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MEASUREMENT OF CHRONIC HEPATITIS B ASSOCIATION WITH QUALITY OF LIFE: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: The health-related qualities of life (HRQOL) of people, suffering from chronic hepatitis B is (CHB) infection is estimated by some research studies. Aim: The objective of the current studies was to assess the health-related quality of life of a patient at various phases of CHB infection. To estimate the causes of HRQOL were also included in the objective of the study. **Methods:** This research study was organized in Jinnah Hospital, Lahore from November 2018 to June 2019. All the people interviewed were adult CHB patients and were 520 in total. The interview was taken by means of chronic liver disease Questionnaire (CLDQ), structured Questionnaire and the SF-36 Health Survey Version 2 (SF-36v2). Out of 520 patients interviewed, impaired liver function, hepatocellular carcinoma HCC and cirrhosis were observed in 102, 123 and 139 patients respectively. Moreover, 156 patients were normal. In order to assess the causal factors of HRQOL, multiple linear regression was performed. To check the dissimilarity between each CHB group and population norms regarding SF-6D health preferences Values and SF36v2 scores, T-test was employed. ANOVA was employed to check similarity and difference of mean SF-36v2 scores, CLDQ scores, and SF-6D health preferences among SHB groups. **Results:** the results indicated the factors connected with poorer HRQOL were younger age, psychological comorbidity, female, anti-viral treatment, advanced stage of CHB illness and bilirubin level. Moreover, as compared to population norm, remarkably lower SF-36v2 scores were noticed in the CHB patients the value of SF6D of CHB patients impaired live function was 0.745, with cirrhosis 0.701, with uncomplicated disorder 0.755 and with HCC was 0.720, on the other hand, 0.787 was value in population norm, which was remarkably lower. **Conclusion:** In those studies, that are Cost-Effie, the quality-adjusted life years (QALYS) for CHB patients can be passed through results. The results concluded that on HRQOL, CHB infection had a negative impression. Along with CHB disease progression, there observed a progressive decline in health preference values. Keywords: Chronic, Hepatitis, Comorbidity, Health-Related, Life, Quality and Infection.

KEYWORDS: HRQOL, CLDQ, CHB.

INTRODUCTION

All around the world, the most commonly known infection is Hepatitis B virus (HBU) all around the world, the number of people who have been suffered by HBV are over 2 billion of those above one third (120 million) belongs to China and 350 million among them developed chronic infection,[1] according to an approximate the chance of developing hepatocellular carcinoma (HCC) and cirrhosis for chronic carriers are 15-40 percent. As a result, the number of people who are subjected to death due to hepatitis B related liver disorder, reached more than one billion on yearly basis.[2] In southern chinses along with Hong Kong population, the percentage of occurrence of chronic hepatitis B CHB is above 10%,[3] the people of this area, who were chronic careers mostly develops the infection in the early childhood or neonatal phase,[4] In previous 20 years, Health-related quality of life (HRQOL) has become significant outcome for distinguishing chronic disorders. In patients having chronic liver disorder (CLD) impaired HRQOL was noticed in many studies the chronic disorder who include HCC, cirrhosis, viral hepatitis and cholesteric liver disorder.[5-13] On the other hand, many studies were organized on HRQOL of hepatitis C virus (HCV) patients.[5,6,13] However, for CHB patients, such information is limited. Some studies were conducted previously related to this topic. But due to their small size, capacity and observance of the result are restricted.[5,14] These studies indicated that as compared to the normal control, patients having CHB infection had identical HRQOL.[5,14,15] It was noticed by Ong et al that normal control and the HRQOL estimated by SF-36.

Health Survey and LQ5D in chinses asymptomatic CHB Carriers equivalent to each other. But he also found that HRQOL scores were remarkably lower in patients of cirrhosis and HCC.[15] The results of previous studies indicated that HRQOL in CID patients could be influenced by co-morbidity,[6] liver function biomarkers,[10] demographics,[11,12] and disease severity.[7,11,12,16] A preferences index transformed from HRQOL other than being a measures of health impact of CHB infection, can also be employed for profitable estimation of involvement for CHB patients. An attempt is made by some research studies to outlay the health inclination of CHB infection by means of patients using disease specific measures or care professionals.[17,18] But the outcomes may not be authentic. It is due to the fact the according to the suggestion by the National Institutes for Clinical Excellence, the United Kingdom,[19] health inclination should be assessed by generic measures. Moreover, the assessment of HRQOL should be made suggestion by the National Institutes for Clinical Excellence, the United Kingdom,[19] health inclination should be assessed by generic measures. Moreover, the assessment of HRQOL should be made on the basis of attitude of patient. The objective of the current study was to assess health-related quality of life of patients at various phases of CHB infection. To estimate the causes of HQROL were also included in the objective of the study. The provision of better health facilities to various CHB patient's groups in order to fulfil their demands.

METHODS AND RESULTS

This research study was organized in Jinnah Hospital, Lahore from November 2018 to June 2019. All the people selected for this study were positive to hepatitis B surface antigen for above six months. From three public primary care clinics, computerized data was used for the identifier of patient was 18 years and above. All those people who were addicted to alcohol (>30units/weak) or any other illegal drugs and those who had serious cognitive impairment liver transplantation, HCV, hepatitis D virus, co-infection with HIV or end-stage non-hepatitis b related disorder were expelled from the study. They were also excluded who were failed to communicate in Cantonese and those disagreed to sign agreement. However, all the people selected signed the agreement. About 100 patients were included in each CHB group and after this enrollment was stopped. A questionnaire was designed for all the enrollment CHB patients. This questionnaire included questions on socio-demographics and chronic comorbidity examined by trained interviews, the Chines (HK) Chronic Liver Disease Questionnaire (CLDQ) and Chines (Hong Kong) SF-36v2 Health Survey. Assessment was made for the chronic co-morbidity. Existence of an identical diagnosis and total number of disorders were employed for this assessment. By using medical history, clinical information regarding CHB infection was recovered. This information included Child's staging for patients having cirrhosis, use of anti-viral treatment and biomarkers of liver disorder. The chines relocation of

the Medical outcomes study SF-36v2. Health Survey is regarded as the Chines SF36 Health Survey version 2. On the common Chines community in HK, this health survey has been ruled and approved.[20, 21] For the generic estimation of HRQOL, the SF-36v2 Health Survey is generally employed.[22] Eight features can be estimated through it. These eight features included role-motional social functioning, mental health, body pain, physics functioning, vital role physical and generally healthy. Scale scores are obtained by the addition of scores of the items of the same scale. This range of these scores was from 0 to 100 and better quality of life is demonstrated by the higher scores.[23] Mental component and norm-based physical summary scores are obtained by the addition of eight scale scores. Their standard deviation and population mean are 10 and 50 respectively.

The SF-6D is an estimation that is based an inclination. For the cohort of composite index values on the scales of 0 to 1, SF-6D can be plotted into 11 items of the SF36v2 Health Survey.[24] Six features called social functioning, mental health, role limitation, physical functioning, bodily pain and vitality are included in it. From the information of a common survey of the community of 2410 adult Chines in Hong Kong in 1998, the common population mean SF-6D inclination values was assessed which is 0.787.[20] In the research studies organized earlier, the SF-6D scoring algorithm has been recognized and confirmed for the adult Chines population in Hong Kong.[25,26]

Younossi et al established the Chronic Liver Disease Questionnaire. For the disorder of liver, it is commonly employed disease-particular HRQOL measure.[27] 29 things are included in it. These are used for the computation of six domains on fatigue worry, abdominal symptoms, emotional function, activity and systemic symptoms. Likert scale was used for rating each item. The range on the Likert scale was used for rating each item. The range on the Likert scale is from 1 to 7. In this scale 1 shows none of the time. By the addition of average of inscribed things scores of appropriate domains, measurement for domains, measurement for the domains scores is made. By taking the means of all domains scores, an overall score is assessed. The range of their scores is from 1 to 7. Better HRQOL is shown by the higher score. The CLDQ is considered an authentic and applicable measure in southern Chinese CHB patients in Hong Kong and it has been transferred into Chinese.[28] For the division of participants, four CHB groups were made. There groups include cirrhosis, uncomplicated CHB, HCC and impaired liver function without cirrhosis. Between the common community and all CHB patient, distribution of socio-demographic variables was compared by using Pearson's chi-square test.[29,30] Comparison was made to check the difference in socio-demographics and clinical features among all the four CHB groups by using Pearson's chi-square tests and me-way analysis of variance (ANOVA). Pearson's chi-square test and ANOVA were used for testing

categorical variables and continuous variables respectively. Four all CHB groups, mean SF-36v2, SF-6D and CLDQ scores were compared by using ANOVA. To find more dissimilarities were noticed by ANOVA. In order to check the dissimilarity between the HK population norms and each CHB group in SF-6D health inclination and values and SF36v2 scores, one sample t-test was used SPSS was used for the analysis information. Values of P below 0.05 were set as statistically significant levels.

The number of CHB patients who were asked to participate in the study were 819 in total. Among these, an agreement was signed by six hundred and thirty patients. The number of patients expelled from the study was 109. So, total patients who fulfilled the study were

five hundred and twenty. Moreover, 163 patients were not willing to participate in the study.

Most of the participants were male with the percentage (73.8%). The people suffering from CHB were mostly non-professional, males, low living standard and were of older age if compared with HK common population. 50-4+_12=3(SP) years old was the mean age of CHB patients. As compared with the common population, CHB patients were more likely addicted to drinking and smoking. The dissimilarity among four CHB groups was not valuable. The only dissimilarity found was that patients of cirrhosis and HCC were mostly men and older as compared with the other two groups. Complexities mostly occur in the median age of 57.2 years and men develop greater chances of these complexities.[3] clinical characteristic and co-morbid.

Table I: Sociodemographic data analysis.

Variables Percentage		Uncomplicated CHB (156)	Impaired LF (102)	Cirrhosis (139)	HCC (123)	Overall (520)
Gender	Male	64.7	65.7	80.6	84.6	73.8
	Female	35.3	34.3	19.4	15.4	26.2
Education	Primary or below	24.4	16.7	26.6	37.4	26.5
	Other education levels	75.6	83.3	73.4	62.6	73.5
Marital Status	Married	76.3	70.6	77.7	84.6	77.5
	Other marital status	23.7	29.4	22.3	15.4	22.5
Occupation	Administrative	25.6	33.3	27.3	24.4	27.3
	Other occupations	74.4	66.7	72.7	75.6	72.7
Income	<10000	28.8	26.5	47.5	46.3	37.5
	10000–19999	21.8	20.6	19.4	17.9	20
	20000–29999	25.6	14.7	10.1	11.4	16
	>30000	16	27.5	13.7	14.6	17.3
	Refused to answer	7.7	10.8	9.4	9.8	9.2
Family history of HB or CLD	No	45.5	37.3	50.4	51.2	46.5
	Yes	54.5	62.7	49.6	48.8	53.5
Smoking	Never smoker	69.2	68.6	62.6	55.3	64
	Former smoker	16	16.7	25.2	35.8	23.3
	Current smoker	14.7	14.7	12.2	8.9	12.7
Drinking	Never drinker	57.1	45.1	43.2	39	46.7
	Former drinker	12.8	23.5	41	43.1	29.6
	Current drinker	30.1	31.4	15.8	17.9	23.7

Starting from the identification, the mean time period of CHB disorder was noted to be 12.6+-9 (SD) years. As compared to the other groups, antiviral treatment was ever taken by a greater number of patients in the cirrhosis group. If the occurrence of co-existing chronic disorder was compared, then the proportion of its occurrence is remarkably higher in cirrhosis and HCC patients. Health-related quality of life (HQROL) of CHB patients.

The mean CLDQ scores, SF-6D health preferences values and SF-36v2 shown by CHB group. For the

purpose of comparison, these values for the common population are also mentioned in the table. The greater dissimilarity was noticed in HCC and cirrhosis groups. If the MCS scores are compared, then it was an amazing fact that these scores were alike for every group with the common population except cirrhosis groups. Among all the four CHB groups a remarkable dissimilarity was noticed in scale and summary scores of all three HRQOL measures. There observed regular retardation in the mean SF-6D health preferences values from 0.755 in the clear CHB group, to 0.745 in the impaired liver function group, 0.101 in cirrhotic and 0.720 in the HCC patients.

The other differences between these groups were not valuable. The only dissimilarity that was found significant was CLDQ WO domains scores.

Table II: Chronic Illness Details.

Variables Percentage		Uncomplicated CHB (156)	Impaired LF (102)	Cirrhosis (139)	HCC (123)	Overall (520)
Anti-Viral Treatment	No	65.4	62.7	34.5	67.5	57.1
	Yes	34.6	37.3	65.5	32.5	42.9
Liver Function	Normal LF	100	0	0	18.7	34.4
	Impaired LF without cirrhosis	0	100	0	1.6	20
	Cirrhosis Child-Pugh A	NA	NA	64	68.3	33.3
	Child-Pugh B	NA	NA	17.3	8.1	6.5
	Child-Pugh C	NA	NA	18.7	3.3	5.8
Comorbidity	Hypertension	23.7	17.6	19.4	26	21.9

Table III: Mean and SD Values.

Disease Duration/ Biomarkers		Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD
Disease	Duration	12.8	8.1	12.3	8.7	11.6	8.5	13.6	10.6
Biomarkers	ALT, U/L	27.4	8.7	150.7	306.5	48.2	52.6	55.1	47.3
	AST, U/L	24.1	7.3	130.8	272.0	18.2	26.6	52.1	38.8
	Abnormal AFP, ng/ml	0.0	0.0	14.0	0.0	10.5	0.0	29.4	29.4
	Bilirubin, umol/L	14.3	7.0	20.1	23.3	38.1	56.5	18.4	15.0

On the phase of CHB infection and other independent variable's, the outcomes of multiples linear regression inspection of various HRQOL scores. According to the R square, the variances in the HRQOL scores was explained by variables in the multiple's regression models as 23% to 29%. Lower SF-6D and CUQ overall scores were found annunciated with the cirrhosis, HCC and impaired liver function after the management of liver function biomarkers and another confounder. No influence of other liver function biomarkers like AFP, AST, ALT was noticed on HRQOL. SF-36v2 PCS and CLDQ overall scores were lower of bilirubin. Except the SF-36v2 PCS scores, all HRQOL scores and co-morbid psychological illness were found in a negative relation, however, HRQOL scores were significantly influenced by few socio-demographic features. SF-6D health preferences values, CLDQ overall scores and SF-36v2 MCS were SF-6D health preferences values were found lower in the females. Smoking and Sf-6D health preferences values were indirectly related to each other. As compared to lower income level, higher income level was positively annunciated with SF-6D health preference values.

Table IV: Determinants of HRQOL in CHB patients.

Scores (Norm)	Uncomplicated CHB (156)	Impaired LF (102)	Cirrhosis (139)	HCC (123)	Overall (520)	Sig Diff
SF-6D Preference - 0.787	0.755 (0.14)	0.745 (0.15)	0.701 (0.15)	0.72 (0.16)	0.73 (0.15)	1>3
SF-36v2 PF (90.6)	90.4 (13.3)	90.5 (13.0)	82.6 (16.0)	82.6 (16.6)	86.5 (15.3)	1>3, 1>4, 2>4
RP (90.2)	85.2 (19.2)	79.7 (24.2)	68.8 (29.2)	70.7 (28.8)	76.3 (26.4)	1>3, 1>4, 2>
BP (82.6)	72.9 (24.8)	70.2 (24.7)	70.3 (27.8)	71.1 (27.9)	71.2 (26.3)	NA
GH (53.2)	54.6 (20.5)	48.8 (20.7)	42.0 (22.5)	54.0 (22.1)	49.9 (22.0)	1>3, 3<4
VT (60.2)	65.1 (17.6)	62.4 (19.8)	55.4 (24.9)	61.6 (22.8)	61.2 (21.7)	1>3
SF (92.4)	86.3 (18.5)	82.0 (20.9)	73.7 (29.9)	74.4 (29.5)	79.3 (25.7)	1>3, 1>4
RE (88.5)	83.0 (18.6)	79.3 (21.9)	75.5 (26.6)	76.8 (26.4)	78.8 (23.6)	1>3
MH (72.0)	74.4 (16.1)	71.9 (20.3)	70.8 (19.3)	73.0 (20.3)	72.6 (18.8)	NA
PCS (48.8)	46.9 (9.2)	45.5 (9.6)	40.4 (11.2)	42.0 (11.5)	43.7 (10.7)	1>3, 1>4, 2>
MCS (50.9)	50.7 (9.4)	48.6 (12.0)	47.3 (13.3)	48.9 (13.7)	49.0 (12.1)	NA
CLDQ AS	6.3 (0.9)	6.2 (1.0)	5.8 (1.4)	5.7 (1.3)	6.0 (1.2)	1>3, 1>4, 2>
CLDQ FA	5.3 (1.1)	5.0 (1.2)	4.7 (1.3)	4.9 (1.3)	5.0 (1.2)	1>3
CLDQ SS	5.9 (0.9)	5.7 (0.9)	5.3 (1.1)	5.5 (1.1)	5.6 (1.0)	1>3, 1>4, 2>
CLDQ AC	6.3 (1.0)	6.0 (1.2)	5.6 (1.5)	5.7 (1.4)	5.9 (1.3)	1>3, 1>4

CLDQ EF	5.6 (1.0)	5.3 (1.2)	5.1 (1.4)	5.2 (1.3)	5.3 (1.2)	1>3
CLDQ WO	5.9 (1.2)	5.5 (1.3)	5.0 (1.7)	5.5 (1.4)	5.5 (1.5)	1>2, 1>3
Overall	5.9 (0.8)	5.6 (0.9)	5.3 (1.1)	5.4 (1.0)	5.6 (1.0)	1>3, 1>4, 2>

DISCUSSION

For the assessment of HRQOL of CHB patients participated in this study, generic as well as disease specific measured are used. Some important HRQOL domains particularly related to this disease were addressed by disease-specific CLQ which was sensitive. However, the common population was compared through generic measures. For the assessment of the influence of CHB infection and its treatment on HRQOL, generic and disease-specific measures are suggested. For transferring HRQOL to a composite preferences index, SF-6D has employed comparison with HK general population norm. Ass compare with the population norms, remarkably lower SF-36v2 and SF-6D scores were noticed in all CHB. Dissimilarity of the effect size was approximately 0.4. This co-relate to the minimal significant dissimilarity of 0-3 to 0.5.[32,33] In our study, it was observed that those patients had valuable impairment in several HRQOL domains who were having impaired liver function reaching the level of HCC patients. On the other hand, liver function had just fair deterioration of HRQOL, as illustrated in the study conducted by Ong et al.[15] Reactively in the indication of any dissimilarity, could be influenced of any dissimilarity, could be influenced by the selection of HRQOL measures. These results are not comparable to results its study. In HCC patients, the SF-36v2 GH and VT scores were comparatively higher than population norms and it was not a usual thing. There are few reasons supporting this fact. Firstly, after surgical incision many patients of HCC were settings aside. It is demonstrated in some studies that HCC patients after hepatic resection at three months have shown important improvements of HRQOL.[34,35] Secondly, HCC patients show positive behavior towards their illness after successful treatment due to positive coping and adaption behavior. Thirdly, HRQOL of patients improved become of family and social support provided to the cancer patients.[30]

In the studies held earlier, it is demonstrated that different of SF-6D inclination value were minimal ranged from 0.01 to 0.048. Mean estimate of value was 0.03.[37] Therefore, the dissimilarity was perhaps significant HCC (0.035) groups. An important decline in the health preferences values was reported by Levy et. disease-specific measure. The measurement was from 0.68 in normal CHB infection to 0.38 in HCC patients and 0.38 in HCC patients and 0.35 in substituted cirrhosis.[38] HRQOL was not influenced by biomarker like ALT and AST. These biomarkers are often employed for treating antivirus. This is amazing fact that SF36v2 MCS score and intake of anti-virus viral treatment have negative association. The results of studies held earlier indicate that HRQOL was decreased by antiviral drug treatment.[39] But after removal of virus,

an important was noticed.[40,41] Previous studies indicated that in CLN patients, power HRQOL was liked with older age.[12,16] On the other hand, positive association of age with HRQOL was observed. Commonly, lower HRQOL scores are noticed in females and they are more conscious about their illness as compare to men. The study was cross sectional. The general association between the HRQOL and antiviral treatment could not be explained.

CONCLUSION

The results concluded that as compare to the common population, there observed lower HRQOL of southern Chinese adults' patients with chronic hepatitis B (CHB) infection. Although some of these patients were not found with any clinical or biochemical complexities. In the patients with CHB infection, HRQOL was negatively influenced by presence of advanced complexities like HCC or cirrhosis. Other factors that were linked with poor HRQOL were younger age co-morbid psychological illness, female, anti-viral treatment and bilirubin level. Among the population norm, SF-6D preference value was decreased to 0.057 and their decrease was due to CHB infection. There observed a decline in SF-6D preference value from 0.755 in uncomplicated CHB patients to 0.720 in HCC patients and 0.701 in cirrhosis patients. In costly research studies. The quality adjustment life adjustment life years for particular patient can be assessed by the preference values of difference phase of CHB infection.

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