

УДК 616.36-004-071-08 (574.41)

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REHABILITATION OF PATIENTS WITH CHRONIC LIVER DISEASES AND ITS EFFICIENCY MONITORING IN THE INCREASED RADIATION RISK REGION OF EAST KAZAKHSTAN AREA

Summary

The possibilities of noninvasive evaluation of the fibrosis formation were recognized by using discriminant score scale in comparison with the indicators of hepatic hemodynamics.

The antiproliferating properties of carnitine complex treatment among the East Kazakhstan residents exposed to radiation with chronic liver disease were identified.

Key words: Ionizing radiation, liver cirrhosis, discriminant score scale, hepatic hemodynamic.

Progress of liver cirrhosis (LC), leading to organ dysfunction, portal hypertension and being the main cause of patients' death, remains a cornerstone of modern medicine. This is due to latent, hidden progression of LC; late detection; inevitable disability and early mortality [1,2]. The liver cirrhosis is diagnosed in later stages of decompensation and portal hypertension complications. The latent progress of the pathology, the need for invasive techniques cause problems for detection of liver cirrhosis in the early stages [3, 4, 5, 6]. The goal of this study is to optimize the diagnosis and treatment of the liver cirrhosis at early stages.

Materials and Methods. The study was conducted at the Gastroenterology Department of the Semey State Medical University Medical Center. The scope of study included 50 patients, including those with viral (40%), alcohol (44%), autoimmune (7%), hepatitis, steatohepatitis (9%), liver cirrhosis (44%). The median age was 50.2±9.2 and ranged from 17 to 72 years consisting mostly of male (60%).

Research results. To solve the problem of early objective diagnosis of LC we used a comprehensive assessment of fibrosis formation by counting fibrosis index on M. Bonacini's (1997) discriminant score scale (DSS) [7,

8]. The M. Bonacini's fibrosis discriminant score shows a specificity of 98%. An average score in patients with histological fibrosis 0-2 was 4.3±2.0, and fibrosis 3-4 significantly more – 7.9±1.4. Thus, in the patients with DSS fibrosis score more than seven a stage of cirrhosis could be extrapolated with a high probability. The patients with viral hepatitis, non-alcoholic liver disease, liver tumor had DSS fibrosis formation averaged to be 3.1± 0.2, which is regarded as weak fibrosis. Apart from applying DSS to diagnose cirrhosis, we studied hepatic hemodynamics. The hepatic hemodynamic study revealed a significant decrease in linear blood flow velocity in the portal vein from minimal 38.5 % to maximal 65.83 %, the splenic vein – from minimal 38.1% up to max 57.31 % of the standard indicators. At the same time arterial linear velocity parameters are close to a minimum, the reduction in the blood flow velocity was detected at the splenic artery, but was not as reliable. Although when compared with the maximal possible linear velocity (BFV) the blood flow both in the liver and splenic arteries was registered with a significant reduction by more than 60% (by 63.84% of the hepatic artery and 61.95% splenic artery). The hepatic hemodynamics indicators correlation relationship and DSS based fibrosis indices are shown in Figure 1.

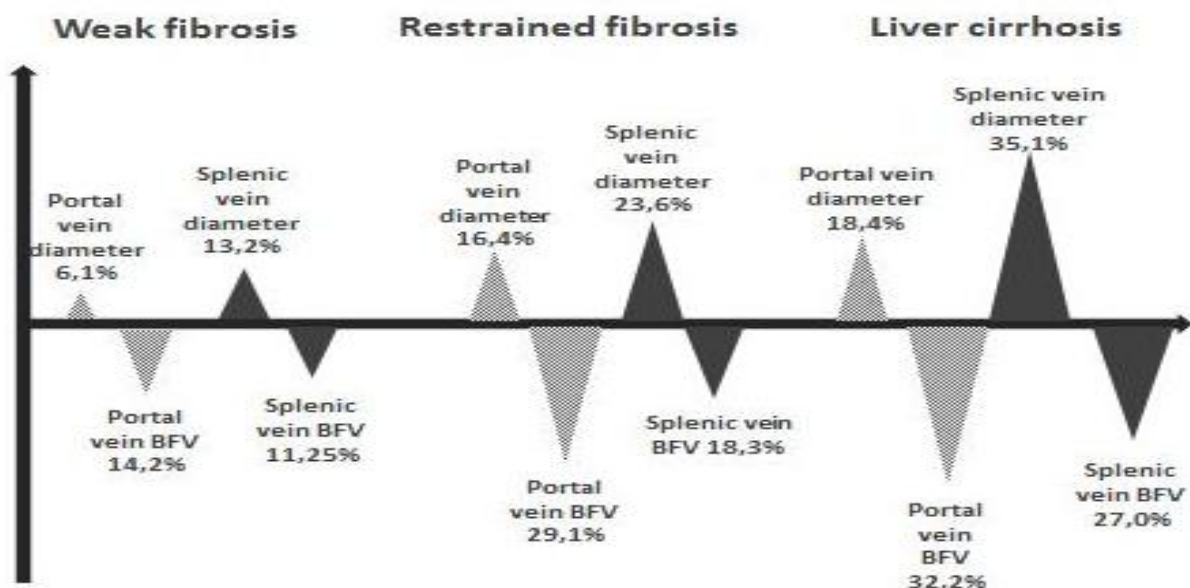


Figure 1.

It should be noted that there is a discrepancy of hemodynamic indicators with unsound fibrosis formation in patients with hepatic tumor: a greater reduction in BFV and expansion of the portal and splenic veins are observed.

The pathogenetic basis for therapy of chronic liver diseases is hepatoprotectors [9, 10, 11]. However, according to Sitnikov I.T., Maleev V.V. and Shoshina A.A. [12] the hepatoprotective activity coefficient (HAC) of a few medication was low. An outcome from this work [12] was a conclusion about combined use of hepatoprotectors. Such a conclusion could serve as a recommendation to synthesize and use such a medication as Godex. We investigated the therapeutic potential of a new hepatoprotective remedy Godex – a unique medication produced by South Korean company "Han Seo Pharm", represented in Kazakhstan by

"GlobalFarm". The choice of this medication was not accidental and it was justified from the evidence-based medicine standpoint [13]. All patients, included in the main group, were prescribed to take a dose of 2 capsules 3 times daily after meals. The Godex, despite its complex composition, was well tolerated and had no side effects.

First of all, the clinical evaluation of Godex efficacy noted a significant decrease in pain intensity, hepatomegaly in the early stages of its use, from 3rd-4th day. In the control group a positive trend was indistinct and observed in later periods of inpatient treatment that was also the reason for extending the stay of patients for up to 17 days. The evaluation of the total efficiency of the therapy with the Godex also shows a significant prevalence of therapeutic action of the hepatoprotector (Figure 2).

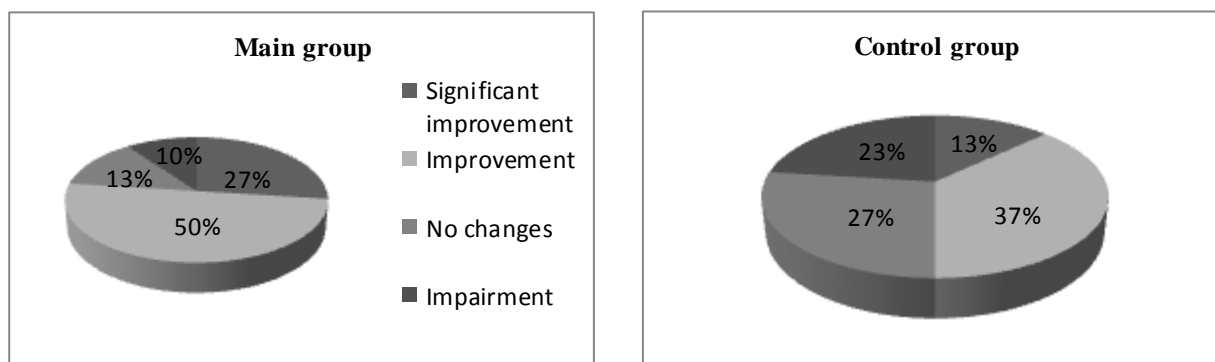


Figure 2. Total efficiency of the therapy.

The DSS determined fibrosis index dynamics revealed a reduction in the fibrosis formation by 21.8% by the end of one-month treatment, while in the control group, only by 8.3%. The laboratory dynamics is presented in Table No.1. What also makes it interesting, along with a decrease in cytolytic and jaundice syndromes, is reducing in laboratory evidence of cholestasis. Thus, in the main group the alkaline phosphatase activity went down by 41.66 %, GGTP - by 35.82%, in the control group only by

16.3% and 26.04%, respectively. Meanwhile in the clinic a skin itch did not decrease significantly. Godex anticholagogic effect is apparently results of its ability to protect mitochondrial membrane from the damaging effect of bile acids, improved mitochondrial function, escalation of ATP synthesis, preservation of the hepatocyte cytoskeleton. In general, in the control group the results were not as effective and did not exceed the laboratory syndrome correction factor.

Table №1.

Laboratory dynamics.

Parameters	Main group		Control group		HAC	
	Before	After	Before	After	Main	Control
Total bilirubin	144,4±44,5	55,0±14,6	127,3±35,8	86,2±21,7	0,62	0,32
ALT	0,36±0,1	0,24±0,08	0,28±0,08	0,23±0,1	0,33	0,18
AST	0,27±0,2	0,18±0,05	0,26±0,08	0,22±0,09	0,5	0,16
Alkaline phosphatase	3,6±0,4	2,1±0,8	3,2±0,7	2,6±0,4	0,41	0,19
GGTP	1,87±0,12	1,2±0,3	1,69±0,35	1,25±0,72	0,64	0,26
Albumine	34,2±1,85	46,6±2,8	31,8±3,5	33,7±3,7	0,36	0,06
γ-globuline	31,2±1,69	25,92±2,7	29,7±1,5	27,4±2,1	0,17	0,07
Thymol test	8,08±1,7	7,2±0,8	10,3±1,5	8,5±1,1	0,11	0,17
INR	1,32±0,5	1,11±0,2	1,27±0,7	0,96±0,5	0,16	0,24

Thus, the study came up with the following conclusions: the fibrosis index correlation, as measured on M. Bonacini's discriminant computing scale, with hepatic hemodynamic parameters allows us to give an objective evaluation of fibrosis formation at chronic liver diseases. The Godex is highly effective hepatoprotector with antiproliferating action.

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Резюме

РЕАБИЛИТАЦИЯ ПАЦИЕНТОВ С ХРОНИЧЕСКИМИ ЗАБОЛЕВАНИЯМИ ПЕЧЕНИ И МОНИТОРИНГ ЕЕ ЭФФЕКТИВНОСТИ В ЗОНЕ ПОВЫШЕННОГО РАДИАЦИОННОГО РИСКА В ВОСТОЧНО-КАЗАХСТАНСКОМ РЕГИОНЕ

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Изучены особенности течения и патогенетические механизмы хронических заболеваний печени в экологически неблагоприятном регионе Восточного Казахстана, прилегающих к бывшему испытательному ядерному полигону. Определена структура патологии печени в регионе. Отмечены возможности неинвазивной оценки степени фиброобразования посредством использования дискриминантной счетной шкалы в сопоставлении с показателями печеночной гемодинамики. Оценена эффективность реабилитации больных с патологией печени в регионе повышенного радиационного риска с мониторингом динамики индекса фиброза, определяющей снижение степени фиброобразования на 21,8%.

Ключевые слова: ионизирующее излучение, цирроз печени, дискриминантная счетная шкала, печеночная гемодинамика

Тұжырым

ШЫҒЫС ҚАЗАҚСТАН АЙМАҒЫНЫҢ ЖОҒАРЫ РАДИАЦИЯЛЫҚ ТӘУЕКЕЛДІ ӨҢІРДЕГІ СОЗЫЛМАЛЫ БАУЫР АУРУЫНА ШАЛДЫҚҚАНДАРДЫҢ ОҢАЛТУЫ МЕН ОНЫҢ ТИІМДІЛІГІНІҢ БАҚЫЛАУЫ

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Бұрыңғы ядролық сынақ полигонымен шектескен Шығыс Қазақстан аймағындағы созылмалы бауыр ауруларының ағымының ерекшеліктері мен патогенетикалық механизмдері зерттелген. Өңірдегі бауыр ауруларының құрылымы анықталған. Бауыр гемодинамикасының көрсеткіштерімен салыстырылған дискриминантты есептік шкаланы пайдалану арқылы фиброз түзілу дәрежесін инвазивті емес бағалау мүмкіндігі белгіленген. Фиброз түзілу дәрежесінің 21,8 пайызға төмендеген фиброз индексі мониторингімен өткізілген жоғары радиациялық тәуекелді өңірдегі созылмалы бауыр патологиясы бар аурулардың сауығу шараларының тиімділігі бағаланған.

Негізгі сөздер: ионизациялық сәулелену, бауыр циррозы, дискриминантты есептік шкала, бауыр гемодинамикасы.