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GENOTYPES OF HEPATITIS B VIRUS IN THE SAMARKAND REGION IN PATIENTS WITH CHRONIC VIRAL HEPATITIS B+D.

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Abstract. The discovery of B virus (HBV) is traditionally associated with Blumberga's discovery of the Australian antigen, now known as viral surface antigen (HbsAg). Based on phylogenetic analysis of the nucleotide sequences of the complete genome of the hepatitis B virus (HBV), they are divided into 10 genotypes, designated by Latin letters from A to J. Each genotype is characterized by a certain geographic and ethnic zone of prevalence. The most prevalent genotypes are A, B, C, D. Genotype A predominates in North America, Western Europe, and Central Africa. Genotypes B and C are primarily observed in China and Southeast Asian nationsGenotype D is dominant in Eastern European Mediterranean countries and India. The remaining genotypes are rare and characteristic of certain regions of Africa, Asia, South or North America.

Key words: hepatitis B virus, chronic viral hepatitis B+D, genotypes of hepatitis B virus.

ИЗУЧЕНИЕ ГЕНОТИПОВ ВИРУСА ГЕПАТИТА В ПО САМАРКАНДСКОЙ ОБЛАСТИ У БОЛЬНЫХ С ХРОНИЧЕСКИМ ВИРУСНЫМ ГЕПАТИТОМ В+D.

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Аннотация. Обнаружение вируса В (HBV) как обычно связывают с обнаружением австралийского антигена, известного в настоящее время антиген Blumberga и как поверхностный антиген вируса (HbsAg). В итоге

филогенетического анализа нуклеотидных последовательностей полного генома вируса гепатита B (HBV) подразделяют на 10 генотипов, которые обозначаются латинскими буквами от A до J. Каждый генотип ассоциирован с определёнными географическими и этническими регионами распространения. Наибольшее распространенные генотипы это A, B, C и D. Генотип A преобладает в Северной Америке, Западной Европе и Центральной Африке.Генотип B и C встречается в Китае и в странах Юго Восточной Азии. Генотип D доминирует в странах Восточной Европы Средиземноморье и Индии. Остальные генотипы встречаются редко и характерны для отдельных регионов Африки, Азии, Южной или Северной Америки.

Ключевые слова: вирус гепатита B, хронический вирусный гепатит B+D, генотипы вируса гепатита B

Introduction. Diseases caused by different genotypes of hepatitis B virus may differ in clinical course and complications. Hepatitis B caused by genotype C is often chronic and has a higher risk of progression to liver cirrhosis or hepatocellular carcinoma than diseases caused by other genotypes. [1,2]

The genotype of the hepatitis B virus can affect the effectiveness of interferon treatment for chronic hepatitis B (CHB). Patients infected with genotype A of the virus respond significantly better to treatment with interferon drugs than patients infected with other genotypes of the virus. [3,6,]

Research objective: Study of the incidence of B virus genotypes in patients with chronic viral hepatitis B+D in the Samarkand region.

Research materials and methods: The study included 40 patients with chronic viral hepatitis B+D of varying degrees of activity, including 22 women and 18 men aged 27 to 64 years.

All patients underwent a general analysis of blood, urine and feces. Biochemical analysis parameters were determined using generally accepted methods: Asat, Alat

thymol test, bilirubin. The presence of HbsAg, Anti HCV, anti HDV in all patients was determined by immunoenzyme analysis [4,7]. Determination of HBV DNA and HDV RNA was carried out using the real-time PCR method using the "Amply Sense" reagent kits. The study of HBV genotype was carried out using molecular genetic analysis, the degree of fibrosis according to the METAVIR classification was assessed using fibroelastography.

Results and its discussion: We examined patients treated at the regional clinical hospital for infectious diseases in Samarkand. Patients with chronic viral hepatitis B+D are divided into patients with low activity (35%), moderate activity (15%), and patients with high activity, leading to liver cirrhosis (50%). In the study of clinical symptoms, patients complained of general weakness and fatigue [4,8]. Patients mainly complained of periodic pain under the right rib cage (65%), nausea (35%), abdominal distension (37.5%). 80% of patients had a decrease in appetite, some patients had a rash on the body (12.5%), joint pain (25%), nosebleeds, and 50% of patients had bleeding gums.

Objective examination of patients revealed: jaundice of the skin and sclera in 65% of patients, yellowing of the palms and small venous collaterals in 25% of patients (Table 1) **Clinical signs observed in patients with chronic hepatitis B+D**

Table 1

	Clinical signs	**Minimum activity level**	**Low activity level**	**Average activity level**	**High activity level**
	Pain under the right rib cage	+	+	++	+++
	Decreased appetite		+	++	++++
	Joint pain	+	+	++	+++
	Bleeding from the nose and gums			++	+++

	Palmar erythema and small venous collaterals			++	+++
	Intensity of yellowing of the eye sclera			++	+++

In patients under observation, changes in the circulatory and respiratory organs correspond to age. In 42.5% of patients, the liver was moderately dense, palpated +2.0 cm below the right costal margin, and in 37.5% of patients, liver density was noted.

Epidemiological analysis results: 35% of patients had parenteral interventions, 17.5% had only dental procedures, 20% had a cesarean section, 12.5% had a family history of hepatitis B, and the rest were diagnosed with B and D viruses by chance.

Peripheral blood parameters in patients under observation

Table 2

Peripheral blood parameters in patients		**Minimum activity level**	**Low activity level**	**Average activity level**	**High activity level**
Complete blood count	Hemoglobin	84,7±2,09,	80,7±1,89	75,7±1,59	71,7±1,59
	Erythrocytes	3,10±0,08	2,87±0,03	2,55±0,03	2,35±0,03
	Lymphocytes	34,28± 0,30	32,28±020	30,28±0,2	28,28±020
	Leukocytes	6,90± 0,20	5,90± 0,15	4,60±03	3,60±03
	Platelets	174,72± 3,33	164,72±	154,72±	144,72±
	ECHT	13,69±0,49	15,89±0,49	16,69	20,01±0,4

Blood biochemical analysis parameters in patients under observation

Table 3

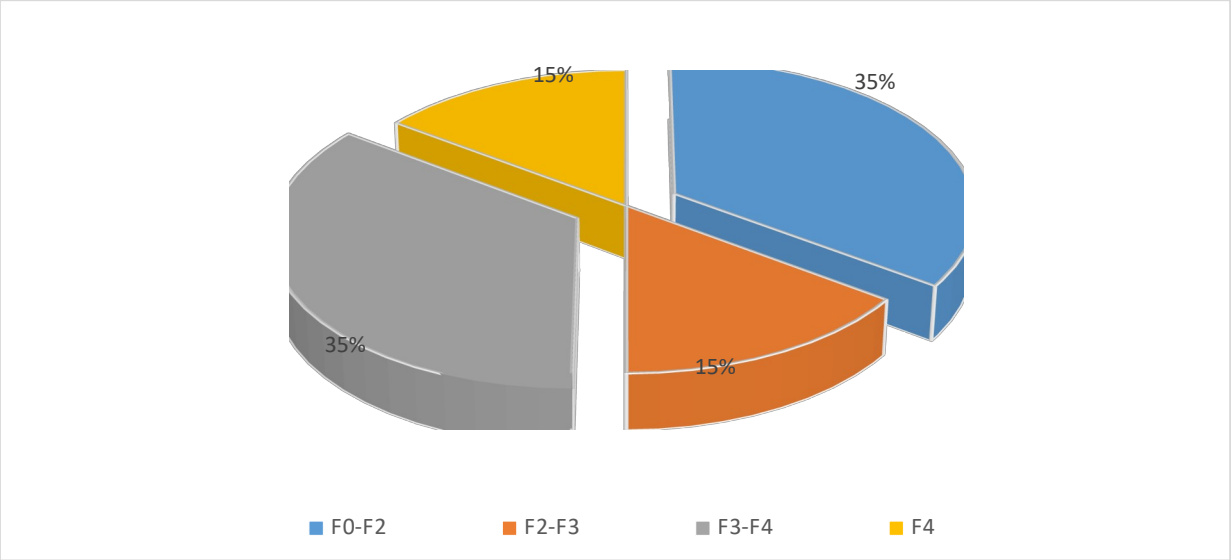
Blood biochemi	Total bilirubin	29,80± 3,28	32,80± 3,28	39,80± 3,28	49,80± 3,28

	Conjugated bilirubin	26, 52 ±3,67	29, 42 ±3,60	36, 52 ±3,67	46, 52 ±3,67
	Unconjugated bilirubin	23,21±1,66			
	AST	2,16±1,82	2,36±1,92	2,96±1,15	3,36±1,90
	ALT	2,12±1,49	3,54±1,40	3,86±1,49	4,88±1,49
	Albumin	44,18± 1,97	40,18± 1,90	36,08± 1,08	30,18± 1,07
	PTI	**76,94±1,50**			
	PTV	**25,48± 0,45**			

A complete blood count revealed hemoglobin 84.7±2.09, erythrocytes 3.10±0.08, platelets 174.72±3.33, leukocytes 6.90±0.20, eosinophils 3.69±0.17, monocytes ±3.27, ±3.29 ± 0.2, and a CBC of 13.69±0.49.

Biochemical blood tests gave the following results: total bilirubin 29.80±3.28, bound bilirubin 26.52±3.67, bound bilirubin 23.21±1.66. Enzyme levels were as follows: AST-3.36±1.82, ALT -4.12±1.49, total protein 64.94±1.32, albumin 44.18±1.97, glucose 5.41±0.29. We determined the protein synthetic function by albumin level and PTI (76,94±1,50) and PTV (25,48±0,45). Liver function was determined by the following: creatinine 90.87±2.97, urea 90.87±2.97, residual nitrogen 22.05±0.49. The control group tested positive for HBsAg and anti-HDV, while being negative for anti-HCV. Patients were divided according to the degree of liver fibrosis as follows: F0-F2 -35%, F2-F3 - 15%, F3-F4 35% and F4–15% were determined.

Figure 1. Distribution of patients according to the degree of liver fibrosis



All patients underwent an ultrasound examination of the abdominal organs, and a Doppler examination of blood flow through the portal system vessels (portal and splenic veins) was performed using a modern ultrasound device.

Ultrasound data: in 35% of patients, the liver was not enlarged, its contours were even, the capsule was thickened along the entire length, and the surface of the liver was smooth. The liver parenchyma was homogeneous, with fine (35%) and medium granularity (15%). In patients, it was determined. In 5% of patients, the surface of the liver parenchyma was smooth, with even edges, increased hepatic granularity, and increased exogenousity were determined. In 10% of patients, there were foci of fibrosis in the liver parenchyma, an enlarged portal vein, and areas of fibrosis in the periportal zones. The vascular architecture was deformed and reduced.

Quantitative determination of hepatitis B virus DNA and hepatitis D RNA, together with the clinical picture and biochemical parameters of the disease, elastography data, allows predicting the course of the disease and assessing the need for antiviral therapy. For this purpose, quantitative determination of B and D viruses by PCR was performed in the examined patients, and in the observed patients, it was found that the viral load of B virus was from 2000 to 20,000 in

32.5% of patients, 20,000-50,000 in 30% of patients, and 50,000 in 37.5% of patients.

According to the literature, genotype A is most common in Europe and Africa. Studies in Italy have shown that this genotype is found in 44%. A study of the distribution of genotypes in Russia has shown that genotype A, although rare, is found in St. Petersburg and the Leningrad region (17,2%) and Karelia (8,7%). As for the distribution of genotype B in the world, it is more common in China (67.12%) and Vietnam. Studies on the geographical distribution of genotype C have shown that genotype C accounts for the majority of all patients with chronic hepatitis. China is in second place - 32.19%. In Korea, 29% of patients with genotype C are infected. Analysis of literature data has shown that genotype D is more common. In various regions of Turkey and Italy (53%) among patients infected with the B virus, genotype D predominates. In China, it was found in a negligible amount of 0.68%. In Russia, genotypes B, D, and A are found in patients with viral hepatitis B, but genotype D accounts for 88% of all cases. The distribution of HBV genotypes in the Republic of Kazakhstan is similar to the frequency of HBV virus genotypes throughout Central Asia. The work of Ukrainian researchers showed the predominance of genotype D of the B virus in the surveyed regions of Russia. In Belarus, genotype D is 2.4%. Studies conducted in Romania show the predominance of genotype D (65%). A sample study conducted in the Republic of Sakha (Yakutia) revealed the presence of three genotypes of HBV: genotype A - 27.3%, genotype D - 30.9%, genotype C - 24.1%, and genotypes A and D - 17.7%. In our studies of patients with chronic viral hepatitis, the following results were obtained: genotypes of patients with varying degrees of disease activity and the predominance of genotype "D" were noted, genotype A was detected in 72.3% of patients, genotype C was detected in 10.3%, and genotype C was not detected in 17.4%. In a study of 40 patients with chronic viral hepatitis B + D, the genotype results showed the predominance of genotype D.

Conclusion: The results of a study conducted in patients with chronic viral B + D indicate the predominance of genotype D in our region. Genotype D was 82.5%, genotype A was 17.5%.

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