Volume 3, Issue 4, April 2025 ISSN (E): 2938-3765

HEPATOPROTECTIVE THERAPY FOR LIVER DISEASES IN CHILDREN

Kudratova Gulsara Nazhmitdinovna
Associate Professor of the Department of Pediatrics,
Faculty of Medicine Samarkand. Uzbekistan

Abstract
It is shown that legalon is a rational hepatoprotective drug, which is recommended for use in children with liver diseases for preventive and therapeutic purposes.

Keywords: Hepatoprotective therapy, Drug-induced hepatitis, Non-alcoholic fatty liver disease.

INTRODUCTION

Non-alcoholic fatty liver disease (NAFLD) is a pressing problem in modern pediatrics. It should be noted that in recent years there has been an increase in the number of children suffering from NAFLD. In 23–53% of cases, the development of NAFLD in children is associated with excess body weight or obesity. NAFLD is represented by two clinical forms: fatty liver dystrophy (steatohepatosis), non-alcoholic steatohepatitis (NASH). Non-alcoholic steatohepatitis is a chronic liver disease with histological signs of alcoholic hepatitis in individuals who do not consume alcohol in significant hepatotoxic doses.

- According to modern concepts, primary and secondary NAFLD are distinguished. Primary NAFLD most often develops in the presence of type 2 diabetes mellitus, obesity and hyperlipidemia, and may be a manifestation of metabolic syndrome.
- The causes of secondary liver steatosis and NASH in children may be:
- Advertisement
- • medications (glucocorticoids, synthetic estrogens, antitumor, antibacterial, non-steroidal anti-inflammatory drugs, etc.);
- • malabsorption syndrome due to surgical intervention (as a consequence of ileojejunal anastomosis, biliary-pancreatic stoma, extended resection of the small intestine, etc.);

• chronic gastrointestinal diseases accompanied by malabsorption syndrome (chronic pancreatitis, nonspecific ulcerative colitis);
• long-term (more than 2 weeks) parenteral nutrition;
• rapid weight loss;
• Weber-Christian disease, Wilson-Konovalov disease;
• bacterial overgrowth syndrome.

It should be noted that with NAFLD in children in 48-100% of cases there may be no symptoms characteristic of liver pathology. At the same time, 20-30% may experience vague discomfort, heaviness, aching pain in the right hypochondrium, asthenic syndrome. Some children complain of belching and heartburn, which is most often associated with obesity. Hepatomegaly can be detected in 75% of cases.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

Blood levels of ALT and AST are usually elevated. The AST/ALT ratio is usually below 1, and an increase in this ratio is observed with the development of liver fibrosis. In addition, a slight increase in alkaline phosphatase (ALP) and gamma-glutamyl transferase to two norms, hyperbilirubinemia to 1.5–2 norms, and dyslipidemia are possible. Hypoalbuminemia and prolongation of prothrombin time may indicate the development of liver cirrhosis. Ultrasound examination reveals distal attenuation of the echo signal, diffuse hyperechogenicity of the liver ("bright liver"), increased echogenicity of the liver compared to the kidneys, and blurred vascular patterns.

Computed tomography in NAFLD reveals a decrease in the radiodensity of the liver to 3-5 units (with a norm of 50-75 units). In this case, the radiodensity of the liver is less than the radiodensity of the spleen. Visualization of intrahepatic vessels, the portal and inferior vena cava as denser structures compared to liver tissue. Focal fatty degeneration is characterized by the intersection of normal blood vessels of the liver with areas of reduced radiocontrast

The main histological signs of NASH include:

1) fatty degeneration of hepatocytes (large- and small-droplet);
2) mixed inflammatory infiltration (neutrophils, lymphocytes, macrophages);
3) fibrosis (mainly perivenular)
4) additional (inconstant) signs - Mallory bodies, focal centrilobular necrosis, iron deposits]. Before talking about NAFLD, it is necessary to conduct a comprehensive examination of the child lama.

If NAFLD is confirmed in a child, it is important to select an effective and safe treatment method to prevent disease progression and treat existing disorders.

The main goal of therapy for NAFLD is to prevent disease progression and the development of cirrhosis. Currently, there is no single standard for treating patients with NAFLD. The main areas of therapy: correction of obesity and insulin resistance; reduction of lipid peroxidation and oxidative stress.

The most important thing in the treatment of NAFLD is weight loss. At the same time, sudden weight loss is not recommended, which can contribute to an increase in the inflammatory process and the formation of liver fibrosis. It should be noted that some drugs approved for the treatment of adult patients are not registered for use in pediatrics, and some approved drugs are not sufficiently effective. Metformin, which is used in foreign practice from the age of 10 for metabolic syndrome and type 2 diabetes, is not always effective. According to recent studies, a 6-month course of therapy with this drug improved the metabolic profile, but did not affect the histological picture of the liver.

A fairly effective drug that is used for NAFLD, slows down the progression of the disease and has an antifibrotic effect is Legalon. Legalon is a medicinal product made from plant materials. The active substance is isolated from the fruits and milky juice of milk thistle. Milk thistle has been used as a medicinal product for thousands of years, and only in 1968, the Munich Institute of Pharmaceutics deciphered the biochemical composition of milk thistle. The main component of the medicinal plant milk thistle is flavonoids with hepatoprotective properties - silymarin. Silymarin extract is water-soluble and poorly absorbed in the intestine. To increase the bioavailability of the active substance of the drug Legalon, a patented process of joint precipitation

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

is used, in which the bioavailability of reference silymarin increases to 85%. Numerous experimental and clinical studies have made it possible to clarify the mechanism of action and clinical efficacy of silymarin in acute and chronic liver diseases. As a result, it was established that reference silibinin (Legalon) has antifibrotic, antioxidant, antitoxic, cytoprotective, anti-inflammatory, immunomodulatory, antitumor activity. Legalon is recommended for the treatment of toxic and drug-induced liver damage.

In children, liver damage of the acute hepatitis type is most often observed (approximately 80% of cases). Chronic drug-induced liver damage can be an independent disease, but more often it develops as a result of an acute hepatotoxic pathological process (with prolonged intake of drugs). The severity of drug-induced liver diseases varies from asymptomatic increase in transaminases to the development of fulminant liver failure. In children, asymptomatic increase in transaminases is more often observed. Less often, with serious liver damage, jaundice, skin itching, "liver signs", bleeding, liver enlargement and pain upon palpation may be observed.

In immune-mediated damage, myalgia and arthralgia, conjunctivitis, rhinitis, skin rash, lymphadenopathy, and fever may be observed. Drug-induced liver damage may occur as early as 48 hours after taking medications. In some cases, the disease may manifest itself after several weeks or months. Some drug reactions are transient and resolve spontaneously.

Depending on the degree of increase in ALT and ALP levels, acute liver damage is classified as hepatocellular (cytolytic), cholestatic, or mixed, combining signs of cholestasis and cytolysis.

In childhood, the hepatocellular type of damage is more common (in 2/3 cases).

An increase in ALT is the most sensitive test for early diagnosis of drug-induced hepatitis. In mitochondrial hepatocytopathy, AST activity may also increase. With the de Ritis coefficient (AST/ALT) less than 1, an increase in transaminases is interpreted as an inflammatory type of response, more than 1 - as a necrotic type. A feature of cholestatic forms of drug-induced liver damage is the frequent absence of hypertransaminasemia. In this case, jaundice and itching of the skin develop, but the general well-being, as a rule, does not suffer.

Hepatoprotectors are usually used to prevent and treat drug-induced hepatitis. Given the mechanisms of action, Legalon is the drug of choice for drug-induced hepatitis. In pediatrics, the following scheme for selecting a dose of Legalon is used: standardized silymarin - 5 mg / kg / day (3 times a day with food, water). Children up to 40 kg - 70 mg / day (1 capsule of Legalon at 70 mg) per day; 41-60 kg - 240 mg / day (2 capsules of Legalon at 70 mg per day); 61-70 kg - 320 mg / day (3 capsules of Legalon at 70 mg per day).

Clinical observation

In the pediatric gastroenterology department, children with NAFLD were observed - 10 children (6 boys and 4 girls) aged 10 to 14 years. On admission, 5 children (50%) had periodic abdominal pain, 4 (40%) had heartburn, and 5 (50%) had belching. Obesity was observed in 7 children (70%). At the same time, the average body mass index (BMI) in this group of children was 97.5 ± 1.2 percentile.

All children were carefully examined to clarify the nature of liver damage. As a result of the examination, steatohepatitis was detected in 7 children, and steatohepatosis against the background of hyperlipidemia was observed in three children. In this case, all children with steatohepatitis had

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

an increase in the ALT level in the blood (107 ± 19.5 U/l) and only 6 (60%) had an increase in the AST level (71.2 ± 11.4 U/l). In 5 (50%) children, an increase in ALP was observed. The level of total bilirubin was increased in 4 children (40%).

One child with steatohepatosis had elevated blood cholesterol levels, while the other had elevated cholesterol and triglycerides. Ultrasound examination revealed signs of steatosis in all children: distal echo signal attenuation, diffuse hyperechogenicity of the liver, and blurred vascular pattern. At the same time, 5 (50%) of them had hepatomegaly. All children were prescribed diet therapy and Legalon in an age-appropriate dosage of 5 to 10 mg/kg/day (1–3 capsules per day) for 1.5 months. The following parameters were considered as criteria for effectiveness: dynamics of clinical (improvement of general condition, reduction of dyspeptic disorders, liver size), biochemical (normalization of ALT, AST levels), and ultrasound (reduction of liver size, improvement of echostructure).

When examining patients 1.5 months later, abdominal pain persisted in 3 children (33%), heartburn in 2 children (20%). Body weight slightly decreased in 5 obese children (50%), while body weight did not change in 3 children (30%). The average BMI in this group of children was 96.6 ± 1.0 percentile. When studying biochemical parameters, a significant decrease in the activity of serum transaminases was revealed (ALT - 50.1 ± 18.2 U/l, AST - 42.5 ± 6.6 U/l). In 5 children (50%), the ALT level normalized, and in 3 (30%) it decreased. The AST level normalized in 4 children (40%) and decreased in 2 (20%). The GGT level after treatment was normal in all children. ALP decreased to normal values in 3 children, bilirubin - in one child. In the remaining children, these indicators (ALP and bilirubin) did not change significantly.

As for children with hyperlipidemia, one patient's cholesterol level returned to normal after treatment, while the other patient's triglyceride level returned to normal.

Moreover, against the background of treatment with Legalon, positive dynamics of the ultrasound picture were observed in the form of a decrease in the liver size in 3 out of 5 children (50%), and in 5 out of 10 children (50%), an improvement in its echogenicity was detected.

Thus, Legalon is an effective hepatoprotective drug that contributes to a reliable decrease in transaminases in the blood and an improvement in the ultrasound picture of the liver in children with NAFLD.

Due to the pronounced positive dynamics, the therapy, including diet and Legalon, was continued for another 3 months with the appointment of a subsequent control blood test and ultrasound of the abdominal cavity. Thus, Legalon is a rational hepatoprotective drug, which is recommended for use in children with various liver diseases for preventive and therapeutic purposes. The duration of therapy depends on the severity of the disease and is carried out for a month or more.

References

1. Schwimmer J. B., Deutsch R. K., Kahen T. et al. Prevalence of fatty liver in children and adolescents//Pediatrics. 2006; 118: 1388–1393.
2. Arslan N. B., Buyukgebiz B., Ozturk Y. et al. Fatty liver in obese children: prevalence and correlation with anthropometric measurements and hyperlipidemia // Turk J Pediatr. 2005; 47: 23–27.
3. Каганов Б. С. Детская гепатология. М.: Издательство «Династия», 2009. 576 с.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

4. Hassink S. G. A Clinical Guide to Pediatric Weight Management and Obesity. Lippincott Wiliams and Wilkins, 2007; 114–129.
5. Pinto H. C., Baptista A., Camilo M. E., Valente A., Saragoca A., de Moura M. C. Nonalcoholic steatohepatitis: clinicopathological comparison with alcoholic hepatitis in ambulatory and hospitalized patients // Dig Dis Sci. 1996; 41: 172–179.
6. Perrie E., Pardee B. S., Joel E. Lavine, Jeffrey B. Schwimmer. Diagnosis and Treatment of Pediatric Nonalcoholic Steatohepatitis and the Implications for Bariatric Surgery. Seminars in Pediatric Surgery. Volume 18, Issue 3, Pages 144–151, August 2009.
7. Кудратова, Г., & Холмуродова , З. (2022). ОПРЕДЕЛЕНИЕ КОЛИЧЕСТВА МОЧИ В ЖЕЛУДОЧНОМ СОКУ У БОЛЬНЫХ АНЕМИЯМИ И ЕГО ЗНАЧЕНИЕ. Журнал гепато-гастроэнтерологических исследований, 2(3.1), 36–41.
8. Saller R., Meier R., Brignoli R. The use of silymarin in the treatment of liver diseases // Drugs. 2001; 61: 2035–2063.
9. Буторова Л. И., Цибизова Т. А., Калинин А. В. Возможности использования Легалона при неалкогольной жировой болезни печени // Экспериментальная и клиническая гастроэнтерология. 2010. № 5. С. 69–75.
10. Буторова Л. И., Калинин А. В., Логинов А. Ф. Лекарственные поражения печени. Учебно-методическое пособие для врачей. М., 2010. 64 с.
11. Ladas E. J., Kroll D. J., Oberlies N. H. et al. A randomized, controlled, double-blind, pilot study of milk thistle for. the treatment of hepatotoxicity in childhood acute lymphoblastic leukemia (ALL) // Cancer. 2010, Jan 15; 116 (2): 506–513.
12. Матвеев А. В., Коняева Е. И., Курченко В. П., Щекатихина А. С. Гепатопротективные свойства силимарина // Клиническая фармакология. 2011, № 2.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5