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Assessment of sexual functions in patients with chronic liver disease

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We aimed to determine the sexual problems and the prevalence of erectile dysfunction (ED) in patients with chronic liver disease by means of International Index of Erectile Function (IIEF). A total of 81 patients with stable chronic liver disease were included in the study. Patients were grouped as mild to moderate (Child Pugh A and B) ($n=10$), chronic hepatitis (hepatitis B, C and D) ($n=28$) and carriers ($n=43$) according to the type of their chronic liver disease. All patients were asked to complete a questionnaire including IIEF and demographics. The IIEF domain scores were calculated and ED grading was determined on erectile function domain. IIEF domain scores were compared between these groups. The mean age was 54.8 ± 10.8 y. Using the IIEF, the prevalence of any ED was 50.6% for all patients, and 50, 50, and 51.1% for cirrhosis, chronic hepatitis and carriers, respectively. The IIEF domain scores were not significantly different among the patient groups. Sexual functions did not appear to be affected by the stable chronic liver disease.
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Introduction

Clinical studies of erectile dysfunction (ED) in chronic liver diseases are scanty in the literature. Although chronic hepatitis and viral carriage of hepatitis B virus (HBV) and hepatitis C virus (HCV) are common diseases as well, their association with ED has not yet been studied extensively. The epidemiological studies of ED were mostly carried out in cirrhotic patients with the etiology of alcohol.[1,2] Various definitions and methods were used in previous studies and therefore there is no consensus on the prevalence of ED in these patients.[1–3] Results of these studies may not be directly comparable and also it is difficult to quantify the severity of ED. To date, no data currently exists to evaluate erectile functions in chronic liver diseases by means of validated and reliable questionnaire specific to ED such as International Index of Erectile Function (IIEF).[4] Thus, we aimed to assess ED in patients with chronic liver disease of viral etiology using IIEF. We also aimed to determine whether there is any correlate of liver disease with ED.

Methods

The Hospital Ethics Committee's approval was taken before the initiation of this prospective study. Outpatients with chronic liver disease of viral etiology admitting to gastroenterology clinics of our university hospital were enrolled into this study. All patients provided written informed consent.

The patients' medical and sexual histories were taken. Their physical examinations and genitourinary examinations were carried out. All patients were asked to complete the IIEF questionnaire. The blood samplings were taken for liver function tests and viral serology analysis. Liver function tests included alkaline phosphatase, alanine aminotrans-

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ferase, aspartate aminotransferase, direct and total billirubin, gamma glutamic transpeptidase, total protein, and albumin and lactate dehydrogenase. Viral serology analysis included serology studies for HBV and HCV.

Patients with a genital abnormality, which might interfere with vaginal penetration and liver diseases due to alcohol, were excluded from the study. Patients were grouped as cirrhosis, chronic hepatitis and viral carriers according to the types of their chronic liver diseases. Cirrhotic patients were classified according to the severity of the disease and any patient with Child Pugh C was excluded from the study.[5] The IIEF domain scores of the patients were calculated and ED was determined on erectile function domain.[6] The IIEF domain scores were compared according to the types of their chronic liver diseases.

Statistical analyses were carried out using SPSS version 10.0 (SPSS Inc., Chicago, Illinois, USA). Group comparisons were carried out with Kruskall–Wallis or Mann–Whitney *U*-tests where appropriate. Multivariate analysis was performed using logistic regression to assess the correlates for ED. A *P*-value below 0.05 was considered statistically significant.

Results

A total of 94 patients participated in our study. Data of 81 patients were eligible for the analysis. When grouped according to the types of their chronic liver diseases, 10 patients had cirrhosis (Child Pugh A and B) (12%), 28 patients had chronic hepatitis (35%) and 43 patients were viral carriers (53%). Baseline characteristics of the patients are shown in Table 1. The most common viral etiology was HBV infection in all patients and subgroups. The mean age of all patients was 54.8 ± 10.8 y (range 27–81 y). The percentage of the patients without any comorbid disease other than chronic liver disease was 85.2% (Table 1).

Using the IIEF, the prevalence of any ED was found to be 50.6% for all patients, and 50, 50 and 51.1% for cirrhosis, chronic hepatitis and carriers, respectively. The mean ages and comorbid disease ratios of ED and non-ED groups are shown in Table 2. Among the groups of cirrhosis, chronic hepatitis and viral carriers, there were no statistically significant difference with respect to mean ages and comorbid disease ratios for ED (Table 2). The mean IIEF domain scores of patients with cirrhosis, chronic hepatitis and carriers are shown in Table 3. In all domains of IIEF, the scores were not significantly different among the types of chronic liver diseases.

Logistic regression analysis showed no differences in ED among comorbid diseases and no correlate of the chronic liver diseases were found to be a significant predictor of ED.

Discussion

Previous attempts have been made to determine the association of ED and liver disease. However, studies regarding the impact of liver disease on erectile function were mainly focused on the end-stage liver disease, namely cirrhosis.[1,2,7,8] These studies have shown the negative impact of cirrhosis on erectile function by hypogonadism and feminization, in which alcoholic cirrhosis is the predominant factor. However, to date, no study has been conducted to assess ED in the various types of chronic liver disease like chronic hepatitis and viral carriers. Additionally, previous studies were lacking the use of new, widely accepted, reliable and

Table 1 Baseline characteristics of patients

	All patients	*Cirrhosis*	*Chronic hepatitis*	*Viral carrier*
Mean age (y)	54.8 ± 10.8	48.87 ± 9.03	55.88 ± 11.22	55.48 ± 10.75
Viral etiology				
HBV	63 (77.8%)	6 (60%)	21 (75%)	36 (83.7%)
HCV	15 (18.5%)	4 (40%)	7 (25%)	4 (9.3%)
HBV + HCV	1 (1.2%)			1 (2.3%)
HBV + HDV	2 (2.5%)			2 (4.7%)
Comorbid disease				
Diabetes mellitus	3 (3.7%)	1 (10%)	1 (3.6%)	1 (2.3%)
Coronary artery disease	2 (2.5%)	1 (10%)		1 (2.3%)
Hypertension	2 (2.5%)		1 (3.6%)	
Hyperlipidemia	2 (2.5%)			2 (4.7%)
Chronic renal failure	2 (2.5%)		1 (3.6%)	1 (2.3%)
Peripheral vascular	1 (1.2%)		1 (3.6%)	1 (2.3%)
Disease				
No comorbid disease	69 (85.2%)	8 (80%)	24 (85.7%)	37 (86%)

Table 2 Mean ages and comorbid disease ratios of ED and non-ED groups

	Cirrhosis		*Chronic hepatitis*		*Viral carrier*	
	No ED (n = 5)	*ED (n = 5)*	*No ED (n = 14)*	*ED (n = 14)*	*No ED (n = 21)*	*ED (n = 22)*
Mean age (y)*	49.9±2.9 (47–53)	47.5±14.2 (27–58)	55.4±12.4 (42–81)	56.4±10.4 (43–72)	54.1±10.4 (36±76)	56.9±11.2 (38–76)
No comorbid disease*	80.0%	80.0%	85.7%	85.7%	77.3%	95.2%
Coronary artery disease*	20.0%				4.5%	
Diabetes mellitus*		20.0%	7.1%		4.5%	
Hypertension*				7.1%	4.5%	
Peripheral vascular disease*			7.1%			
Hyperlipidemia*					4.5%	4.8%
Chronic renal failure*				7.1%	4.5%	

*Statistically not significant.

Table 3 Mean domain scores by the type of liver disease

IIEF domain	*All patients*	*Cirrhosis*	*Chronic hepatitis*	*Carriers*
Number of patients	81	10	28	43
Erectile function	22.6±7.9	22.1±7.9	21.8±8.7	23.3±7.5
Orgasmic function	7.9±3	7.3±3.2	7.4±3.4	8.3±2.6
Sexual desire	7.3±1.7	8±0.9	7.2±2.2	7.2±1.4
Intercourse satisfaction	10±4.2	10±2.7	9.3±5	10.5±3.8
Overall satisfaction	7.6±2.2	7.9±2	7±2.6	7.9±1.8

standardized diagnostic instruments of ED like IIEF questionnaire.

Our study is the first and preliminary study for determining ED prevalence in chronic liver disease of various etiologies by means of IIEF. Using IIEF, we found the prevalence of ED in chronic liver disease as 50.6% and the ED prevalence for patients with chronic hepatitis, viral carriers and cirrhosis were 50, 51.1 and 50%, respectively. Cornely *et al*[1] studied alcoholic and nonalcoholic cirrhotic patients and determined the prevalence of the ED as 70 and 25%, respectively. Wang *et al*[2] reported the prevalence of ED as 57% in alcoholic cirrhotic patients and 59% in postnecrotic cirrhotic patients. Our results are similar to the result of Wang *et al*,[2] but the prevalence of ED is higher than the result of Cornely *et al*.[1] This difference is probably due to different methodologies and patient selection criteria used for the evaluation of ED in these studies. In our study, patients were relatively young, all patients were in stable chronic disease status and all cirrhotic patients were at the compensated stage without deteriorating the hormonal or physical status.

The data in the literature concerning the pathophysiology of ED in liver disease is fragmentary. Thus, it is very difficult to conclude any causative relationship in these patient groups. In our study, we did not find any correlates of chronic liver disease with ED. The presence of comorbid disease and type of liver disease were not significantly associated with ED in our patients.

Our study has shown that the prevalence of ED is not increased in stable chronic liver diseases. Among the subtypes of chronic liver diseases including cirrhosis, chronic hepatitis and viral carriers, sexual functions were found to be similar.

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