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## **ORGANIZATION OF EMERGENCY CARE AND INTENSIVE CARE IN THE FULMINANT FORM OF VIRAL HEPATITIS IN YOUNG CHILDREN**

*Summary.* Etiotropic, intensive pathogenetic therapy for fulminant hepatitis, aimed at preventing further progression, was performed. Patients treated in the department and intensive care received detoxification, diuretics, necrobiotic processes in the liver, glucocorticosteroids (GCS), proteolysis inhibitors, hepatoprotectors (essentiale). Treatment of hemorrhagic syndrome on the background of heparin therapy. Sedatives were used for psychomotor agitation and convulsions. Timely intensive care in the vast majority of patients with severe viral hepatitis prevents the progression of the cytological process and contributes to recovery, at the same time, with the development of hepatic coma, it was possible to avoid a fatal outcome only in 12.5% of cases.

*Key words:* intensive care, emergency assistance, fulminant, gepatocitami.

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## **ОРГАНИЗАЦИЯ ЭКСТРЕННОЙ ПОМОЩИ И ИНТЕНСИВНОЙ ТЕРАПИИ ПРИ ФУЛЬМИНАНТНОЙ ФОРМЕ ВИРУСНЫХ ГЕПАТИТОВ У ДЕТЕЙ РАННЕГО ВОЗРАСТА**

*Резюме.* Проведена этиотропная, интенсивная патогенетическая терапия при фульминантном гепатите, направленная на предупреждение дальнейшего прогрессирования. Больные, лечившиеся в отделении и реанимации, получали дезинтоксикационные, мочегонные, некробиотических процессов в печени использовали глюкокортикостероиды (ГКС), ингибиторы протеолиза, гепатопротекторы (эссенциале). Лечение геморрагического синдрома на фоне гепаринотерапии. При психомоторном возбуждении и судорогах применяли седативные препараты. Своевременное проведение интенсивной терапии у подавляющего числа больных с тяжелой формой вирусного гепатита предупреждает прогрессирование цитологического процесса и способствует выздоровлению, в тоже время при развитии печеночной комы избежать летального исхода удалось лишь в 12,5% случаев.

*Ключевые слова:* интенсивная терапия, экстренная помощь, фульминантный, гепатодистрофия.

Among the many aspects of the problem of viral hepatitis, clinicians pay special attention to severe forms of the disease with massive liver necrosis, hepatic coma. Despite the large number of studies devoted to the treatment of fulminant hepatitis (FH) in young children, it presents great difficulties, since there are no effective means of etiotropic therapy to date [1,2,3,4]. A number of researchers admit that only in viral

hepatitis B (HBV), and observations using enzyme immunoassay (ELISA) showed that only 24 (40%) of the analyzed 69 were diagnosed with HBV, 20 (33.3%) – co – and superinfection of HDV, i.e. HBV+IOP, 4 (6.6%) – HBV+HA, 2 (3.3%) - triple infection of HBV+IOP+HCV.

Hepatodystrophy is currently observed almost exclusively in children of the first 6 months of life [1]. According to the clinic, among the patients with FH, 33.3% were children of the first year of life, 43.3% - from 1 to 3 years, 23.3% from 4 to 7 years. The mortality rate from FH varied in different years from 0.5 to 1.5-2.0%.

**Purpose and research.** To find the optimal variant of intensive and pathogenetic therapy in FH, aimed at preventing further progression of the process, restoring disturbed homeostasis.

**Materials and methods.** Based on the purpose of the study, we observed 69 patients, 24 (40%) of the analyzed HBV, 20 (33.3%) – co - and superinfection of HDV.

The diagnosis was established on the basis of clinical, epidemiological and laboratory data. Markers of hepatitis B and D were determined in all patients by enzyme immunoassay. Children with FH were treated in the intensive care unit and in the intensive care unit. Patients underwent subclavian vein catheterization. Infusion therapy was used as methods of detoxification and correction of peripheral blood flow disorders. The total amount of visible fluid inside and intravenously corresponded to the daily requirement and the amount of pathological losses and was 120-170 ml per 1 kg of body weight per day. The adequacy of treatment in each individual case was assessed by the dynamics of the clinical picture ( dry skin and mucous membranes or the appearance of pasty legs, feet, bulging, retraction of the large fontanel) and laboratory parameters (the value of hematocrit, potassium, sodium, protein).

In the presence of a compensated or subcompensated stage of peripheral blood flow disorders, treatment was started with the introduction of low-molecular-weight plasma substitutes ( reamberin, reopoliglyukin), which have mainly detoxifying and

rheological effects. Subsequently, they switched to the administration of 5-10% glucose solution with insulin and potassium preparations. In decompensated and subcompensated metabolic acidosis, a 4.5% solution of sodium bicarbonate was prescribed in enemas, in some cases intravenously at the rate of 5 ml per 1 kg of weight.

During infusion therapy, diuretics (lasix, mannitol), vasodilators (eufillin, etc.) were used in infants with daily infusions, subsequently it was necessary to reduce the volume of the injected fluid by  $1/3 - 1/2$  due to a large tendency to edema.

Great importance was attached to measures aimed at preventing intestinal autointoxication. Children with hepatic coma were prescribed parenteral nutrition, the volume of proteins administered in the form of albumin and plasma was below the age norm. Siphon enemas were used to remove putrefactive microflora and protein breakdown products. For the purpose of detoxification, "Dufalac" was used inside and in enemas, (a single dose of 5.0-10.0 ml).

In order to reduce necrobiotic processes in the liver, glucocorticosteroids (GCS), proteolysis inhibitors, and essentielle were used as pathogenetic therapy agents. GCS was prescribed for substitution and therapeutic purposes, because in the fulminant form of viral hepatitis, there is a relative or absolute insufficiency of the adrenal cortex. In addition, in the fulminant form, there is a hyperergic reaction with self-progression of the process. GCS inhibit the peroxidation of lipids, circulates blood. GCS was prescribed at a dose of up to 10 mg / kg of weight, based on prednisone. Hormone therapy was started with 1-2 times administration of hydrocortisone and continued with prednisone. The duration of GCS therapy ranged from 3 days before the onset of the effect.

Protease inhibitors (kontrikal, trasilol, gordox) were used in therapeutic doses, taking into account their ability to reduce the activity of lysosomal enzymes, kinin, plasmin, limit the necrobiotic process, stop exudation, and inhibit fibrinolysis. Protease

inhibitors were administered intravenously by drip 2-3 times a day, in glucose solution. Continued until a pronounced clinical effect.

The chemical structure of essential phospholipids fully corresponds to endogenous phospholipids, and their organelles, as intact molecules, contribute to the restoration of impaired function of liver cells, and their organelles, as intact molecules, contribute to the restoration of impaired function of liver cells. Essentiale was administered intravenously on glucose in an amount of 2.0-3.0 mo for 10-15 days.

Treatment of hemorrhagic syndrome was carried out taking into account the stage and severity of DIC on the background of heparin therapy. Heparin is a direct, fast-acting anticoagulant that affects general hemodynamics and stimulates renal blood flow. The dose of heparin was selected individually for each patient and ranged from 50 to 200 units/kg of weight per day. Heparin was administered intravenously every 4-6 hours. In the II and III stages of DIC, the deficiency of plasma-coagulation factors was corrected by transfusion of fresh frozen plasma, creoplasm, and fresh heparinized blood. As is known, the substitution nature of this therapy provides an increase in the procoagulant activity of the blood and the level of antithrombin III. In the II and III stages of DIC, fibrinolysis inhibitors were used. The complex treatment provided a good effect.

FH is accompanied by a violation of peripheral blood flow. In the compensated and subcompensated stages of microcirculation disorders, a good effect was obtained by prescribing vasodilators (eufillin, nicotinic acid, papaverine). Marbling and pallor disappeared, diuresis increased, and blood pressure decreased. The tools of choice cardiotropic therapy was korglikon, strofantin. In the presence of hypoxia, acidosis, and electrolyte disorders, drugs that normalize the exchange in the myocardium (cocarboxylase, vitamin C, panangin, and potassium orotate) were prescribed.

The corrective treatment included oxygen therapy and antihypoxic drugs (riboxin). The administration of large doses of corticosteroids, the early age of children,

and a serious condition were indications for the use of broad-spectrum antibiotics. Preference was given to semisynthetic penicillins in psychomotor agitation and convulsions, sedatives (seduxen, sodium oxybutyrate, etc.) were used. The use of plasmapheresis in the precoma stage gave good results.

### **Conclusions.**

1. Timely intensive care in the vast majority of patients with severe viral hepatitis prevents the progression of the cytolytic process and promotes recovery. At the same time, with the development of a hepatic coma, it was possible to avoid a fatal outcome only in 12.5% of cases.
2. In children, especially in the first year of life, at the beginning of the disease there are no symptoms that allow us to anticipate the development of a malignant form of viral hepatitis. The presence and especially the increase in intoxication with an increase in the intensity of jaundice, continued vomiting, refusal of breast and food, anxiety, crying, sleep rhythm disturbance, drowsiness, fever, flatulence, hemorrhagic syndrome, small size with a tendency to shrink from the moment of admission are indications for the beginning and vigorous intensive care.
3. Laboratory indicators, especially the determination of the level of total bilirubin, its free fraction, the protein composition of the blood and help in assessing the severity. Great importance was attached to the indicators of the prothrombin index. In severe forms, it was below 60%, in hepatodystrophy below 40%, in the terminal period it was 6-10%.

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