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Awareness of chronic hepatitis b and its barriers to treatment in patient with HBV infection.

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ABSTRACT… Objective: To determine knowledge of chronic hepatitis B virus (HBV) and barrier to treatment among patients with HBV infection. **Study Design:** Cross-sectional study. **Setting:** Department of Outpatient Clinics, Gastroenterology, Liaquat National Hospital. **Period:** March 2024 to June 2024. **Methods:** Patients of age 18 years and above of either gender and Hepatitis B surface antigen (HBsAg) positive more than six months were included in this study. self-structured questionnaire was developed after performing a detailed literature search. The criteria of adequate knowledge was to answer at least 50% of correct responses. **Results:** Total 247 patients were approached for this study, out of which 230 gave consent to the part of study and completed this survey. Hence data was analyzed for these 230 patients. Mean age of patients was 43.4 ± 12 years. More than half of them were males (57.4%). Around three-fourth of participants were diagnosed with HBV upon symptoms manifestation (72.6%). Nearly half had knowledge that HBV is a viral infection (55.2%). Using threshold of 4 and above, adequate knowledge was seen in 68.7% patients. Around quarter were vaccinated according to EPI schedule (23.5%). Half of patients said they did not get vaccination because of affordability issues (50.9%). Few also said that they were afraid of vaccine (13.2%). **Conclusion:** The present study analyzed that our HBV patients were not knowledgeable about the chronic HBV virus and patients were not willing for vaccination. Steps should be taken by policy makers and healthcare providers to address this gap.

Key words: Communicable Diseases, Communicable Infection, Hepatic Disorders, Hepatitis B Virus, Liver Disease.

INTRODUCTION

The hepatitis B virus (HBV) is the infectious agent that causes hepatitis B, a liver-damaging illness. This kind of hepatitis is viral. Both acute and chronic infections may result from it. An important problem is the infection caused by the hepatitis B virus (HBV). The majority of these fatalities were caused by HBV-related complications, such as liver failure, cirrhosis, and hepatocellular cancer.[1,2] Early identification and treatment are crucial because chronic Hepatitis B carries a significant financial cost.[3]

People with Hepatitis B (PWHB) who have a high viral load, elevated blood alanine aminotransferase (ALT) level, and indications of liver fibrosis are eligible for HBV treatment, according to the American Association for the Study of Liver Disease (AASLD) practice guidelines.[4] Effective antiviral drugs for HBV, like nucleos(t)ide analogs (NAs), have become available recently.[1,4] The NAs lower the incidence of hepatocellular carcinoma and liver-related mortality, stop the development of chronic Hepatitis B into cirrhosis, and inhibit HBV replication.[4,5] Even However, just 8% of people with hepatitis B were receiving treatment globally in 2015, despite the fact that there is an effective medication for HBV.[1] While early involvement in care has been demonstrated to enhance health outcomes, lower the risk of premature deaths, and prevent complications[6], there are a number of regional obstacles that impede people with Hepatitis B from participating in care.[7]

Pakistan said that among the obstacles impeding the fight against Hepatitis B in low-income nations are the high costs of laboratory testing, a dearth of affordable medications, a lack of

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management standards, a lack of awareness, and tertiary physicians. In addition, it has been noted that long hospital wait times, inadequate infrastructure, inadequate resources, a lack of awareness regarding HBV treatment, and a fear of stigmatization are obstacles to care in nations like Burkina Faso.[7] In places like Pakistan, PWHB preference for traditional treatment is thought to be a significant barrier to care involvement. Herbal medicine is widely used in these areas, and some HCPs send patients to traditional herbal practitioners because they think herbal remedies are less expensive and more effective.

In general, a variety of elements, such as the sociocultural context, influence people's behavior when it comes to receiving care and therapy.[8] The theory of explanatory model of health and illness acknowledges the range of attitudes and beliefs people have about illness and how it is treated.[9] The etiology, the time and method of symptom onset, the pathophysiology, the course of the illness, and the therapy are the five primary dimensions of disease episodes. Until now, no such study has been able to determine the prevalence of chronic Hepatitis B and the obstacles to treatment in any comparative or prospective cohort. However, there are numerous research available for hepatitis B screening.[10]

The rational of determining the awareness of chronic Hepatitis B and its barriers to treatment among HBV patients is to figure out their recognition and understanding to the hepatitis B. Unawares to disease sign and symptoms leads to HBV transmission as the disease is easily transmittable through sharing of patient's personal use equipment like razors and sexual context. Thus, knowing their awareness to chronic HBV is important to know to emphasize to policy makers for designing education programs for masses for addressing this gap. Knowing the treatment barriers would resolve patient related issues and will also open areas of improvement for healthcare system. Therefore, we planned the current study to determine knowledge of chronic HBV and barrier to treatment among patients with HBV infection.

METHODS

The present cross-sectional survey was performed in outpatient clinics of gastroenterology department, Liaquat National Hospital, Karachi, Pakistan. The study was commenced after acquiring formal approval from hospital ethics committee (App No. 0963-2023-LNH-ERC). The study was performed during March to June, 2024. Patients of age 18 years and above of either gender and Hepatitis B surface antigen (HBsAg) positive more than six months were included in this study. Critically ill patients and patients with malignancies were excluded from this study.

A previously conducted community-based survey in Pakistan reported that 29.9% people had knowledge of Hepatitis B[9], using 95% confidence interval and 6% precision, a calculated sample was 224. A written informed consent was sought before enlisting patients. Non-probability consecutive sampling technique was used to register patients.

A self-structured questionnaire was developed after performing a detailed literature search. First part of inquired socio-demographic details including age, gender, education, occupation, monthly income and marital status. Second part assessed clinical details such as how HBV diagnosis was developed, cause of HBV infection, first person patients consulted, did they follow doctor advice regarding treatment. Knowledge was third component of the questionnaire which was explored with eight items. Each question had yes/no response. The criteria of adequate knowledge was to answer at least 50% of correct responses. Fourth component evaluated information related to barriers towards HBV screening which was evaluated using 4 items with yes/no binary response. Fifth part uncovered the immunization status as per EPI schedule.

Data was entered and analyzed using SPSS version 27. Categorical variables were summarizes as frequencies and percentages. Numerical variables were presented mean ± standard deviation. Patients' categorical features were compared among those with and without adequate knowledge using chi-square test. Statistical significance was defined based on two-

tailed p-value at 5% level.

RESULTS

Total 247 patients were approached for this study, out of which 230 gave consent to the part of study and completed this survey. Hence data was analyzed for these 230 patients. Mean age of patients was 43.4 ± 12 years. More than half of them were males (57.4%), married (80.4%) and were belonging to urban areas (57.8%), educated till 12th standard (37.8%), engaged in home based work (40.9%) and were falling in middle class socioeconomic status (46.5%). Table-I displays summary of descriptive statistics for socio-demographics.

Variables	Frequency	Percentage
Age Groups		
18-30 years	30	13
31-59 years	169	73.5
60 years and above	31	13.5
Gender		
Male	132	57.4
Female	98	42.6
Marital Status		
Married	185	80.4
Unmarried	45	19.6
Residence		
Urban	133	57.8
Rural	97	42.2
Education		
No formal education	54	23.5
Primary to secondary	62	27
Intermediate	87	37.8
Graduation	27	11.7
Occupation		
Unemployed	22	9.6
Labour	30	13
Home based work	94	40.9
Businessman	25	10.9
Retired	19	8.3
Office job	40	17.4
Monthly Income		
<24k PKR	96	41.7
25k-100k PKR	107	46.5
>100k PKR	27	11.7

Table-I. Summary of socio-demographic feature of patients

Around three-fourth of participants were diagnosed with HBV upon symptoms manifestation (72.6%). More than half were unaware of that how did they acquire HBV (60.4%) and cause of HBV (62.2%). One-third consulted first GP about their illness (33.9%). Majority said that they were not properly attended by treating consultant about their health (54.8%). Around half responded that they were explained for work-up and investigations required for the disease (55.2%) and followed the doctor advice for work-up (51.3%). Out of 112 (48.7%) patients who did not follow the doctor's advice, they reported that they used alternative medicine (32.1%) (Table-II).

Variables	Frequency	Percentage
How were you diagnosed with HBV infection?		
Symptoms	167	72.6
Went for health check-up	42	18.3
Awareness campaign	5	2.2
Went for blood donation	16	7.0
How do you think you acquired it?		
Blood recipient	22	9.6
Blade sharing in saloon	24	10.4
Sexual contact	6	2.6
Vertical transmission	7	3.0
IV drug abuse	6	2.6
Hygiene issues	24	10.4
Don't know	139	60.4
Do you think you got HBV infection because of?		
Family disease	21	9.1
Unhygienic food	45	19.6
As a punishment from God	21	9.1
Don't know	143	62.2
Whom did you consult first for your illness		
General physician	78	33.9
Specialist	48	20.9
Family member	7	3.0
Friends	8	3.5
Homeopathic doctor	62	27.0
herbalist	27	11.7
Did you follow your doctor advice regarding work-up?		
Yes	118	51.3
No	112	48.7
If no, what was reason?		
Cost	52	22.6
Awareness	25	10.9
Second opinion	9	3.9
No need of treatment	27	11.7
Lack of family support	10	4.3
Alternative medicine	36	15.7
Because of religious belief	7	3.0
Due to prolong treatment duration	21	9.1

Table-II. Summary related to HBV consultation and diagnosis

Average knowledge score was 2.3 ± 2.0. Table-III shows response distribution of patients on different knowledge items. Nearly half had knowledge that HBV is a viral infection (55.2%). Around quarter thought that HBV is a common in Pakistan (71.5%). Few knew that HBV runs in family (7.9%), HBV is a fatal disease (20.9%).

Variables	Frequency	Percentage
Do you know that HBV is a viral infection?		
Yes	128	55.7
No	102	44.3
Do you know about symptoms of HBV?		
Yes	55	23.9
No	175	76.1
Do you think HBV is a common disease in Pakistan?		
Yes	65	28.2
No	165	71.8
Does HBV runs in family?		
Yes	18	7.8
No	212	92.2
Is HBV a treatable disease?		
Yes	70	30.4
No	160	69.6
Is HBV a fatal disease?		
Yes	48	20.9
No	182	79.1
Can timely diagnosis and prompt treatment be effective for HBV disease?		
Yes	86	37.4
No	144	62.6
Do you know risk factors of HBV?		
Yes	81	35.2
No	149	64.8

Table-III. Response distribution of patients on different knowledge items.

Using threshold of 4 and above, adequate knowledge was seen in 68.7% patients. Table-IV compares features of patients among those with and without adequate HBV knowledge. Frequency of adequate and inadequate knowledge was significantly different among different age groups ($p=0.002$), educational background ($p<0.001$), occupation ($p<0.001$), residence ($p<0.001$) and monthly income ($p<0.001$).

Around half of patients reported that there is a lack of screening facility (52.2%). Some patients reported that cost as barrier of HBV screening (36.5%), religious belief as barrier (20.9%). Few reported that they were afraid of screening tests (10%). Around quarter were vaccinated according to EPI schedule (23.5%). Half of patients said they did not get vaccination because of affordability issues (50.9%). Few also said that they were afraid of vaccine (13.2%).

DISCUSSION

This study enrolled HBV diagnosed patients with mean age of 43.4 ± 12 years and there was predominance of male gender (57.4%). Other similar surveys also reported similar age group of HBV diagnosed patients and predominance of male gender.[11-13] Saba et al found that mean age of HBV patients was 48 ± 6.2 years with 47.5% male participation.[11] A study from Australia also reported that mean age chronic HBV patients was 45 years and majority were males (57%).[12] Another similar survey reported that majority of patients belonging to age group of 30-49 years (72.4%) with males proportion of 89.5%.[13]

Majority of our patients were diagnosed upon symptoms manifestation (72.6%). A very little proportion of patients was diagnosed based on awareness campaigns (2.2%), revealing the need of campaigns to alert the high-risk population for their screening and establishing prompt diagnosis to mitigate the disease impacts in our society. In another similar research, it was also revealed that majority of patients were diagnosed in blood donation process as compared to community screening, again highlighting the fact of less screening coverage in community.[13]

In this study, we developed the knowledge questionnaire comprising of 8 items. Using a threshold of >4, adequate knowledge was seen in 68.7% patients. In contrast to our study, an Australian study demonstrated inadequate knowledge among HBV patients analyzing that only 18% patients had knowledge score of ≥75%.[12] A lower knowledge level among HBV patients was also shown in a Bangladeshi study, reporting that only 22.1% patients has adequate knowledge.[14] Knowledge gap in HBV individuals was also reported in a Malaysian study which demonstrated that out of total 20 score, average knowledge score was 12.2 ± 8.8 years.[15]

Variables	Groups	Knowledge		P-Value
		Adequate N (%)	Inadequate N (%)	
Age groups	18-30 years	14(46.7)	16(53.3)	0.002
	31-59 years	56(33.1)	113(66.9)	
	60 years and above	2(6.5)	29(93.5)	
Gender	Male	48(36.4)	84(63.6)	0.055
	Female	24(24.5)	74(75.5)	
Education	No formal education	0(0)	54(100)	<0.001
	Primary to secondary	3(4.8)	59(95.2)	
	Intermediate	42(48.3)	45(51.7)	
	Graduation	27(100)	0(0)	
Occupation	Unemployed	8(36.4)	14(63.6)	<0.001
	Labor	0(0)	30(100)	
	Home based work	6(6.4)	88(93.6)	
	Businessman	19(76)	6(24)	
	Retired	2(10.5)	17(89.5)	
	Office job	37(92.5)	3(7.5)	
Residence	Urban	58(59.8)	39(40.2)	<0.001
	Rural	14(10.5)	119(89.5)	
Monthly income	<24k PKR	7(7.3)	89(92.7)	<0.001
	25k-100k PKR	41(38.3)	66(61.7)	
	>100k PKR	24(88.9)	3(11.1)	
Marital status	Married	62(33.5)	123(66.5)	
	Unmarried	10(22.2)	35(77.8)	0.143

Table-IV. Comparison of patients' features among those with and without adequate HBV knowledge

An Indian survey assessed disease specific knowledge among patients with chronic HBV and analyzed that out of total knowledge score of 10, mean score was 5.9 indicating poor disease knowledge.[16] Here an obvious point is that despite of using different knowledge assessment tool, knowledge was consistently found poor among different studies from different parts of the world. This finding highlights the casual attitude of patients towards their disease.

Surprisingly, in this survey majority of participants were not aware that HBV is a viral infection (55.7%) and it's a treatable disease (69.6%). Similarly, Mohamed R et al reported that around half of patients were unable to differentiate whether HBV is a viral or bacterial infection.[15] Around half of patients did not know that HBV is a viral diseases in a survey of Sultana R and Imtiaz KS and a higher proportion of patients did not that HBV is treatable (59.8%).[14] Similarly, 52% patients correctly answered that there are effective treatment for HBV in an Australian survey.[12] A survey from China reported that higher percentage of patients was aware that HBV can be treated with medications (91%).[17]

In this study we found that around quarters of patient were aware that blood recipient (27%), blade sharing (26.1%) and IV drugs abuse (23.5%) transmit HBV infection. However, few had knowledge of reuse of needles (14.8%), sexual contact (15.2%), child born to HBV infected mother (3.9%) and poor hygiene (15.2%) are causes of HBV infection transmission. In contrast to our findings, other study demonstrated that higher proportion of patients were aware that sexual intercourse (53.3%), sharing of needles (67.1%), blood transfusion (89.5%) and perinatal transmission (54.6%) are transmission mode.[13] Higher knowledge related to transmission mode including sharing of needles (85.3%), sexual intercourse (79.3%), perinatal transmission (83.9%) and blood transfusion (90.7%) was also reported in a Malaysian study.[15]

The study demonstrated that barriers of HBV screening in view of patients were cost, religious

belief and fear of screening test. Previous research has also suggested that inadequate health facilities, a difficult economic situation, and a lack of public knowledge regarding the spread of serious infectious illnesses, such as HBV, could be obstacles.[18,19] According to published reports, people with HBV are reluctant to reveal their illness status for fear of social rejection and stigma, which might cause them to be isolated from friends and family. So, this might be possible patients also feel hesitant due to non-acceptance in society. However, no one reported these as causes for avoiding HBV screening.

Another alarming point which we noted in our patients was that only about quarter of patients were vaccinated despite of being carriers of HBV infection. According to a systematic review that examined vaccine updates for vulnerable populations in developing nations, the high-risk population's median percentages of receiving at least one dose and full doses of hepatitis B vaccination were 50% (IQR 34.5–73%) and 39% (IQR 21.3–58%), respectively.[20] The reason for not getting vaccine dose was affordability issues among half of patients whereas some of patients were afraid to acquire infection through vaccine. Another Pakistani study also reported alike for avoiding vaccines because of cost issues (63.3%) and fear to acquiring virus from vaccine itself (19.6%).[21]

The present study suffers with a limitation that it portrays analysis of a single institution with a restricted sample size. Thus, study findings cannot be generalized for the whole Pakistani cohort. A future study should be conducted in future with a larger sample size enrolling patients throughout the country for validation of the study results.

CONCLUSION

The present study analyzed that our chronic HBV patients were not knowledgeable about the HBV virus and patients were not willing for vaccination. Steps should be taken by policy makers and healthcare providers to address this gap.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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1	Ameet Kumar	Conceptualized the study, Designed the study protocol, Initial manuscript writing, Data collection, Manuscript revision.	
2	Mansoor Ul Haq	Designed the study, Protocol Critical review & revision of initial manuscript draft.	
3	Adeel Rahat	Designed the study, Protocol Critical review & revision of initial manuscript draft.