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CONTENT

COGNITIVE IMPAIRMENT FEATURES AND LIFE QUALITY ASSESSMENT OF PATIENTS WITH CHRONIC VIRAL HEPATITIS C

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Summary. Worldwide, more than 71 million people are infected with the hepatitis C virus (HCV), which accounts for about 1.0% of the world's population. One of the main complications of this pathology is the central nervous system defeat with the

development of varying severity disorders. This leads to the fact that hepatotropic viruses affect the life quality and mental state of patients. Thus the dynamic increase in chronic viral hepatitis C disease (HCV) in different regions of Ukraine and around the world necessitates the more detailed study of cognitive impairment in patients. in order to establish compliance of doctors and patients with HCV to improve the life quality of patients, as well as to prevent the spread of the disease.

21 persons were examined: 11 patients with a diagnosis of HCV at the age of (60.81 ± 10.16) years, who underwent inpatient treatment based on Communal Institution of Sumy City Council «Medical Clinical Center of Infectious Diseases and Dermatology named after Z. Krasovitsky» and 10 practically healthy persons aged (60.3 ± 7.49) years. Special scales and techniques were used to analyze cognitive impairment and assess life quality.

Lower indicators of the psychological health component were found in patients with HCV than in practically healthy individuals ($p < 0.05$), which is justified by the social stigma of patients with HCV. Attention deficit, fatigue, decreased abstract thinking, and delayed reproduction of information have been reported by patients with HCV. They were most characterized by anxiety (distrust of doctors, meticulousness of information, concealment of complaints), anosognostic (rejection of thoughts about the disease, attributing symptoms to accidental circumstances, refusal of examination and treatment), sensitive types of the internal picture of the disease (fear of becoming a burden, excessive shyness).

Based on the obtained data on cognitive impairment in patients with HCV, an "Algorithm for providing medical care to patients with HCV according to their cognitive characteristics" was developed to improve the quality of communication between physicians and patients with HCV.

Keywords: viral hepatitis, liver disease, cognitive disorders, chronic viral hepatitis C.

Introduction. Hepatic encephalopathy (HE) is the main manifestation of central nervous system (CNS) damage in patients with liver cirrhosis of various etiologies, including HCV. It is a potentially reversible neuropsychiatric syndrome with symptoms ranging from the absence of clinical disorders - minimal hepatic encephalopathy (MHE) to severe attention deficit and excitation disorders - overt hepatic encephalopathy (OHE). In addition, a large number of neurological complications occur in patients with HCV regardless of liver disease, including metabolic, inflammatory and autoimmune conditions that affect the CNS, as well as the peripheral nervous system and muscles.

MHE is defined as the presence of testosterone brain dysfunction in patients with chronic liver disease who are not disoriented and do not have asterixis. MHE is clinically relevant because it affects the quality of life and performance of patients with chronic liver disease, and because it is a recognized risk factor for OHE.

Cognitive dysfunction in patients with HCV is a clear form of MHE. Most patients with HCV, regardless of the assessment of the degree of liver fibrosis, detect changes in verbal learning, attention, executive function, and memory when assessed by appropriate neuropsychological tests. The similarity between cognitive dysfunction in patients with HCV and MHE of patients with different etiologies is unclear. It is also unknown how metabolic changes in liver disease interact with cognitive dysfunction caused by HCV and whether these manifestations decrease after antiviral therapy.

Chronic diseases are usually associated with reduced quality of life, as reported by patients, although the means of measuring such aspects have obvious limitations. Existing self-completion questionnaires generate different scores according to different categories, such as general and mental health, social and physical functioning, pain, vitality and disease impact.

There are no life quality rating scales specifically designed for infected HCVs. SF-36 or its short version SF-12 is commonly used, as these methods have largely demonstrated the high accuracy of detecting the life quality deterioration in a wide range of chronic diseases. More than half of patients with HCV complain about fatigue, exhaustion, impaired concentration and memory, which are known to negatively affect the quality of life at least as much as physical symptoms. Patients also report a decrease in quality of life, which often does not depend on the severity of liver damage or the rate of virus replication. Fatigue, cognitive dysfunction and mood swings have a profound effect on social and physical functioning, which further affects the quality of life.

According to the literature, lower quality of life was described by patients with HCV compared with hepatitis B virus-infected patients and healthy controls. In addition, these findings are not solely related to the psychological effect of awareness of HCV positive status, as patients who are unaware of the infection perform better than patients who know their HCV status but worse than healthy individuals.

The study aims to develop an algorithm for communication between physicians and patients with chronic viral hepatitis C based on certain cognitive impairments and quality of life in patients.

Patients and methods.

In the research 21 persons have been examined: 11 patients with a diagnosis of HCV at the age of (60.81 ± 10.16) years, who underwent inpatient treatment based on Communal Institution of Sumy City Council «Medical Clinical Center of Infectious Diseases and Dermatology named after Z. Krasovitsky» and 10 practically healthy individuals age (60.3 ± 7.49) years.

The research was performed in compliance with international and national legislation on ethics following the requirements of the Law of Ukraine of 23.09.2009 № 690 «On approval of the procedure for clinical trials of drugs and examination of clinical trial materials and standard regulations of the ethics commission.» All patients and healthy individuals in the control group received informed consent to participate in the study under the Helsinki Declaration of the World Medical Association «Ethical principles of medical research with human participants as the object of study.»

To assess cognitive impairment and patients' life quality, an anonymous and confidential survey was conducted using number search techniques (Schulte tables) and «Simple analogies», a short scale for assessing the mental status of Mini-Cog, SF-36 quality of life questionnaires, "Bekhterev Institute personal questionnaire».

Statistical processing of results using Microsoft Office software package, Mann-Whitney U-test were used.

Results. Among the examined patients and in the reference group, men were 2.7 times less (respectively 27.27%, 30.00%) compared to women (72.72%, 70.00%).

Questionnaires were conducted and the results were analyzed for the physical component of health (assessment of physical and role functioning due to physical condition; the intensity of pain; general health) and psychological (assessment of vital activity; social functioning; role functioning due to emotional state; mental health 'I).

After the analysis of the questionnaire on the scale of physical functioning, which reflects the possibility of performing certain types of loads, for the studied group the total score was (77.27 ± 6.72), and for almost healthy individuals - (82.50 ± 5.12) (p = 0.135). The indicator of role functioning due to physical condition, which indicates the influence of well-being on daily role activity, for those infected with hepatitis C virus was (54.55 ± 12.97), for the comparison group - (65.00 ± 10.00) 0.158). According to the pain intensity scale, which demonstrates its impact on the routine activity of the patient, in the groups of patients and almost healthy individuals, the total score did not differ (respectively 58.73 ± 9.26; 55.20 ± 7.39) (p = 0.463).

According to the general health assessment, which includes current condition analysis of patient and treatment prospects, for patients, the calculated indicator was (57.18 ± 2.37), for the reference group - (63.60 ± 4.37) (p = 0.090). The average score of vital activity for patients was (49.09 ± 7.62), for almost healthy individuals - (56.00 ± 3.79) (p = 0.105). According to the scale of social functioning for the infected the total score was (75.00 ± 6.31), for the comparison group - (86.25 ± 4.73) (p = 0.100). The indicator of role functioning due to emotional state for the studied group (63.64 ± 11.82) was 1.3 times lower compared to the control (83.33 ± 7.45; p = 0.010). According to the mental health scale, the score for patients (65.45 ± 5.56) was 1.2 times lower than for healthy individuals (75.60 ± 2.70; p = 0.048).

Summarizing the results according to the physical health component for the group of patients received a total score (43.81 ± 2.78), for the reference group - (43.85 ± 2.12) (p = 0.118), the psychological component of health the indicator for the studied group (45.28 ± 3.77) was 1.2 times lower than for healthy individuals (51.92 ± 1.35; p = 0.000) (Fig. 1).

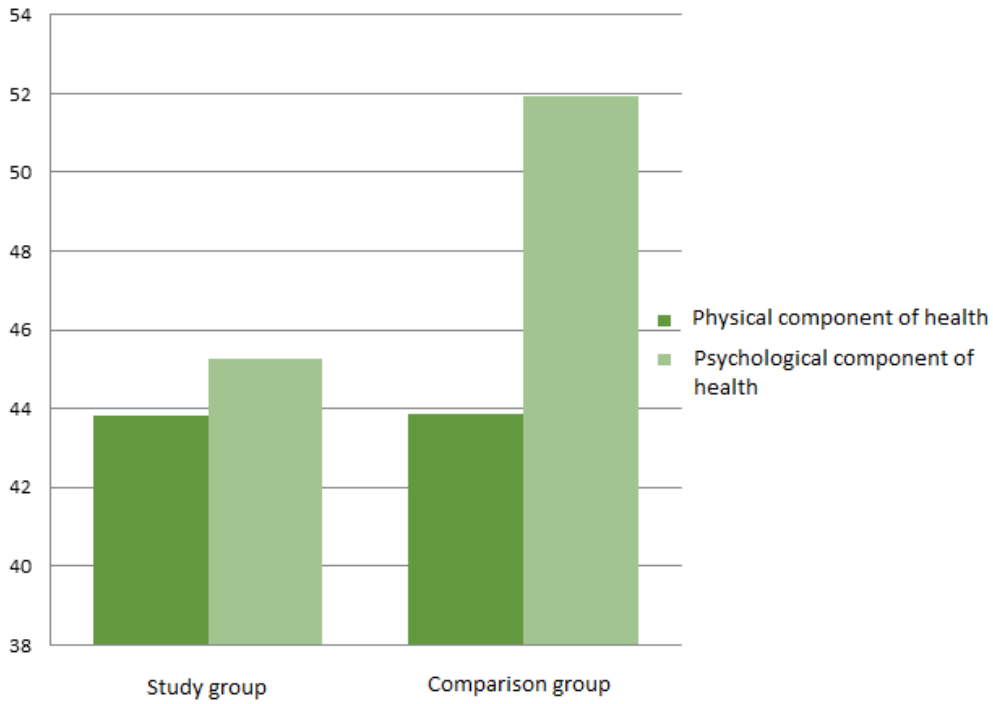

Figure 1 - *The SF-36 questionnaire results for assessing life quality of patients with chronic viral hepatitis C in 2019-2020*

Analysis of the data obtained by the method of searching for numbers showed that the average execution time for patients with HCV was (54.36 ± 4.49), which was 1.12 times more than for the comparison group - (48.5 ± 4.44) (p = 0.218).

According to the method of «Simple analogies», the average result for the study group was (7.91 ± 0.56), which is 1.1 times less compared to the reference group (8.7 ± 0.40; p = 0.320).

After processing the data obtained using a short scale for assessing the mental status of Mini-Cog, it was found that there were no violations of direct reproduction in all subjects, while the results of delayed reproduction differed: in the study group mentioned 3 words - 36.36%, 2 words −27.27%, 1 word - 9.09%, 0 words - 27.27%; in the group of practically healthy people 3 words were reproduced - 20%, 2 words - 40%, 1 word - 30%, 0 words - 10%. The clock drawing test was performed without errors by 63.63% of patients with HCV and 100% of the comparison group. Summarizing the indicators on the three elements of the short-scale for assessing the mental status of Mini-Cog, it was found that 36.36% of patients with HCV are likely to have dementia, which is 3.64 times more than in the group of healthy people - 10% (p = 0.042) (Fig. 2).

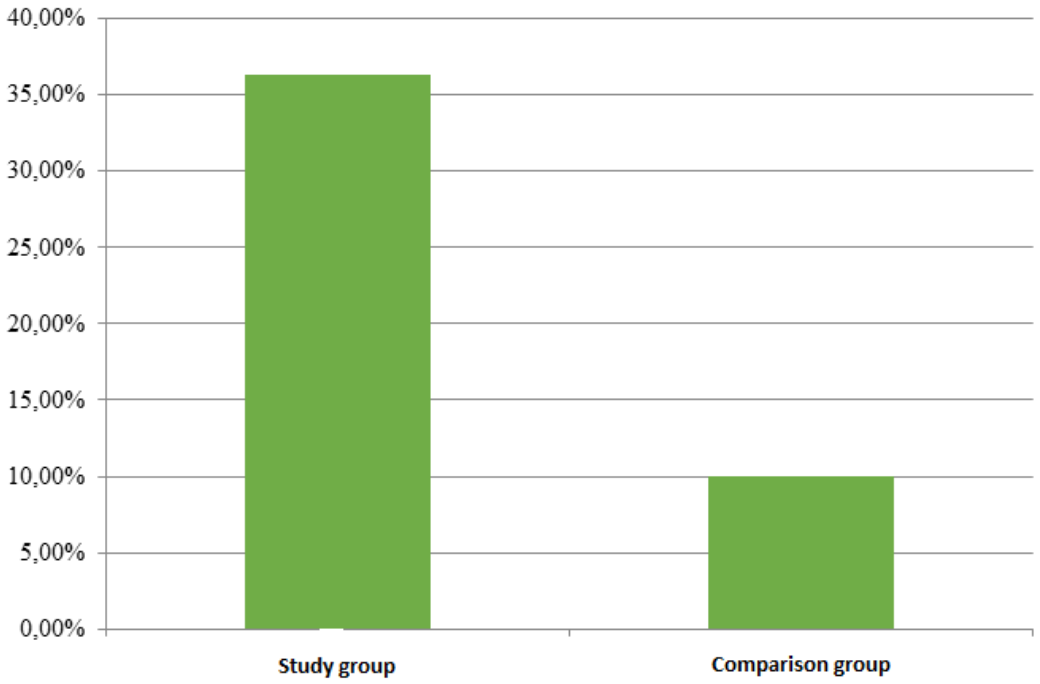

Figure 2 - *Dementia probability for patients with HCV and healthy individuals*

Data analysis from the «Bekhterev Institute Personal Questionnaire» showed that patients with HCV are characterized by: harmonious (36.36%), sensitive (27.27%), anxious (27.27%) and anosognostic (9.09%) types of internal pictures of the disease.

To increase the efficiency of communication between doctor and patient and improve the quality of diagnosis and treatment, an «Algorithm for providing medical care to patients with HCV according to their cognitive characteristics»(Fig. 3). was developed and implemented.

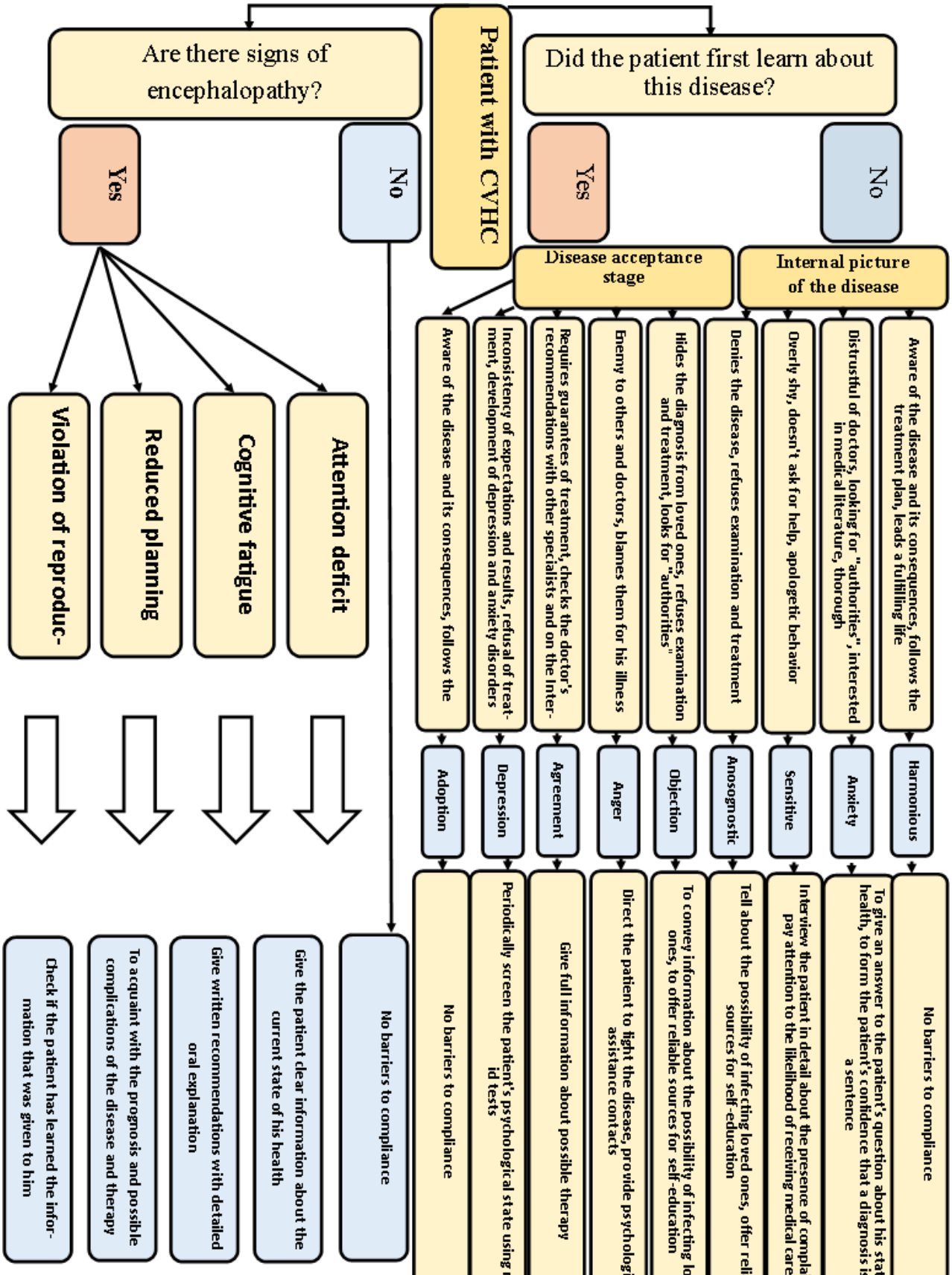

Figure 3 - *Algorithm for providing medical care to patients with HCV according to their cognitive characteristics*

Conclusions. An «Algorithm for providing medical care to patients with HCV» was developed to improve the quality of communication between doctors and patients with HCV.

The impact of HCV on patients' quality of life is a topical issue for world medicine. Impaired attention, ability to plan, decreased mental flexibility, abstract reasoning skills, judgment and cognition, abnormal sleep patterns, cognitive fatigue are the most common signs of HE. People with HCV have a higher risk of developing depression, anxiety, compulsiveness, insecurity, aggression, hostility, phobic anxiety, and psychosis.

Worse indicators of the psychological health component were found in patients with HCV than in practically healthy individuals ($p < 0.05$), which is justified by the social stigma of patients with HCV

Attention deficit, fatigue, decreased abstract thinking, and delayed reproduction of information have been reported in patients with HCV. They were most characterized by anxiety, anosognostic (rejection of thoughts about the disease, attributing symptoms to accidental circumstances, refusal of examination and treatment), sensitive types of the internal picture of the disease (fear of becoming a burden, apologetic behaviour, excessive shyness).

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