

ORIGINAL
ARTICLE

Prevalence of Psychiatric Disorders in Hepatitis B Virus Carriers in Iranian Charity for Hepatic Patients Support (December 2004-August 2005)

Nasser Ebrahimi Daryani ^{1*}, Mohammad Bashashati ², Mehdi Karbalaeeian ¹, Mohammad Reza Keramati ¹,
Narges Ebrahimi Daryani ¹, Amir-Abbas Shadman Yazdi ¹

¹ Department of Gastroenterology, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran

² Gastrointestinal Research Group, University of Calgary, Calgary, Alberta, Canada

Background and Aims: More than 35% of Iranians have been exposed to hepatitis B virus (HBV) and almost 3% are chronic carriers. Knowledge of HBV-related diseases and its chronicity, and insufficient knowledge about the transmission routes are predisposing factors for occurrence of psychological disorders among these patients.

Methods: Self-administered CHQ28 questionnaire was used to find the prevalence of psychiatric disorders among 100 HBV carriers.

Results: We found depression in 30%, anxiety in 6%, functional impairment in 6%, and somatic abnormalities in 8% of HBV carriers. 36 patients had at least one psychiatric disorder.

Conclusions: The prevalence of psychiatric disorders among HBV carriers is higher than that of community. Psychiatric consultation after screening along with continuous education of patients and their families may improve this condition. Physical, psychological, spiritual and social support to HBV carriers is therefore of paramount importance.

Keywords: Hepatitis B, Psychiatry, Carrier State, Iran

Introduction

Hepatitis B is one of the common infectious diseases affecting liver. An estimated 400 million persons are carriers of hepatitis B virus (HBV) in the world today, of whom 75% reside in Asia and the Western Pacific ⁽¹⁾. Over 35% of Iranians have been exposed to HBV and almost 3% are chronic carriers. Moreover, hepatitis B is the leading cause of hepatic cirrhosis and hepatocellular carcinoma in Iran ⁽²⁾. Chronic physical disorders such as arthritis, cancer, lung disease, neurological disorders, heart diseases, human immunodeficiency virus (HIV) infection, and physical handicap are in close relation with psychiatric illnesses ⁽³⁻⁶⁾.

Hepatitis B is such a chronic condition that may affect psychiatric status of the infected patients. Patients with hepatitis B with psychiatric comorbidities can actually be divided into two categories-those with existing psychiatric illness who develop hepatitis B ^(7, 8) and those who develop mental illnesses in the context of this infectious

disease ⁽⁷⁾. Knowledge of hepatitis B-related diseases and its chronicity are some of the predisposing factors for psychological disorders. On the other hand, insufficient knowledge about the transmission routes of the virus may result in the isolation of the infected patients ^(9, 10) and subsequent psychiatric disorders.

The presence of mental illness may often pose the patient at significant risk for infectious and other diseases, and these patients may not be able or

* Correspondence:

Nasser Ebrahimi Daryani, M.D., Dr. Daryani's Clinic of Gastroenterology and Hepatology, No. 130, Nasser St., After Zafar Cross, Vali-e-Asr Ave., Tehran, Iran.

Tel: +98 21 8879 9446

Fax: +98 21 8879 9894

E-mail: nebrahim@sina.tums.ac.ir

Received: 2 Apr 2008

Revised: 10 Jun 2008

Accepted: 22 Jul 2008

Hep Mon 2008; 8 (3): 201-205

willing to report accurately such factors or symptoms. Moreover, patients would be vulnerable to concomitant substance abuse and/or dependency issues (8, 11). Psychiatric disorders in patients with hepatitis B are poorly documented. To the best of our knowledge, the only published article on psychiatric ailments of HBV carriers is from Turkey (9). Other studies included all patients with hepatitis B, either carriers or those with chronic hepatitis B (10, 12). On the other hand, HBV carriers are not under a treatment regimen, and their relation with physician may just be limited to their periodical laboratory checkups. As a consequence, the patients are poorly assessed to diagnose any psychiatric illnesses. In these patients life style risk factors are important issues that require special attention. Moreover, education of staff and patients, and social intervention in certain instances seem to be necessary. We thought that, psychiatric assessment of HBV carriers is a necessary option which could be included in patients' management. We therefore conducted this study to determine the frequency of psychiatric and functional disorders among HBV carriers in Iran.

Patients and Methods

This cross-sectional study was performed at Iranian Charity for Hepatic Patients Support between December 2004 and August 2005. The study has been approved by ethics committee of the Charity. The sample size was estimated according to the frequency of psychiatric disorders in HBV carriers (p in the following equation) reported by Atesci *et al.* (9), and rechecked within the first 30 patients included in our study as a pilot sample ($P=38.1\%$). The probability of making a type I error (α) was set to 0.05, and d to 0.09. Using the formula:

$$n = \frac{Z_{(1-\alpha/2)}^2 pq}{d^2}$$

the sample size was calculated. The sample population was consecutively selected from HBV carriers attended the Charity within the study as there were not enough HBV carriers during the time period mentioned for the study.

In average, 20 hepatic patients referred to this center daily. Among them, there were only 12 documented virus carriers per month. HBV carriers who were registered with the Iranian Charity for Hepatic Patients' clinicians were informed about the study by face to face and invited for the interview. From 113 HBV carriers referred to the Charity

within the study period, 100 who voluntarily accepted to participate in the study were included. All patients had normal serum liver enzymes since the time their infection was diagnosed which was not less than six months. None of the patients had any organic comorbidities (e.g., thalassemia, hemophilia, etc.). Known cases of psychiatric disorders (i.e., patients with history of admission to psychiatric/psychologic centers or use of psychiatric drugs), and intravenous drug abusers were not included in this study. Also, we excluded patients with psychiatric stressors including death in the family, marriage and/or occupational problems.

A self-administered CHQ28 questionnaire was used to find the prevalence of psychiatric disorders. According to a validation study in a sample of Iranian population, Palahang reported the sensitivity and specificity of this questionnaire as 86.5% and 82%, respectively (unpublished data). This questionnaire consists of 28 questions, which is divided into four blocks each with seven four-choice questions. These blocks can define anxiety, depression, somatization, and functional abnormalities. In the questionnaire, each question has four answers (A to D). According to the conventional method, A or B answers are graded as zero, and C or D are graded as one. A total grade of six or above in each block shows the presence of the suggested psychiatric disorder. Furthermore, a total grade of 23 or above for all questions, shows the absence of psychiatric health in the patient. Participants completed the self-report questionnaires. The statistical analysis was performed by SPSS version 10.0.1. χ^2 test was used to evaluate the difference between groups for categorical variables. A P value <0.05 was considered statistically significant.

Results

One-hundred HBV carriers were enrolled in this study. Among the subjects, 64 (64%) were men and 36 (36%) were women. The mean $\pm$ SD age of participants was 31.6 $\pm$ 11.6 years. Data regarding demographic features and route of infection are shown in Table 1. Out of 100 HBV carriers studied, 29 had depression; six had anxiety; six had functional impairment; and eight had somatic abnormalities. Thirty-six patients had at least one of the above-mentioned psychiatric disorders. Therefore, the total prevalence of psychiatric disorders was 36% (95% CI: 26.6%-45.4%). According to CHQ-28, 15 patients showed absence of psychiatric health (Table 2).

Table 1. Demographic features and route of patients' infection in 100 Iranian hepatitis B virus carriers.

		Male (n=64)	Female (n=36)	Total
Age (years)	18-49	54	31	85
	≥50	10	5	15
Marital status	Single	14	12	26
	Married	45	11	56
	Widowed	5	13	18
Education*	Illiterate or primary education	34	8	42
	Secondary or high school education	20	18	38
	University education	10	8	18
Monthly income of the family (Iranian Rials)	<2,500,000	29	9	38
	2,500,000-4,000,000	32	22	54
	>4,000,000	2	2	4
	Unknown	1	3	4
Route of infection**	Medical	50	18	68
	Barber	—	4	4
	Familial contact	2	3	5
	Sexual	2	10	12
	Unknown	10	1	11

*Not registered in 2 patients.

**According to the patients declaration.

Discussion

The present study showed that psychiatric disorders are one of the major problems in apparently healthy HBV carriers. People with psychiatric disorders are often socially isolated and have a poor quality of life. Recent community-based studies in Iran; reported the prevalence of psychiatric abnormalities from 12.5% to 18.5% (13). A study from Turkey reported psychiatric disorders in 13 (30.2%) of 43 HBV carriers (9). Depression was the major abnormality detected in that study (18.7%). In 1984, Lok *et al.* (12) reported that 36 (90%) of 40 HBV-positive patients had psychiatric or functional problems. Another study, which was performed on Korean immigrants with hepatitis B, reported a depression rate of 46% in 50 studied subjects (10). They demonstrated that a high rate of depression could be detected among patients with higher liver enzymes. Similar studies on patients with chronic hepatitis C showed that 22% to 44% of patients had psychiatric disorders (14, 15). The rate of psychiatric disorders in our study group was similar to the rates reported in the study performed

in Turkey (9), but was more than the rates of psychiatric disorders reported from community-based studies in Iran. Although physical limitations do not occur in healthy HBV carriers, the possibility of progression and the chronic nature of the situation may ultimately lead to the perception of having a severe disease (9).

As for other chronic diseases, a patient's and family's acceptance of such illnesses depends on many cultural and religious factors (16). The infectious character of hepatitis B, inadequate knowledge about transmission modes, and undue anxiety about transmissibility of the virus may lead to isolation of carriers (9). Another problem is the family and social acceptance of such patients. A study from United States revealed that patients with hepatitis C experienced stigmatization similar to those with lepers Stigmatization with higher anxiety, depression, a worsened quality of life, and difficulty with coping (17). Therefore, stigmatization and patients' belief about harmful effects of HBV infection such as cirrhosis, cancer and death along with misconceptions about the transmission routes are the main causes of psychiatric disorders in HBV carriers. On the other hand, HBsAg has been detected in the cerebrospinal fluid of patients with chronic schizophrenia and may be an iatrogenic factor in the development of late psychoses (18).

Our study revealed that the major problem of HBV carriers was depression and anxiety. These findings have been approved by previous studies (9, 11). Anxiety and depressive symptoms may play a disturbing role in functioning. Somatic abnormalities such as fatigue and headache can be seen in patients with HBV infection. However, it is believed that HBV carriers are asymptomatic. Therefore, it is not clear whether somatic disorders detected in our patients were the features of patients' depression or anxiety or they were totally related to the viral infection. All of the patients in the study from Turkey (9) had been educated about transmission routes of hepatitis B, but our patients never had any systematic education about this issue. A preliminary study on Iranian patients with chronic viral hepatitis revealed that about 39% of them had a poor knowledge about the transmission routes of blood-borne viral hepatitis (19). Patients' education about the transmission routes and the course of HBV infection might be preventive. However, sometimes some patients isolate themselves, because of some undue conceptions. Sometimes, family and society stigmatize the affected people. The study of Kunkel *et al.* (10) which included a range of patients from healthy carriers to those with hepatocellular cancer showed

Table 2. Psychiatric ailments among 100 hepatitis B virus carriers according to demographic categories and rout of infection.

		Anxiety (%)	Depression (%)	Functional impairment (%)	Somatic abnormalities (%)	Abnormal psychiatric health (%)
Gender	Male (n=64)	4 (6.2)	15 (23.4)	4 (6.2)	5 (7.8)	8 (12.5)
	Female (n=36)	2 (5.5)	14 (38.8)	2 (5.5)	3 (8.3)	7 (19.4)
Marital status	Single (n=26)	2 (7.6)	5 (19.2)	2 (7.6)	2 (7.6)	4 (15.3)
	Married (n=56)	4 (7.1)	11 (19.6)	2 (3.5)	4 (7.1)	6 (10.7)
	Widowed (n=18)	-	13 (72.2)*	2 (11.1)	2 (11.1)	5 (27.7)
Educational level	Illiterate or primary education (n=42)	-	11 (26.1)	2 (4.7)	4 (9.5)	2 (4.7)
	Secondary or high school education (n=38)	6 (15.7)**	18 (47.3)**	4 (10.5)	4 (10.5)	13 (34.2)*
	University (n=18)	-	-	-	-	-
Monthly income of the family (Iranian Rials)	<2,500,000 (n=38)	-	9 (23.6)	-	2 (5.2)	-
	2,500,000-4,000,000 (n=54)	6 (11.1)***	20 (37.0)	5 (9.2)	6 (11.1)	15 (27.7)**
	>4,000,000 (n=4)	-	-	1 (25)	-	-
	Unknown (n=4)	-	-	-	-	-
Route of infection	Medical (n=68)	6 (8.8)	16 (23.5)	4 (5.8)	7 (10.2)	11 (16.1)
	Barber (n=4)	-	1 (25)	-	-	-
	Familial contact (n=5)	-	3 (60)	-	-	2 (40)
	Sexual (n=12)	-	6 (50)	1 (8.3)	1 (8.3)	2 (16.6)
	Unknown (n=11)	-	3 (27.2)	1 (9.0)	-	-

*P<0.001; ** P<0.01; *** P<0.05

that threat of losing health is independent of time and current health status.

The relatively similar result obtained in the study of Atesci *et al.* (9) and ours cannot possibly estimate the rate of psychiatric disorders in HBV carriers, because in both studies the sample size studied was small. On the other hand, methods of screening were different in these studies. Nevertheless, it could be possibly considered that hepatitis B may affect patients' psychiatric status. In addition, we found that psychiatric disorders are more common among specific groups (Table 2). It revealed that socioeconomic factors may potentiate the occurrence of psychiatric disorders in such patients.

Mental illnesses are affected by chronic conditions such as viral hepatitis. Unhealthy behaviors and poor prognoses are the leading outcomes of the associated psychiatric problems. Although designing a case-control study with a

larger number of patients could show more valid results, we recommend preventive strategies such as consultation after screening along with continuous education of patients and their families in our community. Physical, psychological, spiritual and social support to HBV carriers is therefore of paramount importance.

References

1. Perillo R, Nair S. Hepatitis B and D. In: Sleisenger MH, Feldman M, Friedman LS, eds. *Gastrointestinal and Liver Disease*. 8th ed. Philadelphia: Saunders, 2006: 1647-80.
2. Meraat S, Malekzadeh R, Rezvan H, Khatibian M. Hepatitis B in Iran. *Arch Iran Med* 2000; **3**: 55-61.
3. Wells KB, Golding JM, Burnam MA. Psychiatric disorder in a sample of the general population with and without chronic medical conditions. *Am J Psychiatry* 1988; **145**: 976-81.
4. Harter M, Reuter K, Aschenbrenner A, *et al.* Psychiatric

- disorders and associated factors in cancer: results of an interview study with patients in inpatient, rehabilitation and outpatient treatment. *Eur J Cancer* 2001; **37**: 1385-93.
5. Kelly B, Raphael B, Burrows G, et al. Measuring psychological adjustment to HIV infection. *Int J Psychiatry Med* 2000; **30**: 41-59.
 6. Sherif T, Jehani T, Saadani M, Andejani AW. Adult oncology and chronically ill patients: comparison of depression, anxiety and caregivers' quality of life. *East Mediterr Health J* 2001; **7**: 502-9.
 7. Said WM, Saleh R, Jumaian N. Prevalence of hepatitis B virus among chronic schizophrenia patients. *East Mediterr Health J* 2001; **7**: 526-30.
 8. Price S, Goyette J. Role of the psychiatrist in the care of patients with hepatitis C and HIV/AIDS. *Psychiatr Q* 2003; **74**: 261-76.
 9. Atesci FC, Cetin BC, Oguzhanoglu NK, Karadag F, Turgut H. Psychiatric disorders and functioning in hepatitis B virus carriers. *Psychosomatics* 2005; **46**: 142-7.
 10. Kunkel EJ, Kim JS, Hann HW, et al. Depression in Korean immigrants with hepatitis B and related liver diseases. *Psychosomatics* 2000; **41**: 472-80.
 11. Grassi L, Mondardini D, Pavanati M, Sighinolfi L, Serra A, Ghinelli F. Suicide probability and psychological morbidity secondary to HIV infection: a control study of HIV-seropositive, hepatitis C virus (HCV)-seropositive and HIV/HCV-seronegative injecting drug users. *J Affect Disord* 2001; **64**: 195-202.
 12. Lok AS, van Leeuwen DJ, Thomas HC, Sherlock S. Psychosocial impact of chronic infection with hepatitis B virus on British patients. *Genitourin Med* 1985; **61**: 279-82.
 13. Khosravi S. Epidemiologic study of psychiatric disorders among persons aged 15 year old or above in Broojen, Iran. *Journal of Shahr-e-Kord Medical University* 2002; **4**: 31-9.
 14. Kraus MR, Schafer A, Csef H, Scheurlen M, Faller H. Emotional state, coping styles, and somatic variables in patients with chronic hepatitis C. *Psychosomatics* 2000; **41**: 377-84.
 15. Lehman CL, Cheung RC. Depression, anxiety, post-traumatic stress, and alcohol-related problems among veterans with chronic hepatitis C. *Am J Gastroenterol* 2002; **97**: 2640-6.
 16. Rifkin A, Doddi S, Karagji B, Pollack S. Religious and other predictors of psychosocial adjustment in cancer patients. *Psychosomatics* 1999; **40**: 251-6.
 17. Zickmund S, Ho EY, Masuda M, Ippolito L, LaBrecque DR. "They treated me like a leper". Stigmatization and the quality of life of patients with hepatitis C. *J Gen Intern Med* 2003; **18**: 835-44.
 18. Libikova H, Pogady J, Stancek D, Mucha V. Hepatitis B and herpes viral components in the cerebrospinal fluid of chronic schizophrenic and senile demented patients. *Acta Virol* 1981; **25**: 182-90.
 19. Daryani NE. Knowledge of Iranian patients with chronic viral hepatitis about hepatitis B and C transmission routs. *Iranian National Seminar on Hepatitis B*. Tehran: Iran, 2005.