ORIGINAL ARTICLE

Frequency and Sociodemographic Determinants of Depression in Patients with Chronic Liver Disease

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ABSTRACT

Objective: To determine the frequency and Sociodemographic determinants of depression in patients with chronic liver disease

Methods: A descriptive cross-sectional study was conducted among CLD patients with 15-50 years of age of either gender having at least 6 months of illness duration were included. The depression among CLD patients were observed through PHQ-9 scoring system. This information along with patient's age, gender, marital status, educational status, employment status, socioeconomic status, duration of illness and PHQ-9 scores were collected.

Results: A total of 143 patients were included. Majority (n=77, 53.85%) patients were presented with <45 years of age. There were 73 (51.05%) females and 70 (48.95%) males. Frequency of depression was observed in 45 (31.47%) patients. A significant association of depression was observed with age (p-value 0.011), gender (p-value <0.001), educational status (p-value 0.002), employment status (p-value 0.022), and socioeconomic status (p-value <0.001).

Conclusion: This study has found depression to be remarkably prevalent among patients with Chronic Liver Disease with age, gender, educational status, employment status, and socioeconomic status as significant risk factors.

Key words: Chronic liver disease, depression, PHQ-9

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INTRODUCTION

Depression is an affective disorder, majorly characterized by low mood, reduced energy and aversion to usual activities of interest[1]. It is also associated with change in appetite, sleep, problem in concentration, making decisions, aches, pain and constipation or suicidality.[2] Long term illness like CLD may harbor negative emotions in response to the illness process itself, treatment burden and significant life modifications related to it. Depression is usually the end result of such negative emotions among those who suffer from severe illness and are incapacitated. It is estimated to be found in 30% of such cases. The established causes of presentation of depression together with chronic medical illness are neurobiological changes and psychological reactions to the illness burden or simply as a coincidence.[3] The general risk of depression among female and male is 10-25% and 5-12% respectively. Prevalence of depression in hepatitis C virus (HCV) reactive patients is reported to be 4-7times of the general population (6-10%).[4-5]The previous studies of such kind, showed remarkable variation (0-82%) in frequency of depression due to difference in diagnostic criteria and treatment protocols.[5] It is necessary to use particular screening instrument for depression in patients with chronic medical illness to differentiate the actual depressive symptoms from that of illness symptoms. Patient Health Questionnaire-9 (PHQ-9) is one of the screening instrument for depression that has been widely used in the medical setting.[6-7] The higher cut off points indicate the presence of depression in chronically ill patients. The cut off points (>10 or >12) can be used to screen depression. A cutoff point >12 has higher specification hence recommended to use.[8-9]

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The previous studies were done in ideal healthcare settings and local data is scarce. Therefore this study is designed to estimate the frequency of depression in patients with CLD and to document the magnitude of this problem in order to devise strategies to manage it effectively. Early identification and timely intervention can then be promoted to ameliorate further deterioration in the disease process due to depression. This study can also be used to expand the research work in different local health setting.

Patient was labeled to be suffering from cirrhosis, if at least *2 clinical signs* (Shrunken liver on percussion, ascites (shifting dullness positive and fluid thrill positive), pedal edema or hepatic encephalopathy) with 1 ultrasonographic finding(liver span <7 cm, dilated portal vein >11 mm (1.1 cm), enlarged spleen size >12 cm) are present and histological evidence on liver biopsy(replacement of liver tissue with fibrous tissue and regenerative nodules) is available. (Current medicine 2016). Diagnosis of depression will be made using"Patient health questionnaire depression scale[6,7]. The PHQ-9 is the 27 points, Likert type-2 questionnaire which scores each of the 9 DSM-IV criteria.Each participant will be giving score on Likert scale from 0-3; "0" (not at all) to "3" (Nearly every day). It has been validated for use in primary care. PHQ-9 scores > 10 had a sensitivity and specificity of 88% for major depression.

METHOD

All patients of CLD Of 15-50years of age, in both genders, with atleast 6months of illness duration were included in this study. Those patients with liver decompensation, cardiac or renal insufficiency, pregnancy, immunosuppressive therapy and sudden death in family in last 2weeks were excluded. The approximate of number of subjects to be enrolled was n=143. IT is obtained by taking prevalence of depression 24%[5] in patients of CLD, with 5% level of significance and 7% bond on error of estimation. A proforma was designed to record the demographic details of the patient including Patient Identity code, MR #, Age, Gender, Marital, educational, employment and socioeconomic status,duration of illness and PHQ-9 scores. The PHQ-9 is a validated instrument used in this study to screen for depression in CLD patients. Data was collected during February to July 2016 on predesigned proforma and validated depression Screening instrument PHQ-9 by principal investigator.

Data entry and analysis were done using SPSS version 19. Frequency and percentage were computed for categorical variables like gender, marital status, education, employment status, social economic status and frequency of depression. Mean and standard deviations was computed for continuous variables like age and duration of disease. Effect modifiers like age, gender, marital status, education, employment status, Socio economic status and illness period were controlled through stratification by—applying chi squared test, and p-value <0.05 was considered significant.

RESULTS

Out of total 143 patients with CLD, 77 (53.85%) patients were presented with <45 years of age while 66 (46.15%) patients were presented with more than 45 years of age. Female frequency was found slightly higher (n=73, 51.05%) as compared to males (n=70, 48.95%). Majority of the patients were married 68/111 (47.55%). There were 42 (29.37%) illiterate and 101 (70.62%) literate patients. Employment history was found in 84 (60.14%) patients. There were 71 (49.65%) patients with <10,000 monthly income. (Table 1)

Frequency of depression was observed in 45 (31.47%) patients. (Figure 1) The comparison of depression with baseline characteristics of the patients is shown in table 2. A significant association of depression was observed with age (p-value 0.011), gender (p-value <0.001), educational status (p-value 0.002), employment status (p-value 0.022), and socioeconomic status (p-value <0.001).

Table 1: Baseline Characteristics of the Patients (N=143)

	n	%
Age, years	51.66±9.25	
<45	77	53.85
=45	66	46.15
Gender		
Male	70	48.95
Female	73	51.05
Marital Status (n=111)		
Married	68	47.55
Unmarried	43	30.07
Educational status		
Illiterate	42	29.37
Literate	101	70.62
Employment Status		
Employed	86	60.14
Unemployed	57	39.86
Socioeconomic status		
<10,000	71	49.65
=10,000	72	50.35

All data presented as number (%)

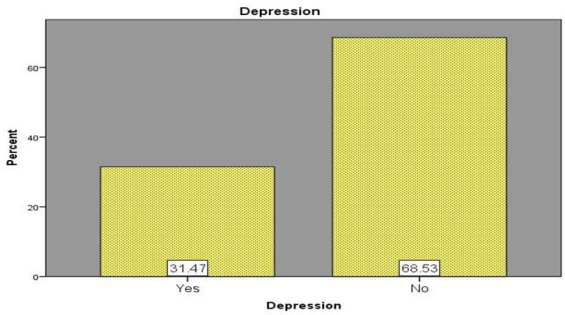

Fig. 1: Frequency of Depression in Patients Withchronic Liver Disease

Table 2: Comparison of Depression with Baseline Characteristics of the Patients (N=143)

Variables	Total	Depression		
		Yes (n=45) n (%)	No (n=98) n (%)	p-value
Age, years				
<45	77	31 (40.3)	46 (59.7)	0.011
=45	66	14 (21.2)	52 (78.8)	
Gender				
Male	70	10 (14.3)	60 (85.7)	
Female	73	35 (47.9)	38 (52.1)	<0.001
Marital Status (n=111)				
Married	68	18 (26.5)	50 (39.5)	
Unmarried	43	17 (39.5)	26 (60.5)	0.149
Educational status				
Illiterate	42	21 (50)	21 (50)	
Literate	101	24 (23.8)	77 (76.2)	0.002
Employment Status				
Employed	86	33 (38.4)	53 (61.6)	
Unemployed	57	12 (21.1)	45 (78.9)	0.022
Socioeconomic status				
<10,000	71	34 (47.9)	37 (52.1)	
=10,000	72	11 (15.3)	61 (84.7)	<0.001

Chi-square test applied, p-value <0.05 was taken as significant

DISCUSSION

It is a demand of current era to explore preventive strategies for long term medical illnesses like CLD, to improve the clinical outcome (i.e, decreased mortality rate).[10] The comorbid presentation of mental health problems with CLD is not a novel idea.[11] Infact patients with CLD are more likely to be depressed than general healthy population.[5,12,13-15] The identified neuropsychological deficits in this population were usually depression and cognitive impairment, although its pathogenesis is not sufficiently clarified.[16] The established cause is retention of harmful wastes in blood due to compromised hepatic functioning.[17] Immunological mechanisms can also lead to depression[18].Neuropsychological problems like depression and anxiety may present in upto 50% of patients of CLD even prior to the manifestation of Cirrhosis, however the mechanism is not such certain.[17] Most of such work had done in liver transplant patients at post transplantation phase [7,19,20-22] and in patients with chronic viral hepatitis[19,23-24].The level of these neuropsychological problems can be compared among both group of patients who can avail transplantation and who can not[21]. We found Females have higher frequency of depression which is consistent with previous studies[20,25] The difference might be due to the contrast in various biological and social factors between men and women.Our study mirrored the same results interm of employment status correlation in depressed CLD patients as previously being worked[7,13] that depression is higher among unemployed CLD patients. The possible reason could be constellation of psychosocial stressors such as loss of efficient social and occupational functioning, diet restrictions, mobility issues that collectively divert the individual's focus occupied with the physical state.

The most important strengths are: the *sample size* of the study which is adequate and properly calculated and include patients with a *wide range of age* from 15-50 years of age. We also *studied the impact of effect modifier* on outcome i.e. depression. Perhaps the most important limitation are: The confounders were not adjusted in analysis, association between cirrhosis and depression as well as the severity of cirrhosis with depression was not observed. The study design limits its applications to hospitalized patients only. It is possible that optimally controlled cirrhotic patients living in the community may have a lower prevalence of depression. The impact of depression on clinical outcomes was also not studied.

CONCLUSION

This study has found depression to be remarkably prevalent among patients with Chronic Liver Disease with age, gender, educational status, employment status, and socioeconomic status as significant risk factors.

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