diabetes-associated renal disorders. The model of alloxane-induced diabetes is known to be one of the most easily performed. Considering that, the objective of this research was to analyse the peculiarities of renal dysfunctions in the early period of alloxan-induced DM.

The experiments were carried out on 15 white non-linear mature male rats, weighted 0,18–0,20 kg that were kept according to the requirements of European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes (86/609EEC).

The animals were divided into two groups. The first one was a control group of intact animals (n=7). The experimental animals of second group (n=8) were once administered alloxane (Alloxan monohydrate, «Acros Organics», Belgium) intraperitoneally at a dose of 160 mg/kg. 11 days after the administration of the diabetogenic substance, the animals were withdrawn from the experiment. Aiming at studying the function of renal vascular-glomerular apparatus, the animals were loaded with water in a volume of 5% of body weight, urine was collected for 2 hours, and euthanasia was performed by decapitation under the slight diethyl ether anesthesia. Glucose blood concentration was determined using portable glucometer One Touch Ultra (LifeScan, USA). Statistical processing of the obtained data was performed with the establishment of mean values, standard errors, Student's coefficient (t).

As the results of the investigation showed, blood glucose concentration in diabetic rats exceeded the level of that of the intact animals by 2,3 times ($p<0,001$), being evident of the adequacy of the used experimental model.

The analysis of the influence of experimental insulindependent hyperglycemia on kidney functions has revealed that on 11th day after the administration of diabetogenic substance the expected elevation of diuresis, typical for DM, wasn't observed, however, the level of GFR exceeded the control level by 1,4 times ($P<0,05$). Resulted from hyperfiltration increase of creatinine excretion (urine concentration of creatinine in case of experimental DM exceeded the corresponding index of intact animals by 2,2 times ($p<0,001$)) was accompanied by a reliable elevation of creatinine plasma level (1,6-fold regarding the level of control, $p<0,001$) and its clearance (by 1,4 times as compared with the index, $p<0,05$). The significant augmentation of protein excretion (by 2,8 times, $p<0,001$) stipulates an increase of its concentration in the urine of animals with experimental diabetes (2,9-fold, $p<0,001$). Standardized in 100 μl volume of glomerular filtrate, the protein excretion was found to be twice higher in diabetic rats as compared with control group of animals ($p<0,001$). This enables us to assume that the total protein loss, observed in the early period of the experimental DM, is mainly related to the increase of GFR with the elevation of filtration load of the nephron. An overloading phenomenon develops for transport reabsorption systems, and the disturbances of the tubular part of the nephron are not causative for changes in the kidney functions.

Thus, the character and dynamics of the development of disorders of the functional renal state in the rats with alloxane-induced diabetes are mainly evidenced for their functional origin on the 11th day of experimental diabetes accompanied by hyperglycemia-induced hyperdynamic kidney function in the absence of significant structural changes in the tubular apparatus of the kidneys.

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PARAMETERS OF LIPID PEROXIDATION, THE OXIDATIVE MODIFICATION OF PROTEINS AND THE STATE OF THE BLOOD ANTIOXIDANT SYSTEM 3 AND 6 MONTHS AFTER TREATING DIABETIC POLYNEUROPATHY

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One of the most common and the most widespread neurological complications of the diabetes mellitus (DM) is a diabetic polyneuropathy (DPN) (the incidence according to various literary sources ranges from 20% to 93% depending on the type of diabetes and diagnostic methods). It is one of the most common diseases, and it remains one of the most difficult health and social problems.

Objectives of the research were to study the effect of the mildronat and thiotriazolin on the processes of lipid peroxidation, proteins oxidative modification and the state of the blood antioxidant system 3 and 6 months after multimodality treatment in diabetic patients with DPN.

We examined 32 patients with diabetes of type 2, who were hospitalized in Chernivtsi Regional Clinical Endocrinology Dispensary. Among the patients there were 20 women and 12 men, the age of the patients ranged from 36 to 65 years old. Moderate diabetes was observed in 30 patients whereas 2 patients were in critical condition. 9 patients were in a position to compensate for the disease, 23 had subcompensation. Patients were divided into 2 groups. Group I consisted of patients receiving basic therapy; it included diet № 9, 5 mg of maninil twice a day or insulin (2/3 of daily dose in the morning and 1/3 of dose in the evening, 0,7-1,0 U/kg of body weight), pentoxifylline taken intravenously 5 ml per 250 ml of the isotonic sodium chloride, vitamins B6, B12 (14 patients); Group II consisted of patients that along with basic treatment received TTZ (2 ml of intramuscularly 2,5% solution 1 time per day for two weeks) and MD (5 ml of bolus intravenous solution 10% 1 time per day) (18 patients). The control group comprised 20 almost healthy individuals. Patients with DPN who took basic treatment have the activation of lipid peroxidation and protein and inhibition of the state the blood antioxidant system 3 months after treatment which is shown by reduction of the glutathione content, HS-groups, increasing activity of ceruloplasmin, malonic aldehyde content, decreased activity of catalase, G-6-PD and an increase in content of ketones and aldehydes of neutral character (λ 370) and main character (λ 430). 6 months after treatment, these figures hardly differed from the corresponding parameters the patients had shown before taking treatment.

3 months after treatment with the addition of MD and TTZ in patients with DPN there was no significant changes of lipid peroxidation and protein indicators and the state of the antioxidant system of the blood in comparison with the patients after the discharge. Thus, there was only a tendency for increasing the activity of ceruloplasmin, content of malonic aldehyde, a slight decrease of glutathione, HS-groups, catalase activity, G-6-FDG and increasing of ketones and aldehydes of neutral character (λ 370) and the main character (λ 430) in comparison with the patients after discharge. 6 months after treatment with simultaneous use of MD and TTZ there was an increase in activity of ceruloplasmin by 59,5%, malonic aldehyde content by 20,3%, a decrease of glutathione content by 37,8%, HS-groups by 24,5 %, catalase activity reduction by 18,8%, G-6-FDG by 20,5% and an increase of ketones and aldehydes of neutral character (λ 370) by 66,1% and ketones and aldehydes of the main character (λ 430) is by 48,2%.

Thus, 3 months after basic therapy there is activation of lipid peroxidation and protein and inhibition of the state of the blood antioxidant system. 6 months after treatment, these figures significantly differ from the corresponding parameters the patients had before taking the treatment. When taking basic treatment accompanied by MD and TTZ, there is activation of lipid peroxidation and protein and inhibition of the state of the blood antioxidant system only 6 months after the therapy, indicating the need to go through re-treatment. Further research in this area will significantly improve the treatment of diabetes patients complicated by neuropathy.

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THE PECULIARITIES OF CHRONIC CHOLECYSTITIS COURSE IN PATIENTS WITH DIABETES MELLITUS TYPE 2

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The aim of our investigation was to establish phase data disorders of bile in patients with chronic acalculous cholecystitis combined with diabetes mellitus type 2.

Such methods of investigation were used: clinical, biochemical, instrumental, micro-, macroscopic, statistical. Detailed clinical investigation was carried out on 30 patients with chronic acalculous cholecystitis combined with diabetes mellitus type 2 (1st main group), 30 patients with chronic acalculous cholecystitis (2nd group) and 10 almost healthy patients.

Comparative investigations of statistic, correlative and fractal parameters, which characterized phase distributions in laser images of bile specimens in patients with chronic cholecystitis combined with diabetes mellitus, have given further results. From achieved data from laser images of bile by patients of all groups and healthy people we could say that the most informative diagnostic value data for revealing gallstone disease were dispersion, asymmetry, excess, which characterized phase allocation. The further diapason changes were defined statistic moments of 1-4 order of laser images of bile between group of healthy people and investigated groups of patients: dispersion (increase in 1,5-2,1), asymmetry (increased in 3-16), excess (increased in 3-12). The usage of statistic analysis of phase distribution in laser images of bile by different diseases makes possible to differentiate bile peculiarities by patients with combined pathology.

Thus, the model of formation of phase distribution in images of bile layers was proposed like process of coordinate modulation of laser ionization by bile liquid-crystal formations. Different variants of transformation were analysed the last in firm crystals (calculi). It is shown, that the most informative for early revealing of cholelithiasis are dispersion, asymmetry, excess, which characterize phase distribution of laser image of bile. The usage of statistic analysis of phase images of bile by different types pathology makes it possible to differentiate bile changes in patients with combined pathology.

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ОСОБЛИВОСТІ ПОКАЗНИКІВ ТИРЕОЇДНОГО ОБМІНУ В ЗАЛЕЖНОСТІ ВІД РІВНЯ СУДИННОГО ЕНДОТЕЛІАЛЬНОГО ФАКТОРУ РОСТУ В СИРОВАТЦІ ВЕНОЗНОЇ КРОВІ ПАЦІЄНТІВ ІЗ ЦУКРОВИМ ДІАБЕТОМ 2-ГО ТИПУ

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Поширеність цукрового діабету в світі досягла маштабів епідемії. Згідно із даними ВООЗ вже до початку 2014 року їхня кількість зросла до 422 мільйонів – майже в чотири раза,тільки в 2012 році від ускладнень цукрового діабету першого і другого типу померло майже три мільйони человек. Статистичні дані свідчать про подальший розвиток патологічного процесу, включаючи 2017 рік, кількість хворих на цукровий діабет неухильно зростає. Ожиріння абдомінального типу зустрічається майже у десяти мільйонів чоловік по всьому світу, що несе за собою загрозу і підвищений ризик захворювання на цукровий діабет. Крім того, можливість розвитку серцево-судинних захворювань збільшується як раз у хворих на діабет другого типу, більше п'ятдесяти відсотків випадків (точний відсоток варіюється від 65 до 80) складають ускладнення, які розвиваються в результаті серцево-судинних патологій, інфаркту або інсульту. Тиреоїдні гормони приймають участь у регуляції майже всіх фізіологічних процесів в організмі в тому числі і вуглеводого обміну. Тому важливим є вивчення залежності показників функціонального стану ендотелію та метаболізму тиреоїдних гормонів.