

# PROFILE OF THE QUALITY OF LIFE IN PATIENTS WITH LIVER CIRRHOSIS AFTER SPLENECTOMY

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## ABSTRACT

**Introduction.** Once medical progresses have improved, which determined health care and therapeutic result improvement, rising the quality of life has become a major desideratum, with important contribution in the elaboration of the therapeutical decision

**Materials and methods.** It has been realized a bidirectional clinical trial for a period of 11 years, which evaluated the surgical impact on the quality of life of 97 patients, diagnosed with hepatic cirrhosis. The research took place at Surgery nr2 department, hepatobiliopancreatic surgery department of the Republican Hospital in 2005-2016 period. The patients in the study, benefited of selective, scheduled surgical treatment. The quality of life was assessed using the SF-36 and SF-LDQOL questionnaires.

**Results.** Postoperatively, patients with liver cirrhosis and associated portal hypertension (89%) noted a significant improvement in the quality of life in both the control group ( $p \leq 0,002$ ) and the preoperative stage ( $p \leq 0,001$ ). Remarkable in all the operated patients, in the first year after the intervention, the quality of life improved in moderate/good quantification in 78.9% of patients.

**Conclusion.** Patients with liver cirrhosis have significant impairments in quality of life. The possibility of improving the quality of life is in direct relation to the stage of liver cirrhosis, type of the surgical intervention and rate of postoperative complications. Life quality assessment studies are useful, because it provides important information for optimizing therapeutic methods, reduction of morbidity and improving prognosis.

*Key words:* cirrhosis; liver; portal hypertension

## INTRODUCTION

The Liver cirrhosis is considered a disease-generating various complication developmental leading in most cases limiting or temporary losing of working capacity, with significant economic consequences both on society and the individual level [1, 2]. In the Republic of Moldova, compared to the other EU countries, is recording the highest mortality by chronic liver diseases: 116 deaths per 100,000 males and 99.4 deaths per 100,000 female populations respectively [1, 3, 10]. Multimodal treatment (hepatotropic, endoscopic, surgical) of cirrhosis has become a current medical practice [4, 5]. The goals of treatment of this serious disease are the reduction of mortality by stopping the progression of liver disease by stage complications and a consequent reduction in the inflammatory process metabolism and the improvement of quality of life that includes physical, mental and social welfare [6, 7, 11]. Has been demonstrated, clearly, the negative impact of hepatic cirrhosis on the quality of life. Social support, social stigma, personal vulnerability of the dis-

ease with the tendency towards complications, style of coping are the factors involved in adapting the individual to the disease, their seriousness being directly correlated with the deterioration of the quality of life [8, 9, 13].

In this context, from the unfortunate impact of liver cirrhosis on the quality of life, is required to be controlled through effective treatments, an interdisciplinary, integrated and coherent approach, and a proper conduct of post-treatment surveillance at a distance. Managing symptoms and maintaining a maximum possible degree of hepatic functionality is the main purpose of medical professionals focused on the ill person. According to Romanciuc I. (2013), contribution of Quality of Life (QoL) in developing therapeutic decision remains an important topic for patients and physicians [8, 12]. There is a necessity of studies of evaluating the quality of life through specific questionnaires dedicated to liver disease, capable throughout the various stages of therapy, to provide a comprehensive image of the perception of patients about their health status [14, 116]. The aim of this study is to evaluate quality of life

for patients with liver cirrhosis who were surgically assisted and identify the elements of differentiation of the evolution of quality of life after the treatment with severity of liver disease and surgical gesture, selectively practiced within the complex scheme of portal hypertension cirrogene therapy [15].

## MATERIAL AND METHODS

The study was qualified by exploration and quantitative approach of quality of life. The study material consisted of patients diagnosed with LC, surgically treated and followed during the study period 2005 - 2016 within the Surgery Clinic No.2, State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Moldova.

The research protocol was approved by the Research Ethics Committee of the "Nicolae Testemitanu" University of Medicine and Pharmacy, Chisinau, Republic of Moldova (favorable opinion from the Minutes No. 59 of 18.06.2015, CEC President-Prof. M. Gavriluc). All evaluated subjects received detailed information on the methodology of the study. The patients signed an informed consent to enroll in the study.

The diagnosis of LC was clinically, laboratory and morphological imaging held, data that allowed calculation of the disease scores: Child-Pugh and MELD.

In the mentioned period, 118 patients were operated. Among them were enrolled in basic research sample a total of 97 patients.

Inclusion criteria in the study:

- history of surgical treatment for liver cirrhosis;
- age over 16 years;
- confirmed diagnosis of liver cirrhosis;
- ability to understand the questionnaire;
- informed consent for enrollment in the study.

Exclusion criteria in the study:

- severe language deficiencies, which make it impossible to complete the questionnaire;
- hepatocarcinoma developed on the background of cirrhosis;
- concomitant haematological diseases;
- patients who for various reasons have dropped monitoring.

Conventionally, from point of view of statistical terms, all respondents were subdivided into three groups according to surgical method applied by the same medical team:

- subgroup A consisting of 57 patients (58.7%), which benefited from the azigo-portal devascularisation + traditional splenectomy (SPLT);
- subgroup B, consisting of 27 patients (27.8%), which had surgery through a minimally invasive method - DVA + laparoscopic splenectomy (SplL).
- subgroup C, consisting of 13 patients (13.4%) which received the liver transplant.

In the studied case, the choice of the type of

surgery was made according to the general state, portal obstruction and topography of spleno-portal venous spindle, evolutionary stage of liver cirrhosis, possible pathological lesions. Thus, adapted to each case, the surgical interventions were intended with radicality. The majority (83%) were practiced under the following technical conditions: splenomegaly stage III-IV (83.4%), severe hemorrhagic syndrome (78%), important perisplenism (49%), the presence of lymph nodes in the lienal hill (31%), the pancreas tail located intrahilar (41%), fascicular variation of splenic vascular pedicle (7%).

The surgical indications, selectively imposed on liver cirrhosis complications:

- liver cirrhosis, portal hypertension, severe splenomegaly;
- liver cirrhosis, portal hypertension, 3-degree varices with bleeding risk;
- liver cirrhosis, portal hypertension, severe splenomegaly, the presence of one or more episodes of esophageal bleeding;
- liver cirrhosis, portal hypertension, giant splenomegaly, with compression elements (splenic infarct, subcapsular haematoma);
- liver cirrhosis, portal hypertension, severe pancytopenia, induced by antiviral therapy;
- liver cirrhosis, portal hypertension, autoimmune splenomegaly.

To achieve the goal and achieve the objectives, patient quality of life was assessed in parallel with the clinical-biological and imagistic data of the pre-operative cytorellular patient and at an interval of 1-3-5 years post-surgical, to be able to ascertain the implications of the surgical therapy on the quality of life. Assessing the impact on quality of life was achieved by generic SF-36 questionnaire used to determine the value of mental component summary (MCS) and physical component summary (PCS) and the specific SF-LDQOL (9 fields, 36 items). The last one was developed by Dr. Fasiha Kanwal (2008), with the written consent of that was translated in Romanian [11]. The SF-36 questionnaire contains 36 questions that assess: functional status - physical function (questions 3 a-j), limiting health (questions 4a- d), bodily pain (questions 7- 8), general health (questions 1, 11 - d), and the mental component summary (MCS) scales composed of: vitality (questions 9a, 9e, 9g, 9i), social function (questions 6, 10), emotional role (questions 5a-c), mental health (9b questions, 9c, 9d, 9f, 9h).

The research has been completed with the SF-LDQOL contains 36 questions that assess: symptoms related to the disease (questions 1 - f), the consequences of liver disease (questions 2a-c), concentration/memory (questions 3, 4a, 4b, 5), the problems caused by disease sleep (questions 11a-e), isolation (questions 12a-e), hope (questions 13a-c), stigma liver disease (questions 14a-d), the function/sexual issues (questions 7,9a-b, 10). For all scales studied, scores (score) was from 0 to 100.

The statistical analysis was performed with the statistical analysis software GraphPad Prism 4 (GraphPad Software, California, SUA). The results are presented as absolute and relative values (binary data), mean and confidence interval of 95% (continuous data type).

**RESULTS**

The clinical characteristics of the patients included in the study, depending on the surgery performed are shown in table 1.

**Table 1. Clinical characteristics of patients enrolled in the study, depending on the surgery performed.**

Parameter	All subjects (n=97)	DVA+SPLT (n=57)	DVA+SPLL (n=27)	TH (n=17)
<b>The etiology of cirrhosis</b>				
• liver cirrhosis HBV	54 (55.7%)	33 (57.9%)	20 (74.1%)	1 (7.6%)
• liver cirrhosis HCV	28 (28.9 %)	10 (17.5%)	7 (25.9%)	11 (84.6%)
• liver cirrhosis HBV + HCV	16 (16.5 %)	14 (24.6%)	-	1 (7.6%)
<b>Clinical signs</b>				
• ascites	15 (15.5%)	2 (3.5%)	3 (11.1%)	10 (76.9%)
• jaundice	11 (11.3%)	2 (3.5%)	-	9 (69.2%)
• variceal haemorrhage in anamnesis	19 (19.6%)	7 (12.3%)	5 (18.5%)	7 (53.8%)
• severe splenomegaly	71 (73,2%)	49 (85.9%)	11 (40.7%)	11 (8.4%)
<b>Impaired liver function</b>				
• Child C score	15 (15.5%)	1 (1.7%)	1 (3.7%)	13 (100%)
• BEA A/B score	15 (72.2%)	3 (3.2%)	3 (11.1%)	11 (9%)
• Previous antiviral treatment	17 (17.5%)	7 (22.3%)	5 (18.5%)	5 (39.4%)

In all patient groups, the symptoms of liver impairment were identified. The collected data confirms the existence of social issues: diminishing social activities, the limitation of work capacity, the impossibility of satisfying physical and psychological needs. The analysis of the general group revealed that 72% of the respondents did not have a job. Invalidity grade II-III had 82%; in 10% of the patients, the diagnosis was documented less than 3 years ago, 45% - 3-5 years ago and 18% - more than 5 years ago. Most patients accused asthenic syndrome (96%) and severe splenomegaly (73%).

In 83.4% of cases, patients were under hepatotropic syndrome, 14.4% of cases were followed by antiviral medication and 2.1% of hormone therapy.

By processing the data of the SF-36 questionnaire, it was shown that preoperatively, most patients in the study group had a severe impairment of quality of life, of varying degrees. Significant differences were noted between the overall health status of the investigated group vs. control group (practically healthy individuals) (table 2).

**Table 2. Comparison of the quality of life, according to SF-36, in patients with liver cirrhosis (initial, preoperative) vs. healthy people**

Quality-of-life parameters	Cirrhotic patients (n=45)	Healthy subjects (n=20)	p
Physical function (PF)	61 [37-69]	93 [70-80]	<0.001
Physical Role (PR)	33 [27-78]	81 [75-81]	<0.001
Somatic Pain (BP)	54 [32-61]	74 [60-75]	<0.05
General Health (GH)	49 [21-58]	65 [54-66]	<0.05
Vitality (VT)	51 [26-46]	61 [53-68]	<0.001
Social function (SF)	62 [23-52]	78 [62-78]	<0.05
Emotional Role (RE)	43 [31-68]	75 [62-69]	<0.001
Mental Health (SM)	65 [33-59]	67 [52-62]	<0.05
Summarized physical health status (SSF)	38	52	<0.05
Summarized mental health status (SSP)	43	46	<0.001

Note: statistical analysis: Fisher test. The data are presented as [extreme] median.

It is noted that the most affected aspects, compared to the benchmark score, were the psychological and functional status, social and family life, and professional activity.

The influential analysis of Child-Pugh score on life quality prior to surgery (table 4), revealed that overall health status is significantly lower in patients with Child C score, compared to those in Child A and B classes, who in most cases were hepatically decompensated and undergoing to liver transplantation.

The current study reveals an improvement in the quality of life of the operated patients, translated by improving the physical and psychological function compared to the preoperative level (table 3).

From the dynamics of the obtained results, it is noticed that postoperatively, the patients with liver cirrhosis and associated portal hypertension noted an improvement of the quality of life, in relation to both the control batch (p≤0.002) and the preoperative (p≤0.001). It is worth noting that, in all patients of the operated group, in the first postoperative year, improvements in quality of life have occurred, with moderate/good increases in over 78.9% of patients. In our series, postoperative satisfaction was good, 85.3%, and the SF-LDQOL score improved significantly versus pretreatment.

The beneficial effect of surgery on quality of life is documented by the significant increase of emotional and global status level, and from functional scale only social status did not change essentially. SF-LDQOL scoring data of analysis at one post-operative year, recorded on the physical and emotional factors items in two categories of patients (SPLT versus SPLL), shows higher net differences for the SPLT lot. This trend disappears at 3 and 5 years of

monitoring, when there is no significant difference in both groups on the scale of vitality and social functioning, which is explained by the fact that the somatic state of the patients treated for liver cirrhosis worsens over time, through parenchymal and vascular decompensations.

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**Table 3. SF-LDQOL score: The evolution of postoperative quality of life at 1-3-5 years**

Domains	After surgery			Preoperative
	Up to 1 year	Up to 3 years	Up to 5 years	
1. Symptoms related to liver disease	71.73 ± 6.87*	69.16 ± 9.37*	70.0 ± 12.07*	66.6 ± 8.04
2. Consequences of liver disease	67.15 ± 6.85*	65.14 ± 9.33*	66.4 ± 13.69*	63.2 ± 11.32
3. Concentration and Memory	66.1 ± 9.30*	60.12 ± 9.30*	65.3 ± 12.26*	77.7 ± 9.17
4. Problems caused by the disease	51.13 ± 6.91*	37.7 ± 9.41*	61.2 ± 11.29** $t_{LTC, LD} = 2.34$	51.3 ± 7.09
5. Sleep	54.5 ± 6.90*	53.0 ± 9.41*	57.0 ± 11.58 $t_{LTC, LD} = 1.99$	54.9 ± 9.08
6. Isolation	66.67 ± 6.52*	71.5 ± 8.89*	64.4 ± 11.58*	71.2 ± 14.03
7. Hope	63.3 ± 6.40*	58.3 ± 8.72*	54.7 ± 13.71*	63.2 ± 10.11
8. Stigma of liver disease	74.42 ± 6.01*	63.7 ± 8.19*	77.3 ± 11.03*	75.7 ± 13.17
9. Sexual function / issues	62.7 ± 6.64*	71.2 ± 9.05*	68.8 ± 9.98*	65.1 ± 13.07

Laparoscopic operations and postoperative benefits in terms of quality of life of this intervention exceed, in many aspects, the results of classical surgery in the first postoperative year. Following the evolution of liver disease severity, measured in the studied cases by Child-Pugh score, was noticed that the choice of surgery after well-defined indications, it is a way of effective treatment of cirrhogenic portal hypertension. In most of these cases (67% of patients) we noticed that interfering in relation to liver disease complicated postoperative course had a major negative impact on quality of life. It is emphasized that the analysis of specific liver disease symptoms, self-reported in the analyzed sample, recorded a lower level of the phenomenon studied in decompensated cirrhotic patients, Child C class, who benefited from hepatic transplantation. This tells us the highest scale parameters: social, psychological and functional emotional. Therefore, the quality of life of the patients in the selected and operated casuistry, in cases where they underwent liver transplantation, was clearly superior to the other types of interventions. The analysis of the results reveals that this qualitative increase in living conditions is also due to complex therapeutic and interventional measures of organizational, social, family and community elements. The results of the study show that, if preoperatively, 79% of operated patients experienced a quality of life impairment due to reduced household activities they could make, at 12 months postoperatively, only 36% of patients still had this problem.

On the studied lot, they were recorded 17 cases (17.5%) who had various postoperative complications, predominated by venous thrombosis shaft – 5 cases (5.15%) of conservative treatment received antithrombotic; the emergence abscess of LEFT under diaphragm - 3 cases solved by eco-guided external drainage installed; parietal suppurations - 4 cases and ascites - 5 cases.

In terms of the SF-LDQOL score, it was found that in those who presented complications, psycho-emotional and physical status was significantly lower ( $p = 0.030$  and  $p = 0.001$ , respectively). One postoperative year, 7 patients had post-operative outcomes which, however, did not associate with a significant decrease in quality of life. An important deterioration in quality of life was present at 3 patients with portal vein thrombosis and secondary ascites - a specific complication of post splenectomy. Discussion with patients on control, clinical, ultrasound and endoscopic examination, performed at 3 years postoperatively, and analysis of outcomes after hepatic cirrhosis surgery, have confirmed the relapse of esophageal varices (6 cases), ascites (7 cases), portal vein thrombosis (4 cases). The analysis of the answers to the questionnaires in these cases found that the overall satisfaction level of these patients were significantly affected (25.6%). Scoring achieved post-treatment for the overall health sta-



tus/quality of life status recorded significant differences between pre- and post-therapeutic trials and revealed an improvement from 25.6% to 51.3%, on the account of physical factors (36%) and emotional (16%). We are summing up that screening and therapeutic support programs implemented after surgery and endoscopic curative antiviral treatment have increased the quality of life of patients in the study group, having surgery for liver cirrhosis.

## DISCUSSIONS

Hepatic cirrhosis is a public health problem, is a major cause of morbidity and mortality induced by the development of evolutional complications. In past years, has been paid more attention to the quality of life of these patients [16, 17, 20]. The results obtained from this study were compared to the data from literature, showed that the quality of life of patients with liver cirrhosis had decreased significantly, physical and psycho-emotional functions declined. Therefore, the importance of quality of life controlled by effective treatments raised [19]. Treatment of hepatic cirrhosis is complex, multimodal, and includes a combination of endoscopic and surgical methods, as well as a multidisciplinary approach. Of all the specific questionnaires tested regarding the quality of life assessment of patients with chronic liver disease, the short-form SF-LDQOL questionnaire showed the best performance.

In the clinic, with the application of the SF-36 generic score, appreciated by the users for simplicity but also criticized for the lack of suggestive parameters, we translated, validated and implemented in

practice the SF-LDQOL questionnaire as a measure of the quality of life of patients with diseases chronic liver disease. The study shows that the use of the short-form SF-LDQOL questionnaire contributes to collecting static and dynamic life quality data at different stages, pre- and post-operative [18].

The results obtained post-operatively at a distance confirm the beneficial effect of surgical interventions on the quality of life for the selected cases of patients with liver cirrhosis. Improvements were seen at approximately 78-82% of patients operated, influenced, net to favorable, as follows: hepatic transplantation, azygo-portal devascularization and laparoscopic approach splenectomy, azygo-portal devascularization and splenectomy. Traditional approach, which confirms the beneficial effect of portal hypertension surgery through cirrhosis in selected cases. The data obtained once again justifies the importance of assessing the quality of life, and introducing it into the monitoring programs of the cirrhotic patient operated.

## CONCLUSIONS:

1. Patients with liver cirrhosis have significant impairments in quality of life. The possibility of improving the quality of life is in direct relation to the stage of liver cirrhosis, type of the surgical intervention and rate of postoperative complications.
2. Life quality assessment studies are useful, because it provides important information for optimizing therapeutic methods, reduction of morbidity and improving prognosis.

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