

## Hepatic Encephalopathy and Quality of Life of Patients With Viral Cirrhosis of the Liver

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**Annotation:** The aim of the study was to assess the effect of hepatic encephalopathy on the quality of life of patients with cirrhosis of the liver in the outcome of chronic hepatitis C.

**Object and methods of research.** A simultaneous study of hepatic encephalopathy and quality of life indicators was conducted in 61 patients with cirrhosis of the liver in the outcome of chronic hepatitis C (33 men and 28 women; age 46 (37; 55) years). The degree of hepatic encephalopathy was determined by the psychometric test of the connection of numbers according to Reitan. The SF-36 questionnaire was used to study the quality of life.

**Results.** The quality of life worsens, and hepatic encephalopathy increases with the progression of the functional class of viral cirrhosis of the liver. Hepatic encephalopathy affects the indicators of the "psychological component of health" (SF-36) in patients with viral cirrhosis of the liver of class B and C,  $p < 0.01$ . There is no correlation between hepatic encephalopathy and the "physical component of health" (SF-36) of patients in this category,  $p > 0.05$ .

**Conclusion.** One of the main mechanisms for reducing the quality of life of patients with viral cirrhosis of the liver is the significant effect of hepatic encephalopathy in this category of patients on the "psychological component of health" (SF-36).

**Keywords:** cirrhosis of the liver in the outcome of chronic hepatitis C; hepatic encephalopathy; quality of life.

### INTRODUCTION

The quality of life, as an integral indicator of physical, emotional and social well-being, decreases in patients with viral (HCV) liver damage already in the early stages of the disease.

The SF-36 questionnaire is recognized as the most acceptable questionnaire for assessing the quality of life (QOL) in patients with viral (HCV) cirrhosis of the liver (CP). According to the meta – analysis 15 studies, in patients with chronic hepatitis C using the SF-36 questionnaire, there was a decrease in QL indicators in comparison with a healthy control group: the integral mental component of health by 12.8; the integral physical component of health by 6.6.

Researchers report conflicting data on factors affecting QL in patients with CP in the outcome of viral hepatitis C. Thus, it was revealed that the determining parameters of QL are the stage of CP, age, female gender, low socio-economic status, marital status. In other studies it is emphasized that only the CP stage turned out to be a significant factor reducing QL.

At the same time, there are not enough studies devoted to the study of the influence of individual CP syndromes and, in particular, hepatic encephalopathy (PE) on the quality of life of patients in this category.

The purpose of this study is to assess the effect of PE on the QOL indicators of patients with viral CP in the outcome of chronic hepatitis C.

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## MATERIALS AND METHODS

A single-stage study of PE and QL was conducted in 61 patients with HCV-CP (33 men and 28 women; age 46 (37; 55) years). The distribution by functional classes of CP (according to Child-Pugh) was as follows: Class A — 18 patients; Class B CP — 21 patients; class C — 22 patients. The assessment was carried out in comparison with the reference values of indicators in 54 practically healthy individuals (27 men and 27 women; age - 43 (35; 53) years). The study groups had no differences in age, gender, education and income level,  $p > 0.05$ . Criteria inclusion of patients in the study was obtaining informed consent to participate in the study; verified diagnosis of CP; positive PCR test for hepatitis C; age from 18 to 60 years. The exclusion criteria included other etiological factors of CP, except viral hepatitis C; severe concomitant pathology (at the stage of sub- and decompensation); active drug addiction; HIV infection.

The degree of PE was determined by the psychometric test of the connection of numbers (TSCH) according to Reitan.

The severity of PE was determined by the time taken by the patient to complete the task. In the absence of PE, the task is completed in less than 40 seconds.

In the study of QL, the SF-36 questionnaire was used, in which 36 questions were grouped into 8 scales: physical functioning, role-playing activity, bodily pain, general health, vitality, social functioning, emotional state and mental health. The first four scales were grouped into an integral indicator of the physical component of health, and the last four — into the psychological component of health. The indicators of each scale vary from 0 to 100 points, where 100 points correspond to "full health".

Statistical processing was carried out using the application programs "Statistica 6.0". The normality of the data distribution was checked by the Shapiro-Wilkes distribution agreement criterion (W). Continuous values were represented as median (Me) and 25 and 75 percentiles (25-75). A quantitative comparison of three independent groups was carried out by the Kraskel-Wallis method. The determination of the statistical significance of the differences in the continuous values of two independent groups was carried out by the Mann-Whitney criterion. Comparison on the quantitative basis of three dependent groups were conducted by the nonparametric Friedman method. The determination of the statistical significance of the differences in the continuous values of the two dependent groups was carried out by the Wilcoxon criterion. The correlation coefficient of Spearman was used to estimate the strength of the relationship between the variables. The reliable significance level was determined at a value of  $p < 0.05$ , and for multiple comparisons was used.

## RESULTS

The TSH index in the general group of patients with viral HCV-CP was 92 (40;104) seconds. Moreover, with the weighting of the FC CP, the PE syndrome, assessed by the TSH, progressively worsened. Thus, in patients with HCV-CP of class A, the TC was within the normal range and amounted to 33 (31;40) seconds; in patients with HCV-CP of class B — 91.5 (85;102) seconds; in patients with HCV-CP of class C — 99.5 (94; 117) seconds. Differences between all classes of CPSH were significant,  $p < 0.001$ . A study of QOL indicators in HCV-CP patients in the general group revealed a decrease in all eight indicators assessed by the SF-36 questionnaire compared to practically healthy individuals  $p < 0.001$ . Thus, the indicator of "physical functioning" was 55 (35;70) points; "role—based physical functioning" - 50 (25; 75) points; "pain intensity" — 56 (46; 64) points; "general health" — 47 (20;52) points; "vital activity" — 35 (25; 45) points; "social functioning" — 50 (25; 63) points; "role emotional functioning" — 33 (33; 67) points; "mental health" — 48 (32; 56) points. A comparative analysis of the studied parameters revealed low QL values in HCV-CP patients already at the stage of functional class A and their significant decrease in class B CP patients compared to class A CP patients ( $p < 0.001$ ), as well as in Class C CP patients compared to the group of class A and B CP patients ( $p < 0.001$ ). 0.001).



At the same time, the correlation analysis of the relationship between the value of TSH and the indicators of QL in patients with class A viral HCV-CP did not establish a reliable relationship with the parameters of both the "physical component of health" and the "psychological component of health" of QL,  $p > 0.05$ .

In the group of patients with class B viral HCV-CP, it was revealed that all the indicators included in the integral indicator of the "psychological component of health" had a negative and high relationship with the values of TCH. Thus, the correlation coefficient of the TC with the indicator "vital activity" was  $r = -0.71$ ,  $p < 0.01$ ; "social functioning" —  $r = -0.73$ ,  $p < 0.01$ ; "role emotional functioning" —  $r = -0.67$ ,  $p < 0.01$ ; "mental health" —  $r = -0.71$ ,  $p < 0.01$ .

In patients with class C viral hepatitis C, the values of such scales included in the psychological component of health as "vital activity" and "mental health" also had a negative association with TSH:  $P = -0.71$ ,  $P = -0.47$ ,  $p < 0.01$ . As in patients with HCV In the CP class, a reliable association of TSH with "role emotional functioning" and "social functioning" was established:  $P = -0.66$ ,  $P = -0.69$ ,  $p < 0.01$ .

The correlation between the TCF and the indicators of the "physical component of health" in patients with HCV viral CP of class B and C has not been established,  $p > 0.05$ .

## CONCLUSIONS

QL in patients with viral HCV-CP is reduced and worsens with the progression of the functional class of CP. PE affects the indicators of the "psychological component of health" (SF-36) in patients with viral HCV-CP of class B and C,  $p < 0.01$ . There is no correlation between PE and the "physical component of health" (SF-36) of patients of this category of all functional classes,  $p > 0.05$ .

Low indicators of the "physical component of health" in patients with viral (HCV) CP are obviously associated with various pathophysiological mechanisms of chronic liver failure.

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