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## **AWARENESS ASSESSMENT FOR VIRAL HEPATITIS AMONG PATIENTS IN DIFFERENT DEPARTMENTS OF MEDICAL INSTITUTIONS AND STUDENTS**

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### **Abstract**

The significant spread of chronic viral hepatitis in Ukraine and the whole world, an increase in the incidence of medical personnel, and the lack of wariness of the population regarding the diseases of this group make it necessary to have a statistical analysis of the etiology, diagnosis, treatment, and prevention of viral hepatitis among different population groups.

**Aim.** To study and analyze the awareness about viral hepatitis B (HBV) and C (HCV) of patients who undergo treatment in various departments (infectious, surgical, therapeutic)

and the students who didn't take the course of infectious diseases.

**Materials and methods.** A questionnaire was developed to establish the level of awareness among patients with viral hepatitis. The study was conducted through a sociological survey (full-time, one-time, individual) with the preservation of confidentiality conditions. The study was conducted in the infectious department of Sumy Regional Infectious Diseases Clinical Hospital named after ZY Krasovitsky, Surgical Department of Sumy City Clinical Hospital №5, therapeutic department of Sumy Regional Clinical Hospital of the 4th year of Sumy State University Medical Institute in 2019. In total, 147 people took part in the survey: 20 were in treatment at the therapeutic ward, 20 - in the surgical ward, 20 - in the infectious diseases department, and 20 - 4th-year students.

**Conclusions.** Viral hepatitis is currently one of the most pressing health problems. It is used for the sociological survey we developed to determine the level of knowledge of the population about the causative agent of viral hepatitis, transmission, prevention (not specific and specific), clinical features, laboratory methods of diagnosis, and treatment.

Among all the surveyed results, recipients gave most of the correct answers to questions about the causative agent of viral hepatitis and transmission routes. The worst known are patients in the surgical wards about the presence of an effective hepatitis B vaccine (20.00%); patients of infectious and therapeutic wards (20.00% each) and 4th-year students (25.00%) - about the presence of effective hepatitis C therapy; (95.00%) and a reference group of physicians (100.00%) on the etiology of viral hepatitis. Patients in surgical wards (84.30%) answered the most frequently asked questions about the ways of transmission of viral hepatitis.

**Keywords: chronic viral hepatitis C; chronic viral hepatitis B; sociological survey; questionnaire.**

**Introduction.** Significant prevalence of chronic viral hepatitis in Ukraine and the world, increasing morbidity of health personnel, lack of public vigilance about diseases of this group necessitates statistical analysis of the etiology, diagnosis, treatment, and prevention of viral hepatitis among different population groups. Viral hepatitis in Ukraine in terms of the degree of negative impact on public health occupies a dominant place in the structure of infectious pathology. Hepatitis B vaccine prevention remains one of the most essential tasks to prevent the transmission of HBV among children and adults in the infection foci, health staff as an occupational risk group, students of secondary and higher medical institutions, etc. Very high incidence of hepatitis C is complicated by its inherent asymptomatic (jaundiced)

course with the subsequent development of a chronic process in 80% of patients

Due to the rapid viral hepatitis prevalence, the high frequency of its chronicity, and frequent adverse effects of the disease, the problem is medical and socio-economic [2, 3]. The weight of natural pathways for HCV is much smaller in comparison to HBV. The latter is conditioned by the fact that HCV infection requires a much more significant amount of virus than HBV infection [4].

The source of infection with hepatitis C are patients and virus carriers. The virus appears in the blood in 1 to 3 weeks after infection. The leading mechanism of HCV transmission is hemocontact, possible and vertical. It is possible to become infected by blood transfusion and its preparations, by the parenteral drugs' use, as well as as a result of manipulations in medical institutions. Transmission of the pathogen in hetero- and homosexual contact, from an infected mother to the newborn, may also occur but is made less frequently than in HBV. Hemophilia patients and people on hemodialysis are also at risk. Unlike HBV, contamination of the surrounding objects with blood is not a significant risk factor for transmission, except in hemodialysis units [5].

The Source of infection are patients with hepatitis B virus and HBV carriers. The patient is most contagious in the last weeks of the incubation period and the first 2-3 weeks of disease. The mechanism of infection is parenteral. All biological fluids of the patient and the virus carrier contain viruses in different concentrations. The largest amount of virus is contained in the blood. You can get infected by transfusion of infected blood with various parenteral manipulations. Risk groups for hepatitis B are medical surgeons, manipulation nurses, patients and doctors of the hemodialysis department, drug addicts, homosexuals. HBV transmission factors are blood, plasma, immunoglobulins. The virus can be found in breast milk and other fluids. The transmission methods are injections, surgery, parenteral manipulations, work with biological fluids of patients [6].

Chronic viral hepatitis C (HCV) develops in approximately 80% of those infected people. Its clinical signs are enlargement of the liver and spleen, hyperenzymemia, and the presence of anti-HCV in the blood for at least 6 months, subject to the exclusion of other chronic liver diseases [7].

Chronic viral hepatitis B (HBV) creates a rather diverse group, including asymptomatic, latent forms of the disease and severe liver damage. Patients mostly complain of reduced efficiency, mild fatigue, and sometimes minor dyspeptic disorders, which may periodically worsen, especially after eating. The examination may reveal a slight icteric sclera of the skin and mucous membranes, occasionally single vascular asterisks on the skin. The

liver is moderately enlarged, in some patients, palpation is sensitive or painful [6, 7].

**The study aims to** conduct a sociological survey of awareness of viral hepatitis among patients of different profiles (infectious, therapeutic, and surgical) and 4th-year students of the Medical Institute, followed by practical recommendations to reduce the prevalence of viral hepatitis and economic losses reduce.

### **Patients and methods**

Awareness determination among patients was made by developing a questionnaire containing 22 questions, which were divided into several blocks: 1) gender, age, and social data, 2) questions related to the etiology and pathogenesis of the disease; 3) questions about the clinical manifestations of the disease; 4) questions about the features of modern diagnosis of viral hepatitis; 5) questions about the possibilities, options, and effectiveness of treatment of viral hepatitis; 6) questions about the types of viral hepatitis prevention.

The study was conducted using the method of sociological survey (face-to-face, one-time, individual) while maintaining the conditions of confidentiality.

The research was made in the infections department of Sumy Regional Clinical Hospital named after Z. Y. Krasovitsky, surgical department of Sumy city clinical hospital №5, therapeutic department of Sumy regional clinical hospital, among 4th-year students of SSU medical institute in 2019. A total of 147 people took part in the survey: 20 of them were treated in the therapeutic department, 20 - in the surgical department, 20 - in the infectious department, and 20 were 4th-year students; The comparison group consisted of doctors (67 people) who were at the university conference "Infectious diseases in the practice of an internist: modern aspects" on May 29, 2019.

Statistical processing of the results was performed using the Microsoft Office software package. The Student's t-test was used to calculate the significance of differences between quantitative traits in groups, and the dependence of features was established using the Pearson correlation coefficient.

**Results.** Among all surveyed, the number of men (55.00%) was 1.2 times higher than women (45.00%). The majority of respondents were young (51.25%), which is 2.4 times more than middle-aged patients (21.25%), 2.6 times more than the elderly (20.00%), 8.2 times more than the older adults (6.25%). There were only 1.25% of long-lived people.

Among all the respondents, 48.15% were individuals with secondary general education, which is 4.3 times more than with secondary public incomplete education (11.11%); 1.6 times more than with higher non-medical (30.86%); 4.9 times more than with higher medical one (9.88%).

At the student body, 95.00% were interested in information about viral hepatitis; almost as many (85.00%) patients of the therapeutic department; it is 1.4 times more than patients in the infectious department (70.00%) and 2.4 times more than patients in the surgical department (40.00%). Individuals from the reference group showed 100% interest, which almost coincides with the 4th year students (95.00%).

Among all the respondents, the most significant number of health workers was among students (65.00%), which is seven times more than among patients (9.50%); among the patients of therapeutic and surgical hospitals, there was no medical staff (0%). There were 100.00% medical workers in the reference group.

The highest number of blood recipients was among patients in an infectious diseases hospital (23.80%), which is 1.6 times more than in patients in a surgical hospital (14.29%); 2.4 times more than patients in the therapeutic hospital (10.00%); there were no blood recipients among students (0%). There were 5.63% of blood recipients in the reference group.

Among the patients of the therapeutic hospital, 15.00% were hemodialysis patients, which is 3 times more than the patients of the infectious diseases hospital (4.80%) and the patients of the surgical hospital (4.76%); among students, there were no hemodialysis patients (0.00%). In the reference group and among students, there were no hemodialysis patients (0.00%).

Among the patients of the therapeutic department and the students, there was 1 user of injecting drugs (5.00%); there were no IDUs among patients in infectious and surgical hospitals and the reference group.

The amount of 80.95% of patients in the surgical hospital did not belong to any of the above risk groups, as well as 70.00% of the therapeutic hospital, 61.90% of the infectious diseases hospital, and 30.00% of students. There were 4.23% in the reference group.

Students were the most informed about the possibility of the disease and the severe consequences of viral hepatitis (85.00%); that is 1.2 times more than patients of infectious and therapeutic departments (70.00%); and 2.4 times more than patients in the surgical department (35.00%). Individuals from the comparison group are 100% informed about the possibility of the disease and the severe consequences of viral hepatitis.

Answering the question: "Do you know what measures prevent the occurrence of viral hepatitis" the most knowledgeable respondents were students (85.00%); almost as many (80.00%) patients of the therapeutic hospital; which is 1.2 times more than patients in an infectious diseases hospital (70.00%) and 1.8 times more than patients in a surgical hospital (45.00%). Individuals from the reference group were informed about measures to prevent

viral hepatitis by 97.01%.

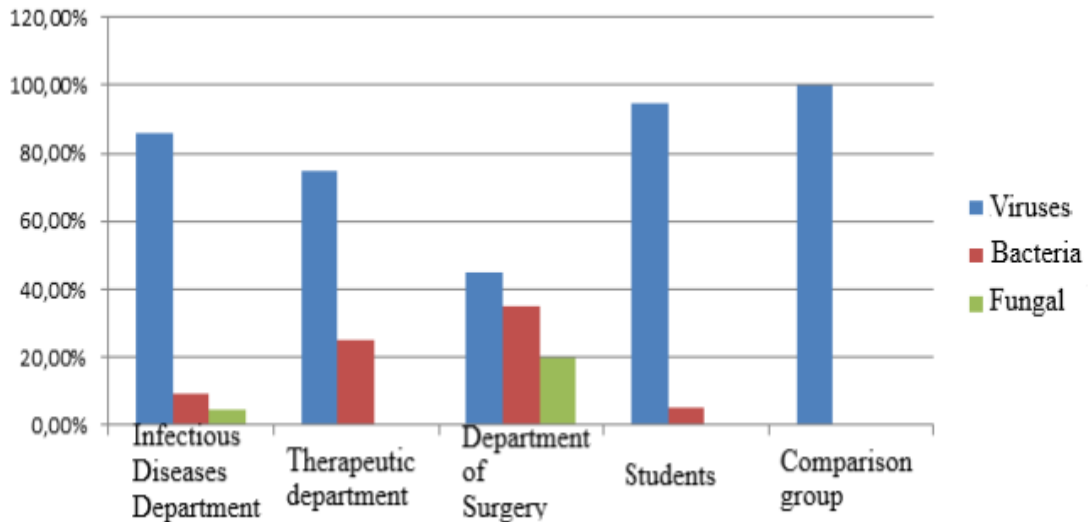
Patients in the surgical hospital (42.10% ) were the most informed about measures to prevent viral hepatitis "from humans", which is 1.3 times more than patients in the therapeutic hospital (31.70%); 1.9 times more than patients in an infectious diseases hospital (22.80%); and 2.0 times more than students (20.00%). In the reference group, only 1.90% of people receive information "from people," which is 22 times less than patients in a surgical hospital.

Most information is received from the mass media by patients of the infectious department (19.30%), almost as much (18.20%) by 4th-year students; which is 1.2 times more than patients of therapeutic and surgical departments (15.90% and 15.80%, respectively). In the reference group, 12.66% of people receive information through the media.

Surgical hospital patients receive the most information from doctors and other medical workers (26.30%), almost the same amount (25.50%) students; 22.80% of patients in the infectious department; 22.20% of patients of the therapeutic department. From the control group, 29.11% of people receive information from doctors and health professionals. From their own experience, the most information (5.50%) is received by students, almost as much (4.80%) by patients of the therapeutic department; 1.5 times less - patients of the infectious department; patients in the surgical department had no experience with viral hepatitis (0%); in the reference group, 8.23% had experience with viral hepatitis, which is 1.5 times more than students (5.50%).

Patients in the infectious diseases department receive most of the information via the Internet (21.10%), which is 1.5 times more than students; 1.6 times more than patients of the therapeutic department; and 4 times more than patients of the surgical department; among people from the reference group, 18.35% of the respondents receive information via the Internet, almost as many as patients from the infectious diseases department (21.10%).

Among all the respondents to the question: "The causative agent of hepatitis B and C is..." the most significant number of correct answers were given by students (95.00%); almost as many - patients of an infectious hospital (85.70%) and a therapeutic hospital (75.00%); 2.0 times less correct answers were given by patients of the surgical hospital (45.00%) (Fig. 1). Individuals from the reference group gave 100% correct answers to this question (Fig. 1).



**Figure 1. The causative agent of hepatitis B and C is...**

To the question: "How is hepatitis C sometimes called?" 90.00% of the correct answers were given by 4th-year students (90.00%), slightly less by patients of infectious (81.00%) and therapeutic hospitals (75.00%); 1.5 times fewer correct answers were given by patients of the surgical hospital (60.00%), compared to students. Individuals from the group of doctors gave 95.52% of correct answers to this question, which is slightly higher than 4th-year students.

The largest number of correct answers for "The source of infection in viral hepatitis B and C is..." were students (80.00%), almost the same number of correct answers were given by patients in infectious diseases (73.1%) and therapeutic hospitals (65.00%); 2.4 times less correct answers were given by patients of the surgical hospital (33.33%) compared to students. Individuals from the reference group gave 98.51% of the right answers to this question.

Among all the respondents to the question: "Is it possible to become infected with hepatitis B or C through the joint use of dishes, hugs, kisses?" the most of correct answers were given by patients of the therapeutic department (85.00%), which is 1.2 times more than patients with infections diseases hospital (70.00%); 1.3 times more than patients of the surgical department (65.00%); 1.5 times more than students (55.00%). Respondents in the reference group gave 83.58% of correct answers to this question, which has almost the same result with patients in the therapeutic department.

A result of 65.00% of the correct answers was given by patients of the surgical department to the question: "Can a woman infect her child with hepatitis B or C while breastfeeding", which is almost 2.0 times more than patients in infectious and therapeutic hospitals (35.00% ); and 2.6 times more than students (25.00%). Individuals from the

reference group gave 37.31% of correct answers to this question, which has almost the same result with patients in the therapeutic and infectious diseases departments.

When interviewing patients of the infectious department about possible transmission methods (Fig. 2), the majority gave the correct answers (83.60%). Of these, 19.20% indicated the possibility of infection through blood; 10.60% indicated the possibility of sexual transmission; 15.40% - through the placenta from mother to child; 19.20% - when using the same syringe by several people; 19.20% - while ear piercing, manicure, tattooing. When asked about possible routes of transmission, patients of the therapeutic department mostly gave the correct answers (80.40%). Of these, 16.40% indicated the possibility of infection through blood; 16.40% - sexually; 15.60% - through the placenta from mother to child; 15.60% - when using the same syringe by several people; 16.40% - for ear piercing, manicure, tattooing. When interviewing patients of the surgical department about possible routes of transmission, the majority gave the correct answers (84.30%). Of these, 31.40% indicated the possibility of infection through blood; 19.60% - sexually; 7.80% - through the placenta from mother to child; 9.80% - when using the same syringe by several people; 15.70% - while ear piercing, manicure, tattooing. And 4th-year students gave the correct answers in a much smaller number of cases (74.10%). Among them, 16.30% indicated the possibility of infection through blood; 13.00% - sexually; 16.30% - through the placenta from pregnant mother to child; 16.30% - when using the same syringe; 12.20% - while ear piercing, manicure, tattooing. The majority in the reference group gave the correct answers (90.78%). Of these, 19, 94% indicated the possibility of infection through blood; 16.37% - sexually; 16.67% - through the placenta from pregnant mother to child; 19.35% - when using the same syringe by several people; 18.45% - while ear piercing, manicure, tattooing.

Most of those examined for viral hepatitis B and/or C were in an infectious disease hospital (75.00%), which is 1.2 times more than patients in a therapeutic hospital (65.00%); and 1.4 times more than surgical hospital patients and students (55.00%). From the comparison group, 70.15% of people were examined for viral hepatitis B and C.

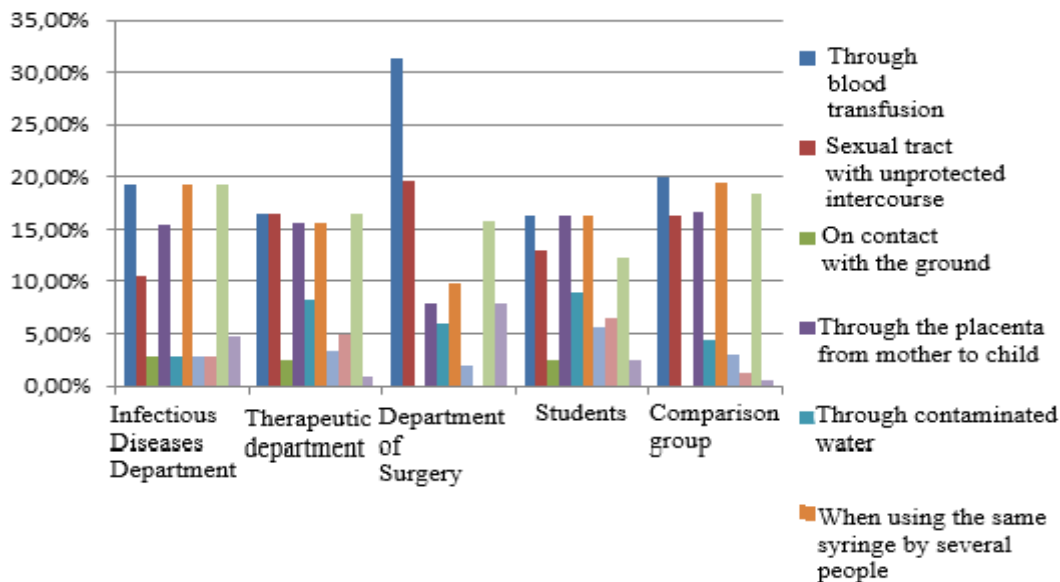
A result of 80.00% of patients in the therapeutic hospital had family members examined for viral hepatitis, which is 1.3 times more than in patients of the infectious hospital (60.00%); 1.5 times more than patients in a surgical hospital (55.00%); and 2.6 times more than students (30.00%). In the reference group, 52.24% have family members examined for viral hepatitis B / C.

The largest number of correct answers to the question: "Is there an effective hepatitis B vaccine?" was given by patients of the therapeutic hospital and students (75.00% each),



which is 1.5 times more than patients of the infectious disease hospital (50.00%); and 3.7 times more than patients in the surgical hospital (20.00%). Individuals from the reference group gave 92.54% of the correct answers to this question.

A result showed that 40.00% of students were vaccinated against hepatitis B, almost as many (35.00%) - patients of infectious and therapeutic hospitals; patients in the surgical hospital were vaccinated 8.0 times fewer (5.00%). The control group had immunized against hepatitis B 70.15%, which is 1.8 times more than students (40.00%). Among all respondents, 80.00% of infectious disease patients and students consider it necessary to be vaccinated against hepatitis B, which is 1.6 times more than surgical hospital patients and 2.3 times more than therapeutic hospital patients (35.00%). In the reference group, 98.51% of people consider it necessary to get vaccinated against hepatitis B, which is 1.2 times more than patients in the infectious diseases department and students (80.00%). (Fig. 2).

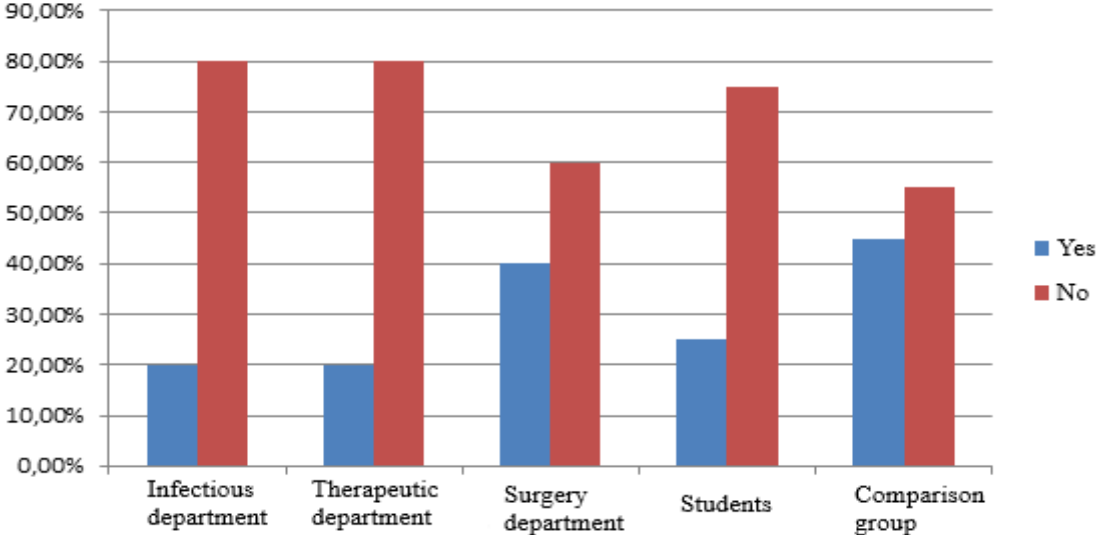


**Figure 2. What are the ways of transmission of viral hepatitis, you know?**

The largest number of correct answers to the question: "Is there an effective hepatitis C vaccine?" was given by patients of the therapeutic department and students (75.00%), almost the same number of answers were given by patients of the surgical department (70.00%); almost 2.0 times less correct answers were given by patients of the infectious department (40.00%), which is probably due to the lack of differentiation between hepatitis C and B virus in patients with non-medical education. Individuals from the reference group gave 86.57% of correct answers to this question.

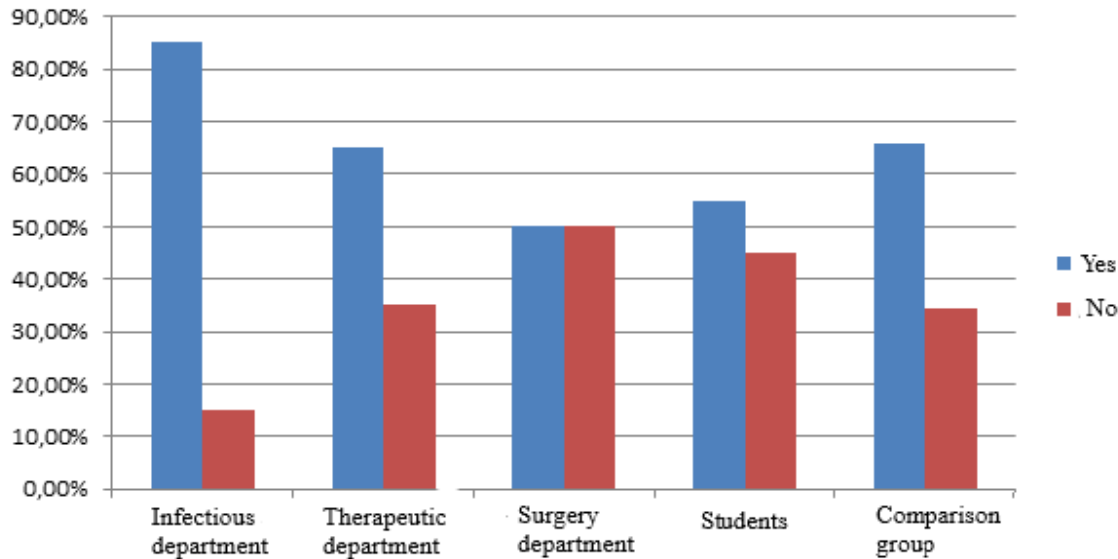
Among the patients of the surgical department, 40.00% gave the correct answers to the question: "Is it possible to completely cure hepatitis C and get rid of the pathogen", which is

1.6 times more than students (25.00%); and 2 times more than patients of infectious and therapeutic hospitals (20.00%) (Fig. 3). Individuals from the reference group gave 44.78% of correct answers to this question, almost the same result as patients in the surgical department (Fig. 3).



**Figure 3. Is it possible to completely cure hepatitis C and get rid of the pathogen?**

The most significant number of correct answers to the question: "Is there currently an effective therapy for hepatitis B?" were given by patients in an infectious hospital (85.00%), which is 1.3 times more than patients in a therapeutic hospital (65.00%); 1.5 times more than students (55.00%); and 1.7 times more than patients in a surgical hospital (50.00%). Individuals from the reference group gave 65.67% of correct answers to this question, which has almost the same result with patients of the therapeutic department (Fig. 4).



**Figure 4. Is there an effective treatment for hepatitis B today?**

## Conclusions

1 Viral hepatitis is currently one of the most pressing health problems in Ukraine and the world. Patients with viral hepatitis are most at risk of morbidity and mortality from liver cirrhosis and hepatocellular carcinoma.

2 Used for the sociological survey, we developed a questionnaire to determine the level of knowledge of the population about the causative agent of viral hepatitis, transmission, prevention (non-specific and specific), clinical signs, laboratory methods of diagnosis, and treatment.

3 All respondents gave most of the correct answers to questions about the causative agent of viral hepatitis and transmission routes. Most mistakes were made in the responses about vaccination and treatment of viral hepatitis, resulting from the insufficient level of health education carried out by health professionals, the media and aimed primarily at preventing hepatitis B and C virus infection. In addition, surgical patient departments, unlike others, are mostly not interested in obtaining information about viral hepatitis.

4 Patients of surgical departments were the worst informed about the presence of an effective vaccine against hepatitis B (20.00%); patients of infectious and therapeutic departments (20.00% each) and 4th-year students (25.00%) were the worst informed about the availability of effective therapy for hepatitis C.

5 Patients of the infectious diseases department (85.70%), 4th-year students (95.00%), and doctors from the reference group (100.00%) were best-informed on the etiology of viral hepatitis. The most frequently answered questions about viral hepatitis transmission were patients of surgical departments (84.30%).

## References

1. Ustinov OV Viral hepatitis: actuality of the problem and shlyakhy vyrishennya [Viral hepatitis: the urgency of the problem and solutions]. [Electronic resource] // Ukrayinskyy medychnyy chasopys. - 2010. - Resource Access Mode: <https://www.umj.com.ua/article/7179/virusni-gepatiti-aktualnist-problemi-ta-shlyaxi-virishennya>
2. Chung-Feng H. Linkage of the Hepatitis C Virus Genotype and Interleukin-28B Genetic Polymorphisms in Asian Patients / Chung-Feng Huang, Chia-Yen Dai, Jee-Fu Huang // *Hepatology*. - 2011. - Vol. 53 (1). - P. 367-368.
3. Costa JM IL28b, ITPA, UGT1A1 and prognostic factors of treatment response in patients with chronic hepatitis C / JM Costa, M. Munteunu, Ten Ngo Y [et al.] // *J.*

Gastroenterology and Clinic Biology. - 2010. Vol. 35 (3). - P. 457-459.

4. Malyy VP Viral hepatitis C [Viral hepatitis C] / Klinichna imunolohiya. Allergy. Infectology. [Clinical immunology. Allergology. Infectology.] - 2014. - № 4 (73). - P. 11-16.

5. Stepanov YM Voprosy sovremennoy taktiki lecheniya virusnykh gepatitov [Questions of modern tactics of treatment of viral hepatitis] // Novosti meditsiny i farmatsii. Gastroenterology. [News of medicine and pharmacy. Gastroenterology] - 2009. - №294.

6. Freeland, C., S. Farrell, P. Kumar, M. Kamischke, M. Jackson, S. Bodor, TM Block, R. Frasso, and C. Cohen. 2021. "Common Concerns, Barriers to Care, and the Lived Experience of Individuals with Hepatitis B: A Qualitative Study." BMC Public Health 21 (1). doi: 10.1186 / s12889-021-11093-0.

7. Lu, M. -Y, C. -T Chen, Y. -L Shih, P. -C Tsai, M. -H Hsieh, C. -F Huang, M. -L Yeh, et al. 2021. "Changing Epidemiology and Viral Interplay of Hepatitis B, C and D among Injecting Drug User-Dominant Prisoners in Taiwan." Scientific Reports 11 (1). doi: 10.1038 / s41598-021-87975-5.