serum of patients of 1st group was 1.2 times higher than in 2nd group, and 1.6 times higher than in the control group ( $p < 0,001$ ). The positive correlation of resistin with BMI ( $r = 0,52$ ;  $p < 0,001$ ), FBG ( $r = 0,46$ ;  $p < 0,001$ ), insulin levels ( $r = 0,48$ ;  $p < 0,001$ ), HOMA ( $r = 0,64$ ;  $p < 0,001$ ), LDL ( $r = 0,44$ ;  $p < 0,001$ ).

Conclusions. The effect of omentin and resistin on the development of insulin resistance, deterioration in carbohydrate metabolism indices, and dyslipidemia was defined in patients with AH and DM2. Thus, lowering of omentin and raising resistin in the blood serum is predictive of atherosclerosis progression that causes the increase of cardiovascular risk and cardiovascular complications in this category of patients.

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## CORRELATION BETWEEN THYROID HORMONE LEVELS AND THROMBOCYTE ACTIVITY ON AN ANIMAL MODEL

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Hypothyroidism is one of the most frequent endocrinopathy in dogs. Treatment requires every day levothyroxine supplementation. Thyroid hormones influence many organ systems and its proper metabolism. The aim of this study was to evaluate a relationship between adhesion and aggregation of thrombocytes and thyroid hormones concentration in healthy dogs and dogs with subclinical hypothyroidism.

Our investigated group contained of 15 dogs (German shepherd breed), aged between 4-11 years old. The medical history including past or present and chronic diseases, surgeries, eating habits, activities and environment was gained by asking specific questions to owner. Medical examination was performed and electrocardiogram was taken. Blood samples from the cephalic vein were obtained. Complete blood counts and aggregometric tests in citrated blood, using INNOVANCE® PFA-200 System (cartridges containing of collagen, epinephrine and ATP) were performed. The result of this tests was the occlusion time. TSH, FT4, T4 levels were measured by IMMULITE 1000 System, using immunochemiluminescence technique.

Medical examination and electrocardiogram did not expose any significant medical issues. Complete blood test results were described as normal limits. Medical history, examination and electrocardiography (ECG) were not showed important health problems. Results of blood count was limit of normal. Basing on the obtained during research process T4 and FT4 levels, we decided to divide dogs into two not equal groups. Subgroup, indicated as "A", was established by animals, which thyroid hormones and TSH concentration levels were between normal limits (n=10). Second subgroup "B" consisted of animals (n=5) with low levels of FT4 ( $< 0,7$  ng/ml). In case of subgroup "A", no statistically evident relationships between examined parameters were proved. In subcase "B" statistical analysis exposed presence of strong, positive correlations between T4 and occlusion time COL/EPI, T4/ COL/ADP, FT4/ COL/EPI parameters.

The question of influence of thyroid function on platelets hemostasis is not properly obvious yet. Thromboembolism is observed in case of people with hypothyroidism. These complications might be connected not only with hemostasis disorders of plasma, but also with hemostasis disorders of platelets. Low level of thyroid hormones in dogs with subclinical hypofunction of this organ may result in increase of thrombocytes proaggregatory activity. It manifests with shortening of occlusion time, activated by collagen and ADP. T4 concentration levels seem to have the most evident influence on adhesion and aggregation processes. Exposed in the research progress relationships need to be confirmed in the future researches on a wider dogs group.

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