

# CORRELATION OF QUALITY OF LIFE IN PATIENTS OF CIRRHOSIS OF LIVER WITH ETIOLOGY AND DISEASE SEVERITY USING DISEASE-SPECIFIC QUALITY OF LIFE QUESTIONNAIRE

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**Background:** Quality of Life has an important status in patient management suffering from chronic disease like cirrhosis and health related quality of life has significant impact on patient management. This study was conducted to evaluate the correlation of health related quality of life with disease severity in patients of cirrhosis of liver. **Methods:** This cross-sectional study was conducted at Medical Unit-IV, Dow University of Health Sciences, Karachi, during the period January 2006 to October 2006. All patients of cirrhosis of liver admitted during the study period were selected. Patients with encephalopathy, hepatocellular carcinoma were excluded. The 29 item chronic liver disease questionnaire (CLDQ) was administered to the patients by a postgraduate trainee. Internal validity of responses was checked statistically and correlation of responses was done with disease severity by Child-Pughs Criteria. **Results:** 109 patients were selected with 72 males and 37 females. Patient classification according to Child class A, B & C was 30, 38 & 41 respectively. The mean CLDQ score in the patients was  $89.5 \pm 30.4$ . It correlated significantly with Child Class but did not correlate with the gender, age and etiology of cirrhosis. **Conclusion:** Health related CLDQ scores correlate with the severity of liver disease.

**Keywords:** Cirrhosis; Chronic liver disease; Quality of life; Health quality of life related

## INTRODUCTION

In current times it is important to know and assess the impact of disease on patient's health, society and on biomedical, physiological and socioeconomic outcomes. Quality of Life (QOL) has now attained important status in clinical patient management. The importance of impact of healthcare interventions on patient's everyday life are increasingly recognized rather than on patient's health alone.<sup>1</sup> It is also important to know, how the patient feels about his disease and life quality with chronic diseases, as it may be more important than the longevity of life to the patient.<sup>2, 3</sup> Health-related quality of life (HRQL) is important in measuring the impact or burden of a chronic diseases like liver cirrhosis. These patients suffer from fatigue, pruritis, loss of esteem, depression that is poorly evaluated by the clinical measures. Measuring QOL provides a better measurement of these conditions<sup>4, 5</sup>. Despite the fact that QOL investigations cover many diseases and population groups, its application in hepatology is still very scarce. Very limited information is available on impact of chronic liver disease on HRQL of patients.

The aim of current study is to evaluate the HRQL in patients of cirrhosis of liver and also to find associations of HRQL scores with clinico-demographical characteristics and severity of disease.

## MATERIAL & METHODS

This cross-sectional study was conducted at Medical Unit-IV, Dow University of Health Sciences, Karachi, during the period January 2006 to October 2006. Using non-parametric sampling method all consecutive patients of cirrhosis of liver admitted during the said period were selected after taking informed consent. The diagnosis was verified according to the data of anamnesis, clinical, biochemical and instrumental examinations and the results of percutaneous liver biopsy data in some selected cases. Patients of hepatic encephalopathy, hepatocellular carcinoma and any other associated chronic disease were excluded.

Routine examination of patients was done: clinical, biochemical examination of blood, ultrasound abdomen, esophagogastrosocopy and percutaneous liver biopsy (in selected cases) were done. Anti HCV, HBsAg, ferritin, IgG and ANA were done to establish the etiology. Presence of ascites, edema and varices were recorded. Severity of liver disease was estimated by Child-Pugh Score.<sup>6,7</sup>

The chronic liver disease questionnaire (CLDQ) was applied as the instrument for measuring HRQL by a postgraduate trainee resident in presence of consultant. This HRQL investigation instrument was developed at the Department of Gastroenterology, The Cleveland Clinic Foundation by Younossi et al in 1999 as the disease specific instrument for evaluating HRQL of patients with

chronic liver disease.<sup>8</sup> CLDQ covers 29 items and is designed to measure the six domains of QOL: abdominal symptoms (AB), fatigue (FA), systemic symptoms (SY), activity (AC), emotional functions (EM) and worry (WO). It grades the responses on a scale of 1 (most impaired) to 7 (least impaired).

Frequency for gender, ascites, edema and varices were calculated. Mean  $\pm$  standard deviation and 95% confidence intervals (CI) of continuous variables like age, serum albumin, INR and CLDQ scores were calculated. Internal validity of the questionnaire was checked by Cronbach's alpha with level of acceptance set at = 0.7. Correlation of CLDQ scores was done with Child-Pugh Score and gender by Kruskal-Wallis test and with age and etiology of cirrhosis was done by Pearson and Kendall's tau<sub>b</sub> test respectively. Level of significance was set at = 0.05. SPSS version 15.0 was used for analysis.<sup>9</sup>

**RESULTS**

During the study period 109 patients were enrolled in the study out of which 72 (66.1%) were males and 37 (33.9%) were females. There were 30 (27.5%) patients in Child class A, 38 (34.9%) in Child class B and 41 (37.6%) in Child class C. 74 (67.9%) were anti HCV positive, 28 (25.7%) were HBsAg positive, history of chronic alcoholism was present in 6 (5.5%) and 1 (0.9%) was diagnosed as a case of Wilson's Disease. The clinical and demographic details of the selected patients are given in Table I. The internal validity of the data was checked by Cronbach's alpha test and was found to be highly valid at 0.98. The mean CLDQ score in the patients was 89.5  $\pm$ 30.4. The mean CLDQ scores in males was 90.1  $\pm$ 30.8 and in females it was 88.4  $\pm$ 30.1. The scores according to Child Class were as under:

A = 123.8  $\pm$ 30.1; B = 84.5  $\pm$ 19.3 & C = 69.1  $\pm$ 12.6 (Figure 1). The CLDQ scores details according to the domains of QOL are given in the Table 2. The most effected domain in our study was of activity with a score of 8.4 and the least effected was of emotional function with the score of 24.4.

The Correlation of CLDQ score with Child Class by Kruskal-Wallis test gave the highly significant correlation (chi-square = 52.3; df = 2; P = 0.0). Similarly all the domains of the QOL correlated significantly with Child Class (Table 3). The analysis with gender did not revealed any significant correlation (chi-square = 0.06; df = 1; P = 0.8). Correlation of age with CLDQ score was done by Pearson Correlation test and was also found to be non-significant at P = 0.3. Correlation of CLDQ with etiology of cirrhosis was done by Kendall's tau<sub>b</sub> test and found to be not significant with P = 0.68.

**Table 1. Clinical and demographical data of cirrhosis patients (n = 109)**

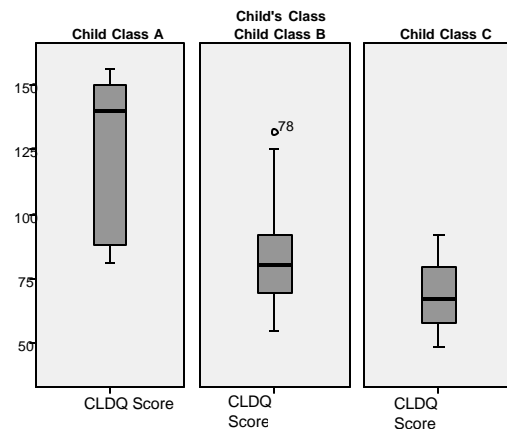
Variable	n	%
Males	72	66.1
Females	37	33.9
Edema	64	58.7
Ascites	91	83.5
Varices	81	74.3
Child Class		
A	30	27.5
B	38	34.9
C	41	37.6

**Table 2. CLDQ scores according to domains of QOL**

Domain of QOL	Mean	Std. Deviation
Emotional function	24.4	8.2
Worry	17.4	4.4
Systemic symptoms	15.9	6.1
Fatigue	14.4	5.9
Abdominal symptoms	9.1	3.5
Activity	8.4	3.8

**Table 3. Kruskal-Wallis Test of Total CLDQ score and QOL Domains by grouping variable Child Class**

	CLDQ Score	Abdominal symptoms	Fatigue	Systemic symptoms	Activity	Emotional function	Worry
Chi-Square	52.3	34.6	47.7	49.6	51.6	46.2	42.5
Df	2	2	2	2	2	2	2
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000



**Figure 1. Box plot of CLDQ score with Child's Class**

**Annexure**

**Child-Pugh's Scoring System**

Measure	1 point	2 points	3 points	units
Bilirubin (total)	<34 (<2)	34-50 (2-3)	>50 (>3)	μmol/l (mg/dL)
Serum albumin	>35	28-35	<28	g/L
INR	<1.7	1.71-2.20	> 2.20	no unit
Ascites	None	Suppressed with medication	Refractory	no unit
Hepatic Encephalopathy	None	Grade I-II (or suppressed with medication)	Grade III-IV (or refractory)	no unit

The score employs five clinical measures of liver disease. Each measure is scored 1-3, with 3 indicating most severe derangement.

**Child-Pugh's Class**

Points	Class	One year survival	Two year survival
5-6	A	100%	85%
7-9	B	81%	57%
10-15	C	45%	35%

Chronic liver disease is classified into Child-Pugh class A to C, employing the added score from above.

**DISCUSSION**

With advancements in the medical research there is a gradual shift towards better management of chronic disorders as compared to the acute diseases. With increased awareness patients opinion in the management decision is taking a central role. The tradeoffs between the potential adverse consequences of a particular intervention and the anticipated benefits are now increasingly dependent upon how patients perceive and value different aspects of their health. This has lead to the development of valid and reliable HRQL instruments that provide important information regarding advantages or disadvantages of various interventions.<sup>10</sup>

In this study we evaluated the impact of cirrhosis on QOL of patients and also studied its correlation with severity of disease by the 29 item CLDQ designed by Younossi et al.<sup>8</sup> The mean CLDQ score in our patients was 89.5 which is low as compared to normal populations tested by the same instrument elsewhere.<sup>11-14</sup> The authors of the CLDQ in their maiden report were unable to show difference between the Child Classes due to small sample size of 14 patients in class C group.<sup>8</sup> The largest group in our study was of class C with 41 patients we and document significant correlation of CLDQ scores with Child's Class. Correlation of CLDQ score with age was not significant in our study and this has been also reported by other investigators.<sup>15</sup> Depression in patients of cirrhosis has also been identified as a factor impairing the QOL.<sup>16, 17</sup>

The quality of life is also impaired in the chronic hepatitis although to a lesser extent than in cirrhosis.<sup>18,19</sup> Patients undergoing therapy with interferon are also affected.<sup>20</sup> Not all symptoms effect the QOL in patients of cirrhosis. Out of many symptoms that were evaluated only fatigue, ascites and muscle cramps have some effect on QOL.<sup>21, 22</sup> Associated cirrhotic cardiomyopathy could also be a contributing factor for feeling of fatigue by patients.<sup>23</sup> The CLDQ scores have also been tested in other causes of chronic liver disease like primary biliary cirrhosis and primary sclerosing cholangitis.<sup>24-26</sup>

**CONCLUSION**

CLDQ is a valid tool to assess the QOL in patients of cirrhosis. It has a good construct validity and could be easily self administered.

**CLDQ**

1. How much of the time during the last two weeks have you been troubled by a feeling of abdominal bloating?
2. How much of the time have you been tired or fatigued during the last two weeks?
3. How much of the time during the last two weeks have you experienced bodily pain?
4. How often during the last two weeks have you felt sleepy during the day?
5. How much of the time during the last two weeks have you experienced abdominal pain?
6. How much of the time during the last two weeks has shortness of breath been a problem for you in your daily activities?
7. How much of the time during the last two weeks have you not been able to eat as much as you would like?
8. How much of the time in the last two weeks have you been bothered by having decreased strength?
9. How often during the last two weeks have you had trouble lifting or carrying heavy objects?
10. How often during the last two weeks have you felt anxious?
11. How often during the last two weeks have you felt a decreased level of energy?
12. How much of the time during the last two weeks have you felt unhappy?
13. How often during the last two weeks have you felt drowsy?
14. How much of the time during the last two weeks have you been bothered by a limitation of your diet?
15. How often during the last two weeks have you been irritable?
16. How much of the time during the last two weeks have you had difficulty sleeping at night?

17. How much of the time during the last two weeks have you been troubled by a feeling of abdominal discomfort?
18. How much of the time during the last two weeks have you been worried about the impact your liver disease has on your family?
19. How much of the time during the last two weeks have you had mood swings?
20. How much of the time during the last two weeks have you been unable to fall asleep at night?
21. How often during the last two weeks have you had muscle cramps?
22. How much of the time during the last two weeks have you been worried that your symptoms will develop into major problems?
23. How much of the time during the last two weeks have you had a dry mouth?
24. How much of the time during the last two weeks have you felt depressed?
25. How much of the time during the last two weeks have you been worried about your condition getting worse?
26. How much of the time during the last two weeks have you had problems concentrating?
27. How much of the time have you been troubled by itching during the last two weeks?
28. How much of the time during the last two weeks have you been worried about never feeling any better?
29. How much of the time during the last two weeks have you been concerned about the availability of a liver if you need a liver transplant?

### Domains

Abdominal symptoms (AS): Items 1, 5, 17

Fatigue (FA): Items 2, 4, 8, 11, 13

Systemic symptoms (SS): Items 3, 6, 21, 23, 27

Activity (AC): Items 7, 9, 14

Emotional function (EF): Items 10, 12, 15, 16, 19, 20, 24, 26

Worry (WO): Items 18, 22, 25, 28, 29

### Response Options

- 1 All of the time
- 2 Most of the time
- 3 A good bit of the time
- 4 Some of the time
- 5 A little of the time
- 6 Hardly any of the time
- 7 None of the time

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