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# USING INNOVATIVE TECHNOLOGIES IN IMPROVING THE EFFICIENCY OF EDUCATION: PROBLEMS AND SOLUTIONS

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# Comparative analysis of the effectiveness of using some parameters of endogenous intoxication on the course of experimental toxic hepatitis

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**Relevance.** Modern ideas about the metabolic response in critical conditions, understanding the mechanisms of violations of all types of metabolism, the formation of hyper catabolism, hypermetabolism and the development of tissue metabolism disorders determine the need for the use of substances that can affect metabolic homeostasis and the cellular energy-producing system [3,5]. Moreover, indicators of endogenous intoxication (ALT, AST) affecting the course and development of toxic hepatitis are not fully understood [1, 2, 4], which was the relevance of the study.

**Purpose of the study.** To determine the effectiveness of the use of biochemical parameters of liver protein metabolism (ALT, AST) on the course of experimental toxic hepatitis.

**Materials and research methods.** To achieve this goal, the biochemical parameters of liver protein metabolism (ALT, AST) were evaluated for the course of experimental toxic hepatitis in the model of heliotrin intoxication. As is known, heliothrin is chemically related to pyrolizidine alkaloids, and it is known that its precursor is cadeverdin, which is oxidized to gamma-aminobutyric aldehyde with the formation of non-innic alcohols with monobasic non-cinic acids. Acute heliothrin intoxication was reproduced by a single subcutaneous injection of a sublethal dose of heliothrin, prepared at the rate of 40 mg per 100 g of body weight, to rats. Toxic hepatitis was reproduced by subcutaneous administration of heliothrin (25 mg/100 g). The material for the study is venous blood. Protein balance indicators were studied: total blood serum protein, albumin and globulin and biological materials (ALT, AST, bilirubin and alpha-amylase) by biochemical analysis using HUMAN test systems (Germany) on a semi-automatic biochemical analysis BA88A (Mindray, China). Protein fractions will be determined by the turbidimetric method according to the generally accepted method.

Animals were divided into equal groups:

Group I - before reproduction of heliotrin intoxication (intact)

Group II (control) - with heliotrin intoxication,

Group III (control, comparisons) - with heliotrin intoxication after the introduction of the reference drug "Infezol 40", within 5 days 24 hours after the last injection;

Group IV (main, experimental) - animals with heliotrin intoxication after the introduction of a new amino acid blood substitute, within 5 days, 24 hours after the last injection. Statistical processing was carried out using the Student-Fisher test, the nonparametric Mann-Winney test, the Kraskes-Wallis test

**Research results.** During the reproduction of experimental toxic hepatitis by the administration of heliothrin, it was found that the ALT content was on average 25.93±2.91 U/l, and the AST content was at the level of 22.23±1.95 U/l. The de Rits number was at the level of 1.17±0.16. Direct bilirubin was at the level of 3.90±0.44 mmol/l, indirect bilirubin was 8.10±0.8 mmol/l. Total bilirubin was 12.01±1.16 mmol/L. Moreover, the OR (odds ratio) was 0.93219976. 95% CI (confidence interval) was 0.88765239. $\chi$ 2= 0.9633286 (Wilconson's test). The Mann-Winney test (U test) was 0.87219981. These indicators indicate that the indicators of protein balance are directly dependent on oxygen deficiency caused by heliothrin.

However, the level of ALT is an unreliable marker of the pathological process in the liver. This is primarily due to the peculiarity of the laboratory method, when not the level of the enzyme itself is determined, but its catalytic activity, the rate of the catalytic reaction. Thus, the amount of enzyme is determined indirectly.

The results obtained indicate that as a result of treatment, the indicators of total bilirubin in the IV group significantly improved. The dynamics of ALT was positive in group IV, who received the developed amino acid mixture, there were no significantly positive dynamics in ALT and AST in group III, who received Infezol. In general, we can say that in the case of toxic hepatitis with a 2-fold or more increase in ALT activity, intravenous therapy with Infezol with a simple cancellation of the damaging factor is not effective enough. In addition, the restoration of liver detoxification function by the end of the course of treatment, which was observed in the study group receiving the developed amino acid mixture, can be interpreted as

the most important indicator of the effectiveness of therapy, speaking in favor of metabolic therapy. Of interest is the use of the recommended amino acid mixture, which was unambiguously positive in all respects - a decrease in cytolysis and cholestasis and an increase in the detoxification function of the liver.

**Conclusions:** Summarizing the above, the developed amino acid mixture is superior to traditional methods of treatment (Infezol) in terms of the effectiveness of influencing the development and course of experimental toxic hepatitis, which is proved by the study.

Bibliography:

1. Roitberg G. E. Internal diseases. Laboratory and instrumental diagnostics: textbook. allowance / G. E. Roitberg, A. V. Strutynsky. - 2nd ed., revised. and additional - Moscow: MEDpress-inform, 2011. - 800 p.
2. Leites, Yu. G. Modern technologies in the diagnosis of gastroenterological diseases / Yu. G. Leites, E. V. Marchenko. – Access mode: http://www.gastroscan.ru (date of access: 06/10/2013).
3. Bjornsson E. Drug-induced liver injury: Hy's rule revisited // Clin. Pharmacol. Ther. — 2006. — 79. — 521.
4. Giannini E. G., Testa R., Savarino V. Liver enzyme alteration: a guide for clinicians // Canadian Medical Association Journal (CMAJ). – 2005. – Vol. 172. – P. 367-379.
5. Navarro V.J., Senior J.R. Drug-related hepatotoxicity // N. Engl. J. Med. — 2006. — 354. — 731.

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