EFFECT OF N-ACETYLCYSTEINE PARENTERAL ADMINISTRATION ON THE GLUTATHIONE SYSTEM IN EYE TISSUES OF RABBITS WITH EXPERIMENTAL IMMUNOGENIC UVEITIS

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Introduction. Oxidative stress is the main pathogenetic factor in the uveitis development and is accompanied by decompensation of the antioxidant defense system in eye tissues, in particular the key endogenous antioxidant – glutathione (GSH) [1]. Thus, the search for drugs with a pronounced antioxidant effect and capable of replenishing the glutathione content in eye tissues is an important direction in the development of pharmacotherapy for uveitis. One of the most promising drugs of this kind is N-acetylcysteine (NAC) [2].

Aim of the study. To study the effect of NAC parenteral administration on the glutathione system parameters in the eye tissues of rabbits with experimental immunogenic uveitis.

Materials and methods. An experimental study was conducted on male rabbits in accordance with the Helsinki Declaration on the Humane Treatment of Animals. Experimental immunogenic uveitis (EIU) was reproduced by a standardized method [3]. All rabbits (10 rabbits – 20 eyes) were divided into 2 groups (5 rabbits – 10 eyes in each): Control group – daily placebo injections for 7 days; Experiment group – daily NAC injections (40 mg/kg) for 7 days. After 7 days rabbits were withdrawn from the experiment and following parameters were studied in eye tissues: the content of reduced glutathione (GSH), oxidized glutathione (GSSG) and their ratio (GSH/GSSG).

Results and discussion. NAC parenteral administration to rabbits with EIU led to a significant elevation of the GSH content in the eye tissues. Thus, its level increased by 1.85 times ($p<0.001$) on the 7th day of EIU. Also, NAC injections decreased the content of GSSG in eye tissues – by 1.32 times ($p<0.001$) on the 7th day. This, in total, increased the GSS/GSSG ratio, a key indicator of redox homeostasis of eye tissues, by 2.44 times on the 7th day of EIU. Thus, NAC makes it possible to potentiate the glutathione system in the eye tissues, both through participation in the synthesis of GSH and by reducing its consumption and transition to the oxidized form.

Conclusions. Considering that oxidative stress is the most important pathogenetic factor in uveitis which triggers the tissue damage and is accompanied by

a depletion of endogenous antioxidant system, especially GSH, NAC parenteral administration as part of the complex therapy of uveitis is a reasonable and promising approach in pharmacotherapy of uveitis.

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SEASONAL FEATURE OF LEPTOSPIROSIS: A CASE STUDY

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Introduction. Leptospirosis is the most common zoonotic disease globally with an incidence of about 1 million cases and 60,000 deaths per year [1]. In the year 2019, 0.23/100,000 cases were reported in Belarus, with epidemic tendencies seen. Overlooking the disease beyond its classic seasonal periods may result in missed diagnosis, due to current weather changes.

Aim of the study. To present a case of severe leptospirosis with favorable outcome in a patient during the November–December period.

Materials and methods. The diagnosis of leptospirosis was confirmed by Microscopic Agglutination Test (MAT) with a positive titer of 1:20 (01.12.2023) and 1:40 (08.12.2023) for L. M-20 (Leptospira interrogans serovar Copenhageni).

Results and discussion. Patient R., 74 years old, complained general weakness and loss of appetite on 25.11.2023. On Day 2, fever, pain in calf muscles was present and she received antipyretics. Due to jaundice and fever (39°C) on Day 3, she was admitted to the Grodno Emergency Hospital. Patient was managed with IV saline, plasmapheresis, veno-venous hemodiafiltration, hemotransfusion (cryoprecipitate, albumin, platelet concentrate, washed red blood cells), solumedrol, heptral, esfolip, emoxifarm, papaverine, omeprazole, lisinopril, moxonidine, vitamins B1, B6, heparin, ceftriaxone, metronidazole, levofloxacin changed to meropenem on 30.11.2023. In epidemiological history patient indicated using a cellar and having contact with sheep.