fortune Journals

Research Article

ARCHIVES OF INTERNAL MEDICINE RESEARCH

ISSN: 2688-5654

Frequency of Viral Hepatitis among Symptomatic Patients Attending in a Tertiary Care Hospital in Dhaka

Dr. Sanjoy Kumar Saha[1], Dr. Meherunnesa[2], Dr. Sajalendu Biswas[3], Dr. Mohammad Ashaduzzaman[4], Dr. Mohammed Obaydur Rahman[5], Dr. Fareya Nadir[6], Dr. Tasnim Ahmed[7], Dr. Md. Nuruzzaman[8]

Abstract

Background: Acute viral hepatitis (AVH) is a major public health problem in developing countries like Bangladesh. Despite improving health awareness, sanitation and socio-economic conditions such infections continue to occur both in epidemic and sporadic forms in different parts of the country.

Aim of the study: The aim of the study was to assess the frequency of viral hepatitis among symptomatic patients in the Dhaka city area.

Methods: This prospective observational study was conducted in the Department of Medicine, Basundhara Ad-Din Medical College Hospital, Hasnabad, South Keranigonj, Dhaka, Bangladesh from June 2021 to July 2022. A total of 192 patients with clinical signs and symptoms of acute viral hepatitis were enrolled in this study as the study population. A purposive sampling technique was used in sample selection. All the demographic as well as clinical data were recorded. All data were processed, analyzed and disseminated by using MS Excel program.

Results: In this study, the frequency of viral hepatitis among the total participants was 58%. Encephalopathy was reported in 47% of them. Hepatitis E (HEV) was absent in the ≤10 year's age group, but its prevalence increased with age, reaching 43% in participants above 40 years. Hepatitis B (HBV) had the highest prevalence of 50% in the 11-20 years' age group, with those above 40 years being largely free from HBV. Hepatitis C (HCV) varied across age groups, peaking at 25% in the 11-20 year's age group, while those above 40 years were free from HCV.

Conclusion: The frequency of viral hepatitis among symptomatic cases is alarming. While the prevalence of hepatitis E (HEV) is lower in younger individuals compared to adults, the occurrence of hepatitis A (HAV) is equally significant in both age groups.

Keywords: Viral hepatitis; Prevalence; HAV; HBV; HCV; HEV; Symptomatic

Introduction

Worldwide, hepatitis A viruses (HAV) and hepatitis E virus (HEV) are the leading causes of acute viral hepatitis. Hepatitis A virus (HAV) and Hepatitis E virus (HEV) are transmitted via the faeco-oral route and has

Affiliation:

[1]Professor & Head, Department of Medicine, Bashundhara Ad-Din Medical College Hospital, Hasnabad, South Keranigonj, Dhaka, Bangladesh

[2]Associate Professor, Ad-din Sakina Medical College Hospital, Dhaka, Bangladesh

[3]Associate Physician, Department of Gestroenterology, Shaheed Suharawardy Medical College Hospital,

Dhaka, Bangladesh

[4]Assistant Professor, Department of Hepatology, Mugda Medical College & Hospital, Dhaka, Bangladesh

[5]Registrar, Sheikh Russel National Gastroliver Institute and Hospital, Dhaka, Bangladesh

[6]Assistant Register, Department of Opthalmology, Sir Salimullah Medical College & Mitford Hospital, Dhaka, Bangladesh

[7]Assistant Professor, Department of Pediatrics, Basundhara Ad-din Medical College Hospital, Dhaka, Bangladesh

[8]Assistant Professor, Department of Gestroenterology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

***Corresponding author:**
Dr. Sanjoy Kumar Saha, Professor & Head, Department of Medicine, Bashundhara Ad-Din Medical College and Hospital, South Keranigonj, Dhaka, Bangladesh.

e-mail: sahasanjoy072@gmail.com

Citation: Dr. Sanjoy Kumar Saha, Dr. Meherunnesa, Dr. Sajalendu Biswas, Dr. Mohammad Asahuzzaman, Dr. Mohammed Obaydur Rahman, Dr. Fareya Nadir, Dr. Tasnim Ahmed, Dr. Md. Nuruzzaman. Frequency of Viral Hepatitis among Symptomatic Patients Attending in a Tertiary Care Hospital in Dhaka. Archives of Internal Medicine Research. 7 (2024): 158-162.

Received: June 08, 2024
Accepted: July 13, 2024
Published: August 14, 2024

Dr. Saha SK, et al., Arch Intern Med Res 2024
DOI:10.26502/aimr.0174

a global distribution [1]. HAV infections are very common infections responsible for about 1.4 million new infections worldwide in each year [2]. HAV is a non-enveloped 27 nm, acid, heat, and ether resistant ribonucleic acid (RNA) virus in the genus Hepatovirus of the family Picornaviridae. "Acute viral hepatitis is a considerable public health problem affecting millions of people in Bangladesh. The most common etiology of viral hepatitis is a specific group of hepatic viruses A, B, C and E which are also denoted as HAV, HBV, HCV and HEV [4] Co-infection with hepatitis A and hepatitis E virus, hepatitis B and hepatitis C virus is quite frequent due to their shared mode of transmission [5]. In developing and developed countries, the prevalence of the etiology of viral hepatitis still remains debatable [6-8]. Antibodies to HAV can be detected during acute illness when serum aminotransferase activity is elevated. This early antibody response is predominantly of the IgM class and it persists for several months even rarely for 6 to 12 months. During convalescence, anti-HAV of the IgG class becomes the predominant antibody. Hepatitis A remains self-limited and does not progress to chronic liver diseases [9]. Hepatitis E virus or HEV is an enterically transmitted virus that occurs primarily in Africa, Asia and Central America. The IgM and IgG classes of antibodies to HEV can be detected, but the former falls rapidly after acute infection, reaching low levels after 6 months. This virus results in 20-30% mortality in pregnant women and has been implicated as a potential etiological agent for fulminant hepatic failure in developing countries. [10,11]. The objective of this current study was to assess the frequency of viral hepatitis among symptomatic patients in the Dhaka city area.

Methodology

This was a prospective observational study that was conducted in the Department of Medicine, Basundhara Ad-Din Medical College Hospital, Hasnabad, South Keranigonj, Dhaka, Bangladesh during the period from June 2021 to July 2022. A total of 192 patients with clinical signs and symptoms of acute viral hepatitis were enrolled in this study as the study subjects. A purposive sampling technique was used in sample selection. Properly written consent was taken from all the participants before data collection. As per the inclusion criteria of this study, only patients with clinical signs and symptoms of acute viral hepatitis were included. On the other hand, according to the exclusion criteria of this study, patients with a history of chronic liver disease or past history of jaundice with the duration of illness for more than 6 months and cases with acute fatty liver hepatitis, cases with alcoholic hepatitis or intrahepatic cholestasis were excluded. All the demographic and clinical information of the participants was recorded. All data were processed, analyzed and disseminated by using the MS Office program.

Result

In this study, among the total participants, 63% were male whereas the rest 37% were female. So male participants were dominant in number and the male-female ratio of the participants was 2:1. As per the age distribution of participants, we found that more than one-third (34%) of patients were from the ≤10 year's age group. Among the total participants, 34% had hepatitis A (HAV), 12% had hepatitis E (HEV), 7% had hepatitis B (HBV), and 4% had hepatitis C (HCV). On the other hand, 43% of the participants were diagnosed with non-viral hepatitis. In this study, the frequency of viral hepatitis among the total participants was 58%. Encephalopathy was reported in 47% of them. For hepatitis E (HEV), no cases were reported in the ≤10 year's age group, but its prevalence increased with age, with 43% of participants above 40 years testing positive for HEV. For Hepatitis B (HBV), the 11-20 years' age group had the highest prevalence at 50%, while participants above 40 years were about free from HBV. Hepatitis C (HCV) showed varying prevalence across different age groups, with the highest at 25% in the 11-20 years' age group. Participants above 40 years did not exhibit HCV. Among our total cases of viral hepatitis (n=111), the symptom icterus was the most common, affecting 59% of the participants, followed by fever at 49%. Encephalopathy and pain abdomen were reported in 47% and 45% of cases, respectively. Other symptoms included anorexia (38%), vomiting (24%), and malaise (17%). In viral hepatitis cases, encephalopathy grading revealed 18% with Grade I, 25% with Grade II, 15% with Grade III, and 13% with Grade IV encephalopathy. Comorbidities were present, with 19% having hypertension, 14% anxiety disorder, 10% diabetes mellitus, 9% asthma, 6% chronic obstructive pulmonary disease (COPD), and 4% chronic kidney diseases.

Table I: Distribution of participants as per age. (N=192)

Characteristics	n	%
Age distribution		
≤10 yrs.	65	34%
11-20 yrs.	42	22%
21-30 yrs.	46	24%
31-40 yrs.	16	8%
>40 yrs.	23	12%
Gender distribution		
Male	121	63%
Female	71	37%

Citation: Dr. Sanjoy Kumar Saha, Dr. Meherunnessa, Dr. Sajalendu Biswas, Dr. Mohammad Asaduzzaman, Dr. Mohammed Obaydur Rahman, Dr. Fareya Nadir, Dr. Tasnim Ahmed, Dr. Md. Nuruzzaman. Frequency of Viral Hepatitis among Symptomatic Patients Attending in a Tertiary Care Hospital in Dhaka. Archives of Internal Medicine Research. 7 (2024): 158-162

Dr. Saha SK, et al., Arch Intern Med Res 2024
DOI:10.26502/aimr.0174

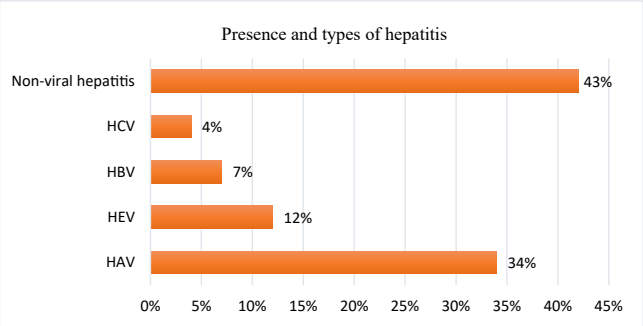

Figure 1: Bar chart showed presence and types of viral hepatitis among participants. (N=192)

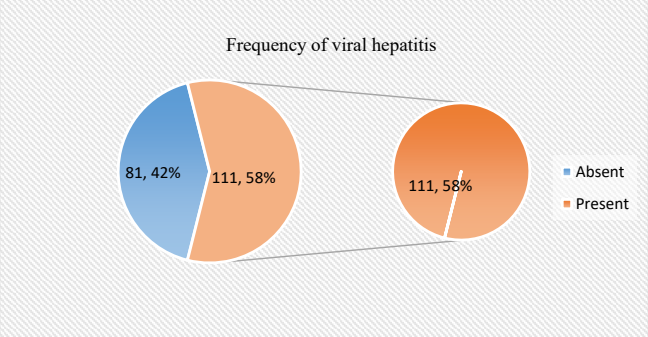

Figure 2: Pie chart showed frequency of viral hepatitis among participants. (N=192)

Table II: Age-wise distribution of several types of hepatitis. (N=192)

Age (Yrs.)	HAV (n=66)		HEV (n=23)		HBV (n=14)		HCV (n=8)		Non-viral hepatitis (n=81)	
	n	%	n	%	n	%	n	%	n	%
≤10 yrs.	10	15%	0	0%	1	7%	1	13%	18	22%
11-20 yrs.	14	21%	2	9%	3	21%	2	25%	14	17%
21-30 yrs.	18	27%	5	22%	7	50%	1	13%	17	21%
31-40 yrs.	13	20%	6	26%	2	14%	2	25%	12	15%
>40 yrs.	11	17%	10	43%	1	7%	2	25%	20	25%
Total	66	100%	23	100%	14	100%	8	100%	81	100%

Table III: Symptom distribution among viral hepatitis cases. (n=111)

Symptoms	n	%
Icterus	66	59%
Fever	54	49%
Encephalopathy	52	47%
Pain abdomen	50	45%
Anorexia	42	38%
Vomiting	27	24%
Malaise	19	17%
Diarrhea	12	11%

Table IV: Encephalopathy grading among viral hepatitis cases. (n=52)

Grade	n	%
Grade I	13	18%
Grade II	21	25%
Grade III	10	15%
Grade IV	8	13%
Total	52	100%

Citation: Dr. Sanjoy Kumar Saha, Dr. Meherunnessa, Dr. Sajalendu Biswas, Dr. Mohammad Asaduzzaman, Dr. Mohammed Obaydur Rahman, Dr. Fareya Nadir, Dr. Tasnim Ahmed, Dr. Md. Nuruzzaman. Frequency of Viral Hepatitis among Symptomatic Patients Attending in a Tertiary Care Hospital in Dhaka. Archives of Internal Medicine Research. 7 (2024): 158-162

Dr. Saha SK, et al., Arch Intern Med Res 2024
DOI:10.26502/aimr.0174

Discussion

This study aimed to assess the frequency of viral hepatitis among symptomatic patients in Dhaka city area. In this study, among the total participants, 63 were male whereas the rest 37% were female. Jain P et al also found in their study that males (62.54%) outnumbered females (37.45%) [12]. In a similar study conducted by Kumar R et al, AVH was found higher in males (66.38%) than in females (36.61%) [13]. As per the age distribution of our participants, we found that more than one-third (36%) of patients were from the ≤10 years' age group. Similar findings were found in another study [14]. Out of all our participants, 34% were found to have hepatitis A (HAV), 12% had hepatitis E (HEV), 7% had hepatitis B (HBV), and 4% had hepatitis C (HCV). Additionally, 43% of the participants were diagnosed with non-viral hepatitis. This was in accordance with another study conducted by Jain P et al which also showed a similar pattern of positivity with the highest rate of HAV: 26.96% followed by HEV: 17.97%, HBV: 16.10% and HCV: 11.98% [12]. In our study, we observed that the prevalence of hepatitis E (HEV) is lower in younger individuals compared to adults, whereas the occurrence of hepatitis A (HAV) is equally significant in both age groups. In assessing the frequency of viral hepatitis among participants, we observed that nearly half of the respondents (58%) were with viral hepatitis which was comparable with the results of other studies [15,16,]. But studies like Singh et al, Naaimi et al, Yano et al, Laxmi et al and Ayoola et al found the prevalence of HAV as 21.7 %, 44.8 %, 36.8 %, 12.7 % and 37 % respectively. That might be due to the availability of vaccines for HAV, the high prevalence of anti-HAV antibodies in the general population, environmental hygiene and improved living standards [17]. Among our total cases of viral hepatitis, icterus was the most common symptom, affecting 59% of the participants, followed by fever at 49%. Encephalopathy and abdominal pain were reported in 47% and 45% of cases, respectively. Other symptoms included anorexia (38%), vomiting (24%), and malaise (17%). Jabbar A. et al also determined icterus (100%) as the most common presenting symptom followed by fever in 87% and hepatic tenderness in 83% in the study [18]. In another study conducted by Kumar R icterus was reported in 100% of cases, followed by fever in 52.5%, abdominal pain in 50.9%, vomiting in 33%, nausea in 28.6%, anorexia in 27.8% and malaise in 25.7%" [19]. In this study, encephalopathy grading of viral hepatitis cases was performed as described by Weissenborn Karin [19]. Among viral hepatitis cases, encephalopathy grading showed 18% with Grade I, 25% with Grade II, 15% with Grade III, and 13% with Grade IV encephalopathy. Additionally, comorbidities were observed, including 19% with hypertension, 14% with anxiety disorder, 10% with diabetes mellitus, 9% with asthma, 6% with chronic obstructive pulmonary disease (COPD), and 4% with chronic kidney diseases.

Limitation of the Study

This was a single-centered study with small-sized samples. Moreover, the study was conducted over a very short period. So, the findings of this study may not reflect the exact scenario of the whole country.

Conclusion & Recommendation

This study underscores a concerning frequency of viral hepatitis among symptomatic cases. Notably, the prevalence of hepatitis E (HEV) appears to be lower in younger individuals as compared to adults, indicating a potential age-related difference in susceptibility. Conversely, the occurrence of hepatitis A (HAV) remains remarkably high across both age groups, suggesting that this particular strain of hepatitis is a significant public health concern irrespective of age. These findings emphasize the need for targeted preventive measures, such as vaccination and improved hygiene practices, to address the substantial burden of viral hepatitis, especially hepatitis A, in the studied population.

References

1. Hesamizadeh K, Sharafi H, Keyvani H et al.Hepatitis A viruses and Hepatitis E virus seroprevalence among blood donors in Tehran, Iran 16 (2016): e32215
2. Joon A,Rao P, Shenoy SM.et alPrevalence of Hepatitis A virus and Hepatitis E virus in the patients presenting with acute viral hepatitis 33 (2015): S102-105
3. Bharde PV, CHouksey VK, Shivlata L, et al. Viral hepatitis among acute heptatitis patients attending tertiary care hospital in central India. Virus Disease 30 (2019): 367-372.
4. Behera AK, Jit BP, Purohit P, Nahak SR, Chhatar S, Marndi C, Mohapatra MK, Bag
5. S. Clinical profile of viral hepatitis in a tertiary health care centre of eastern India. International Journal of Medical Research and Review 4 (2016).
6. Acharya SK, Madan K, Dattagupta S, et al. Viral hepatitis in India. Natl Med J India 19 (2006): 203-217.
7. Irshad M, Joshi YK, Acharya SK, et al. Prevalence of hepatitis B virus infection in healthy persons in North India. Natl Med J India 7 (1994): 210-212.
8. Jaiswal SB, Chitnis D, Pradeep S, et al. Prevalence of hepatitis viruses among chronic renal failure patients on hemodialysis in central India. Dialysis and Transplantation 31 (2002): 234-240.
9. Agarwal S. Anuradha, Duggal N et al. Seroprevalence of Hepatitis a Virus(HAV) and Hepatitis E Virus (HEV) Coinfection in the patients presenting with Acute Viral Hepatitis Attending a Tertiary Care Hospital in North India.

Citation: Dr. Sanjoy Kumar Saha, Dr. Meherunnessa, Dr. Sajalendu Biswas, Dr. Mohammad Asaduzzaman, Dr. Mohammed Obaydur Rahman, Dr. Fareya Nadir, Dr. Tasnim Ahmed, Dr. Md. Nuruzzaman. Frequency of Viral Hepatitis among Symptomatic Patients Attending in a Tertiary Care Hospital in Dhaka. Archives of Internal Medicine Research. 7 (2024): 158-162

Dr. Saha SK, et al., Arch Intern Med Res 2024
DOI:10.26502/aimr.0174

10. Chandra NS, Sharma A, Rai RR, et al. Contribution of hepatitis E virus in acute sporadic hepatitis in northwestern India. Indian J Med Res 136 (2012): 477-482.

11. Ahmed A, Ali IA, Ghazal H, et al. Mystery of hepatitis E virus: Recent advances in its diagnosis and management. Int J Hepatol (2015): 872431.

12. Jain P, Prakash S, Gupta S, et al. Prevalence of hepatitis A virus, heptatitis B virus, Hepatitis C virus, hepatitis D virus and hepatitis E virus as causes of acute viral hepatitis in North India: A hospital-based study. Indian Journal of Medical Microbiology 31 (2013): 261-265.

13. Kumar R, Prasad A, Agrawal AK. Study of etiological spectrum of acute viral hepatitis and prevalence of hepatotropic viruses (A, B, C, D and E) in a tertiary care hospital of Eastern India. IOSR Journal of Dental and Medical Sciences 17 (2018): 54-60.

14. Rajani M, Jais M. A Descriptive Study on Prevalence, Pattern and Coinfection of Hepatitis Viruses in Acute Infectious Hepatitis. Int J Med. Public Health 6 (2016): 165-169.

15. Monika A, Ruchi K, Ashish B et al. A study of seroprevalence and co-infection of hepatitis A and hepatitis E viruses in sporadic cases in an endemic area. J Med Sci Health 2 (2016): 1-5.

16. Agarwal S, Anuradha, Sahoo A, et al. Seroprevalence of Hepatitis a Virus (HAV) and Hepatitis E Virus (HEV) Co-infection in the Patients Presenting with Acute Viral Hepatitis Attending a Tertiary Care Hospital in North India. J Commun Dis 49 (2017): 57-60.

17. Jacobsen KH, Koopman JS. Declining hepatitis, A seroprevalence: a global review and analysis. Epidemiol. Infect 132 (2004): 1005-1022.

18. Jabbar A, Pathan M. Clinical Profile of Viral Hepatitis at a tertiary care centre in Rural Maharashtra: An Observational study. IOSR Journal of Dental and Medical Services 14 (2015): 26-28.

19. Kumar R, Prasad A, Agrawal AK. Study of etiological spectrum of acute viral hepatitis and prevalence of hepatotropic viruses (A, B, C, D and E) in a tertiary care hospital of Eastern India. IOSR Journal of Dental and Medical Sciences 17 (2018): 54-60.

20. Weissenborn, Karin. "Hepatic encephalopathy: definition, clinical grading and diagnostic principles." Drugs 79 (2019): 5-9.