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Comparative Analysis of the Course Features of Chronic Hepatitis C and Cirrhosis in the Outcome of HCV

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ABSTRACT

Background: Currently, there is an increased incidence of hepatitis C, which is transmitted by contact with infected blood. In more than 85% of cases, the infection has a chronic course with the risk of formation of cirrhosis of the liver, appearing usually after 20 or more years after infection. For patients with chronic hepatitis C the risk of hepatocellular carcinoma (HCC) 20 years after the infection is 1-5%. In general, hepatitis C - asymptomatic disease that is often diagnosed by chance, for which it is called «gentle killer». The prevalence of CHC is caused by the lack of a vaccine and that allow minimising the risk of disease, unlike hepatitis B, in which the vaccine is assigned to each newborn child. Having access in Kazakhstan to guaranteed free antiviral therapy (AVT), in contrast to other foreign countries, it allows our population to receive the necessary treatment regardless of the stage and severity of the CHC. **Methods:** A retrospective study was conducted at the University Hospital in Almaty by outpatient card of 53 patients. During 2013-2014 It was identified 37 patients with a CHC diagnosis, in 16 patients - CHC with an outcome in hepatic cirrhosis, class A by Child-Pugh Score. Among the first group (CHC patients) were 20 males, 17 females, average age was 50.4 years. In the second group (patients with liver cirrhosis in the outcome of CHC) were 8 males, 9 females, average age was 59.6 years. Methods: clinical, laboratory, biochemical, instrumental and statistical. **Results:** In the study of patient's anamnesis of life were established parenteral HCV infection factors, among which is one of the most common factor can be noted surgical interventions (54%) in both groups. The most common patients' complaints with CHC and liver cirrhosis in the outcome of CHC were weakness, fatigue, decreased ability to work. Clinical picture: yellowness of the skin, scleral icterus of the varying degrees of severity, hepatic signs (telangiectasia, palmar erythema) were detected in 37 CHC patients. Genotyping was performed in 32 patients (60.4%). Antiviral therapy including pegylated interferon and ribavirin, has been carried out in 3 patients from the first group and 4 patients of the second group, of whom 3 had recurrent CHC. **Conclusion:** Thus, our research has shown the highest frequency of occurrence in the history of the patients - surgical interventions (54%) and blood transfusion (29%). The clinical picture of patients with CHC and cirrhosis in the outcome of CHC prevailed nonspecific complaints such as weakness, fatigue and reduced work capacity; for patients with HCV the most characteristic symptoms were hepatic signs and for patients with liver cirrhosis in the outcome of HCV - hepato-splenomegaly. Extrahepatic manifestations such as joint diseases (13.2%) were predominant in patients of the first group. The highest prevalence between the two groups of patients received HCV genotype 1b.increases - in passive decreases after ES. We cannot explain this phenomenon. Therefore, to clarify these issues and to determine the source of cfDNA in CSF further studies are needed.

KEYWORDS

Liver Cirrhosis, Hepatocellular Carcinoma, Hepatic Signs, Substance-Related Disorders, Jaundice

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INTRODUCTION

Due to the ubiquity and high incidence of viral hepatitis are a serious medical and social problem for the population. According to WHO, one third of the world population is infected with various types of hepatotropic viruses, from which chronic hepatitis C (CHC) affects 130-150 million people.

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It is expected that by 2015-2020 number of people infected with hepatitis C virus will double in the world. [1] CHC represents diffuse liver disease, which is characterised by inflammation and necrosis of liver parenchyma, remaining for six months or more. On a share of CHC is accounted for more than 70% of all chronic liver diseases. The high degree of chronisation and later establishment of the presence of HCV infection are caused by rarity of icteric form of acute hepatitis C (no more than 15% of cases), a significant share of latent and oligosymptomatic forms of CHC, including at the stage of hepatic cirrhosis. Extrahepatic manifestations in the acute stage of

the disease can significantly prevail over the actual symptoms of liver damage, which leads to errors in diagnosis and as a consequence of the transition to the chronic form of the disease [2].

Hepatitis C virus (HCV) is the causative factor of 20-40% of cases of liver cirrhosis (LC) and 1-4% of hepatocellular carcinoma. [3, 4, 5, 6, 7]. Every year from related with hepatitis C liver diseases, die about half a million people. The prevalence of CHC is caused by the lack of a vaccine and that allow minimising the risk of disease, unlike hepatitis B, in which the vaccine is assigned to each newborn child. Having access in Kazakhstan to guarantee free antiviral therapy (AVT), in contrast to other foreign countries, it allows our population to receive the necessary treatment regardless of the stage and severity of the HCV.

METHODS

Objective: study of course features of the chronic hepatitis C and liver cirrhosis in the outcome of CHC, the estimated prevalence of HCV various genotypes and effectiveness of the AVT.

A retrospective study was conducted at the University Hospital in Almaty by outpatient card of 53 patients. During 2013-2014 It was identified 37 patients with a CHC diagnosis, in 16 patients - CHC with an outcome in hepatic cirrhosis, class A by Child-Pugh Score. Among the first group (CHC patients) were 20 males, 17 females, average age was 50.4 years. In the second group (patients with liver cirrhosis in the outcome of CHC) were 8 males, 9 females, average age was 59.6 years.

Methods: clinical, laboratory, biochemical, instrumental and statistical. The clinical method is based on the collection of anamnesis of disease and life, physical examination data; laboratory and biochemical methods included the determination in blood Hb level, platelet count, ESR, alpha-FP, ALT, AST, GGTP, thymol test, enzyme-linked immunosorbent assay (ELISA), polymerase chain reaction (PCR). To instrumental methods include ultrasound, CT, MRI, elastography (Fibroscan) of the liver; statistical method was performed using STATISTICA v6 programme.

RESULTS

The highest percentage of CHC prevalence was observed in persons of Kazakh nationality - 26 patients (49%), among which from the first group were 17 patients, from the second group - 9 patients; Russian nationality patients revealed 16 (30.2%) of these 10 patients - from the first, 6 patients - from the second group. Patients of Uighur nationality amounted to 6 (11.3%) , from the first group accounted 4, from the second group - 2; From Uzbek nationality were 3 patients (5.7%), from the first group - 2, from the second group - 1; the remaining 2 patients (3.8%) of Korean nationality from the first group.

Analysis of prevalence of CHC and hepatic cirrhosis in the outcome of CHC depending on the place of residence: from the first group the negotiability from Almaty was 18 patients, in the second group - 14; negotiability from Almaty region in the first group - 10 patients, in the second group - 5; from Shymkent applied by 1 patient from each group; the rest of the patients were from the first group - from Kyzylorda - 2 patients, Atyrau - 1 patient, Karaganda - 1.

In the study of anamnesis were established parenteral HCV infection factors: surgical interventions revealed in 36 patients (54%) from the first group - in 26 patients, from the second group - 10 patients; blood transfusions generally carried out to 17 patients (29%): for 11 patients in the first group, 6 patients from the 2 groups; frequent visits of beauty salons, not complying with the applicable level of sterility of the instruments found in 7 patients (12%) from the first group - in 5, and the second group - in 2 patients, carried over viral hepatitis B - in 2 patients (3%) from the first group and drug addiction - in 1 patient (2%) from the second group [9, 10, 11].

The most common patients' complaints were weakness, fatigue, decreased ability to work. The rest of the complaints were caused by extrahepatic manifestations (arthralgias, a skin rash, pain in the lumbar region, etc.) and comorbidities. Clinical picture: yellowness of the skin, scleral icterus of the varying degrees of severity, hepatic signs (telangiectasia, palmar erythema) were detected in 37 CHC patients. From them, jaundice, generally in 8 patients (11.7%): in 5 patients of the first and 3 patients of the second group; hepatic signs were detected in 29 patients (42%): 17 patients of the first and 12 patients of the second group. Hepatomegaly was observed in 18 patients (26%), 8 patients of them of the first group, 10 patients - of the second group;the

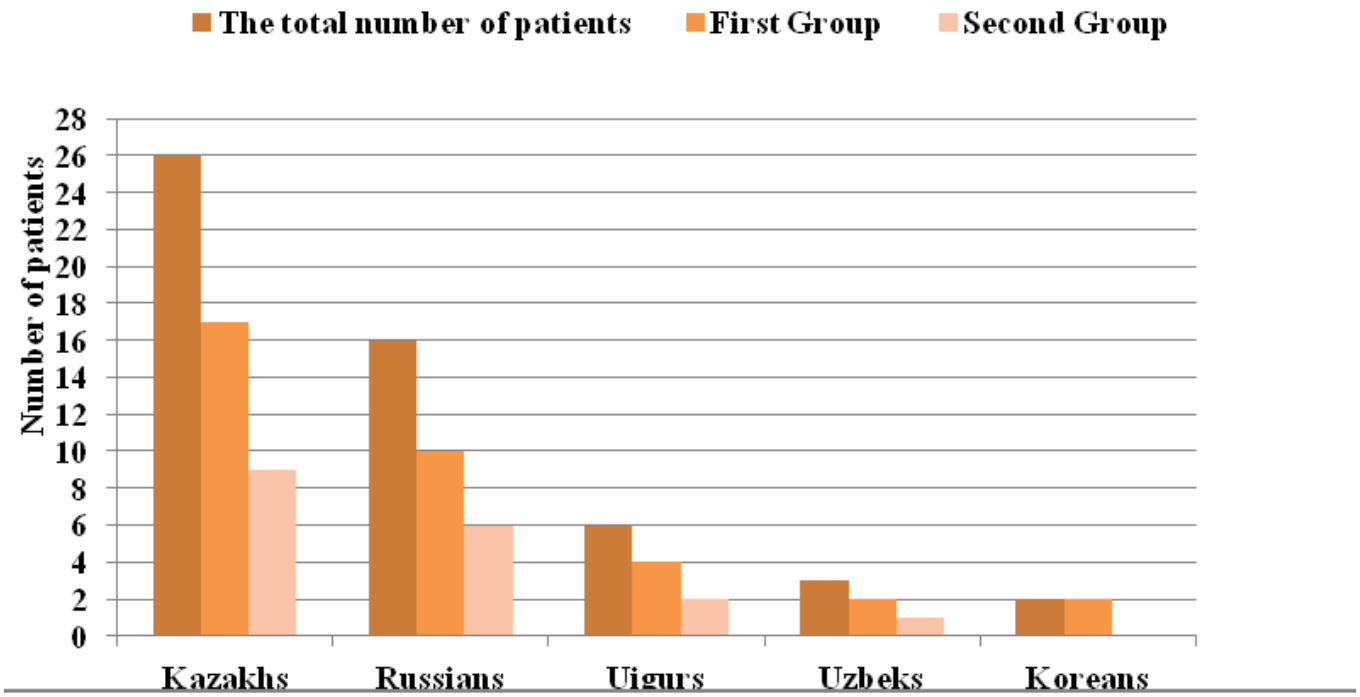

Fig.1. The distribution of patients by nationality

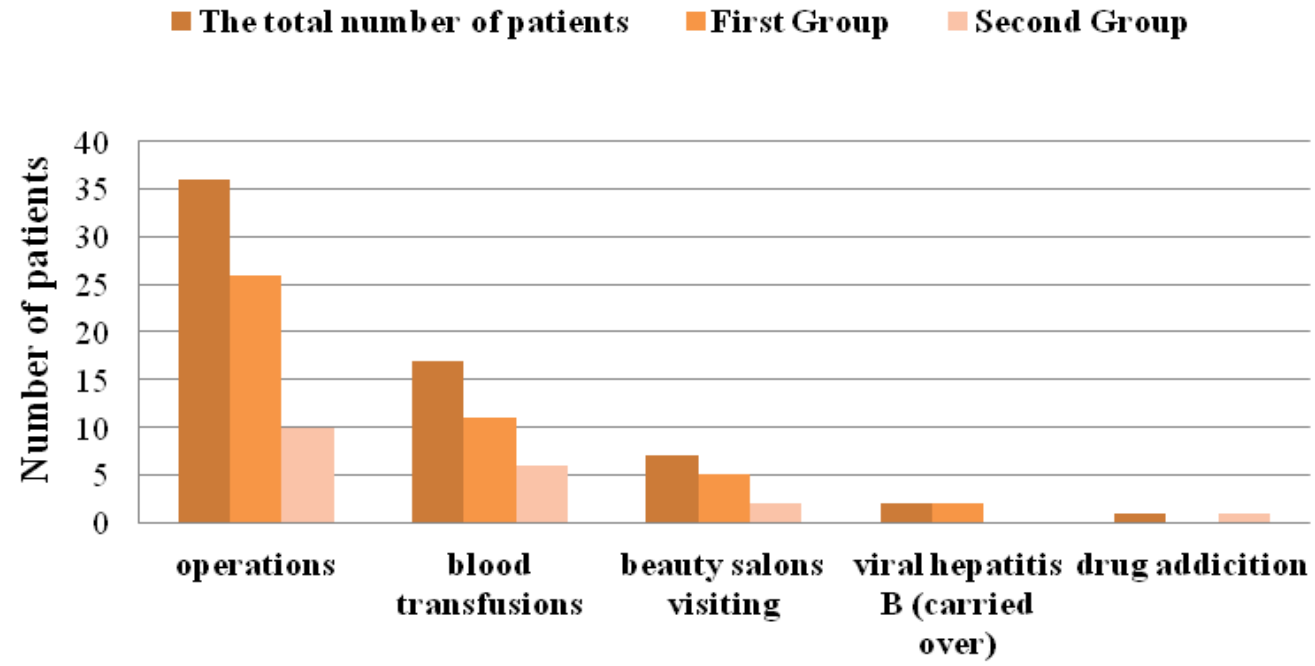

Fig.2. Distribution by infection factors

total number of patients with splenomegaly was 14 patients (20.3%) of them 3 patients - of the first, 11 patients - of the second group. The liver and spleen increasing was confirmed by ultrasound, CT, MRI. Extrahepatic manifestations by way of endocrine diseases, particularly diabetes were marked in 2 patients (3.8%) of the first group, hypothyroidism in 1 patient of the second group; signs of rheumatic diseases (arthritis, arthralgia) were found in 7 patients (13.2%), of which 5 patients - of the first, 2 patients- of the second group; dermal diseases: dermatitis - in 3 patients (7.5%) of the first group, papulosis - in 1

patient (1.9%) of the second group; renal diseases in the form of glomerulonephritis in 1 patient (1.9%) of the second group.

The presence of comorbidities in patients predisposes to the incidence of CHC, contributes to the progression and development of its complications.

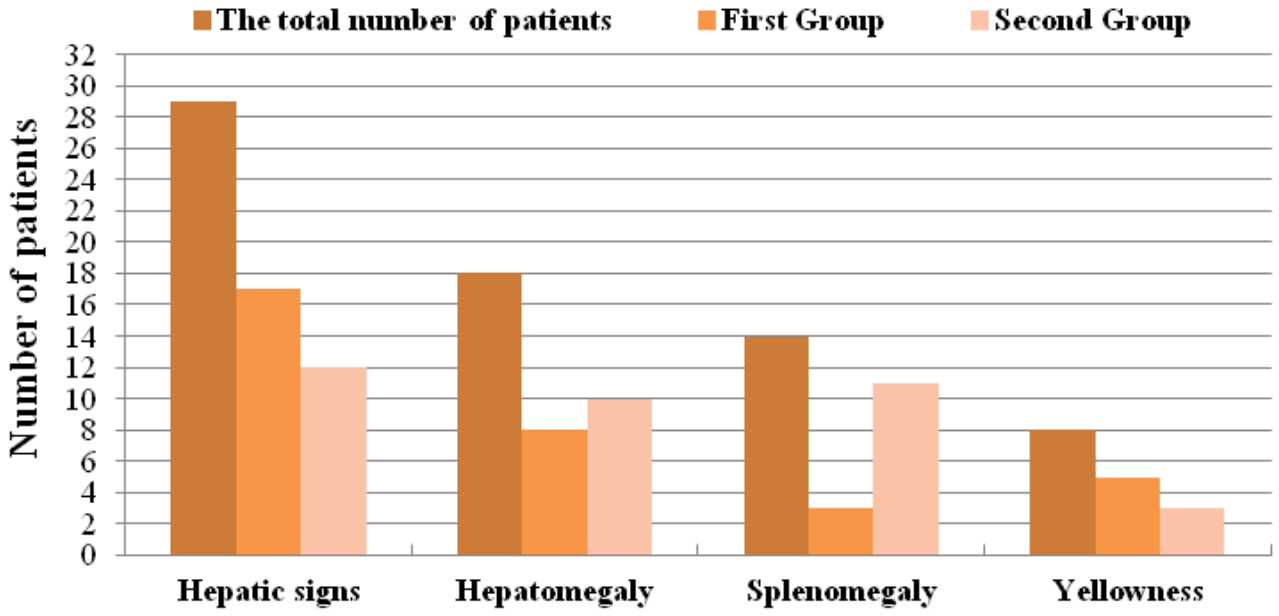

Fig. 3. Physical examination data of the patients with chronic hepatitis C and hepatic cirrhosis in the outcome of CHC

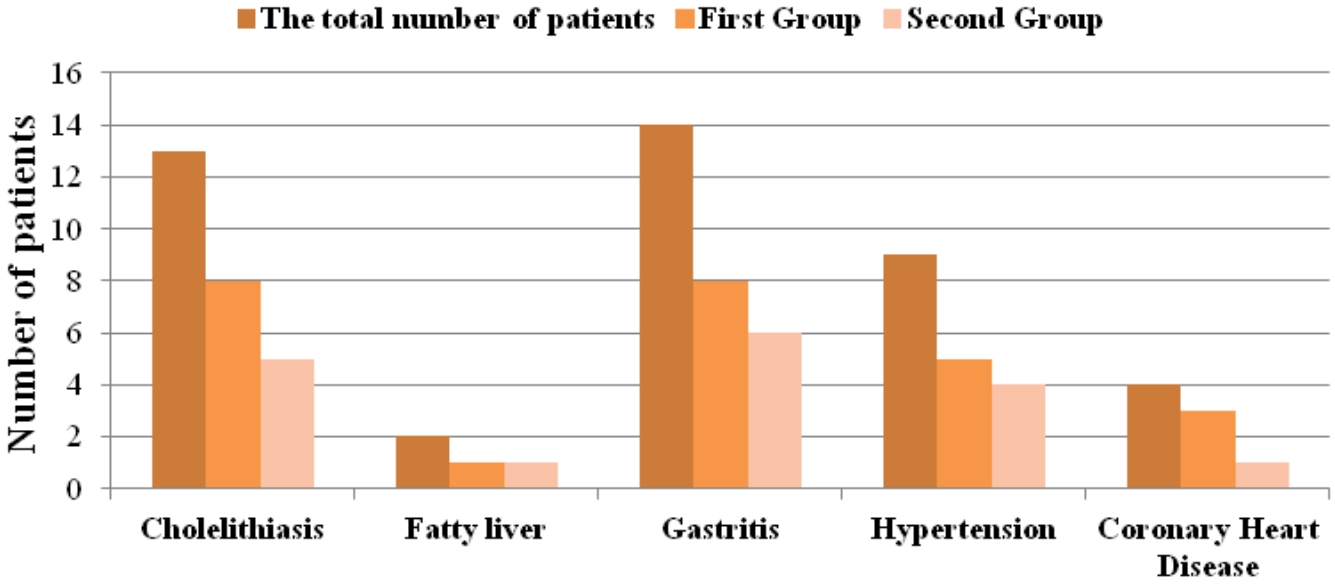

Fig. 4. Distribution of patients according to the presence of comorbidities

CHC (n=19)

	>ESD (n=12)	>α-FP (n=5)	>ALT (n=14)	>AST (n=14)	>GGTP (n=5)	> Thymol test (n=7)
The average value of the indicator	**29 mm / h**	**12 ng / ml**	**65.6 IU / ml**	**57.2 IU/ml**	**75 U / l**	**5.4 units**

Hepatic cirrhosis in the outcome of CHC (n=11)

	<Нв (n=6)	Thrombocytopenia (n=7)	>ESD (n=7)	>α-FP (n=3)	>ALT (n=8)	>AST (n=8)	>GGTP (n=2)	>Thymol test (n=6)
The average value of the indicator	**104.3 g /l**	**138.7x10 ^{9}/l**	**22.3 mm /h**	**16.2 ng / ml**	**87.9 IU / ml**	**75.6 IU / ml**	**81 U / l**	**5.8 units**

Fig. 5. Average values of clinical and biochemical blood tests data. A. CHC (n=19); B. Hepatic cirrhosis in the outcome of CHC (n=11)

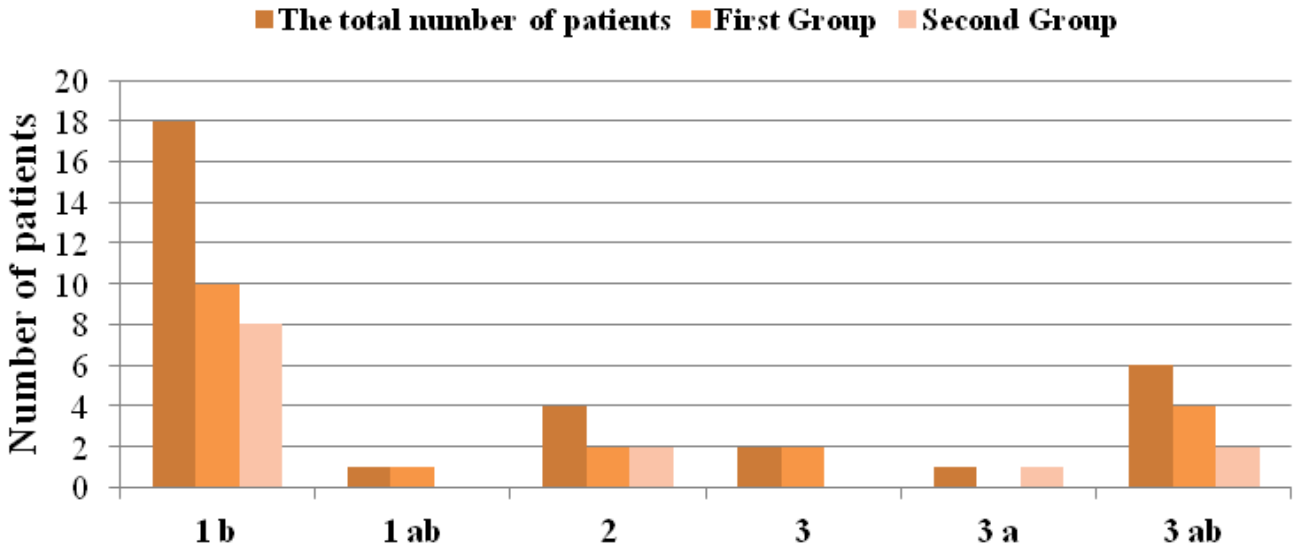

Fig. 6. Distribution of patients with HCV genotypes

14 patients (32.5%), in addition to the incidence of chronic hepatitis C and cirrhosis of the liver, had chronic gastritis, of them 8 patients of the first and 6 patients of the second group; 13 patients (29.6%) suffered from gallstones (cholelithiasis), from which 8 patients - of the first, 5 patients - of the second group; the number of patients, suffering from hypertension, was 9 (20.5%), of them 5 patients - of the second group; the number of patients, suffering from hypertension, was 9 (20.5%), of them 5 patients - of the first, 4 patients - of the second group; 4 patients (9%) suffered from coronary heart disease (CHD), 3 of them are patients of the first group, 1 patient - of the second group; in 1 patient (5%) of each group an accompanying disease was fatty liver [12].

In 30 patients from 53 were performed clinical blood analysis, in the remaining 23 patients missing country

data for clinical analysis of blood due to a number of reasons (primary uptake, etc.). It is noteworthy that in the vast majority of cases, the patients learned about the presence of CHC in the seeking and laboratory studies (↑ALT, AST) regarding other diseases.

In the study of HCV markers, all patients had antibodies to HCV. The viral load was determined in 16 patients (30%), of which 4 patients from the first and 3 patients from the second group with high levels of viremia (more than 2 million cop / ml); 4 patients from the first and 5 patients from the second group with low levels of viremia (less than 2 million cop / ml).

Genotyping was performed in 32 patients (60.4%), the rest of 21 patients confined themselves carrying out ELISA, due to the high cost of PCR; Among the 32 patients HCV genotype 1b was detected in 18 patients (56%) - 10 patients of the first and in 8 patients of the second group; genotype 1 ab in 1 patient (3%) of the first group. 4 patients (12,5%) had 2 genotype, by 2 patients in each group; 3 ab genotype was observed in 6 patients (19,3%), 4 patients of the first and 2 patients of the second group, in 2 patients (6.2%) of the first group – 3rd genotype; in 1 patient (3%) of the second group 3a genotype.

4 patients of the second group had a liver elastography, of them F2 by Metavir - in 1 patient, F4 - in 3 patients [15]. Antiviral therapy including pegylated interferon and ribavirin, has been carried out in 3 patients from the first group and 4 patients of the second group, of whom 3 had recurrent CHC. Thus, the the duration of AVT in patients with genotype 1b was 48 weeks, in patients with genotype 3 - 24 weeks [16, 17, 18,19, 20].

DISCUSSION AND CONCLUSION

Thus, our investigation revealed the presence of a relatively large number of patients of Kazakh nationality (49%), due to its prevalence in Kazakhstan and later negotiability. Surgical interventions (54%) and blood transfusion (29%) were the most common factors for HCV infection. The clinical picture of patients with CHC and cirrhosis in the outcome of CHC prevailed nonspecific complaints such as weakness, fatigue and reduced work capacity; for patients with CHC the most characteristic symptoms were hepatic signs and for patients with liver cirrhosis in the outcome of HCV - hepato-splenomegaly. Extrahepatic manifestations such as joint diseases (13.2%) were predominant in patients of the first group. In most patients, the CHC diagnosed during laboratory investigations (↑ALT, AST) regarding other diseases, while registration of sanatorium cards, in employment. The highest prevalence between the two groups of patients received HCV genotype 1b. Early diagnosis, prescription of AVT and commitment of CHC patients is extremely necessary due to the risk probability of the hepatic cirrhosis and hepatocellular carcinoma formation in 5-20% of patients in 10-25 years after infection.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflicts of interest.

AUTHOR CONTRIBUTION

All authors contributed to the study design, interpretation of the literature data, and the manuscript drafting. All authors read and approved the final version of the manuscript for publication.

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