Original Article

Estimation of Lost Man Days among the Viral Hepatitis Patients Attended at a Tertiary Level Hospital in Bangladesh

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DOI: https://doi.org/10.3329/jafmc.v18i1.61254

Abstract

Introduction: Viral hepatitis can *cause* a range of health problems and can be fatal. It is also prevalent in Bangladesh Armed Forces personnel and causing significant number of loss of man days.

Objective: To assess the total loss of man days due to viral hepatitis of army personnel admitted/treated in hospital.

Methods: This cross sectional study was conducted at Combined Military Hospital (CMH), Dhaka among military persons. Total 103 hepatitis patients were selected by simple random sampling from June to November 2014. Data were collected by semi-structured questionnaire and analyzed by using 'Statistical Package for Social Science (SPSS) version -19.

Results: The age range was between 20 to 43 years and mean age was 33.2 ± 5.8 years. Most of them suffered from hepatitis B (68.9%). Considering the rank structure, majority (51.4%)were Non Commissioned Officers (NCOs) and stayed in sainik line (46.6%). Due to reporting at Out Patient Department (OPD), 76.7% got 1-7 days sick rest and 73.8% have lost 1-7 man-days. Mean total man days lost was 55 ± 36 days. Mean admission days at hospital were 17 ± 13.7 days and the highest percentage was NCO (47.1%) followed by Sainik (39.7%). Total admission days of Sainik was not significantly association with admission days of NCO. But significant association was found within losing total man days between these two groups ($\chi^2 = 4.88$, $p < .05$).

Conclusion: The results confirm the significant loss of man days due to viral hepatitis infection in Armed Forces Personnel which should be considered as a public health problem.

Key-words: Combined Military Hospital (CMH), viral hepatitis, man days, sick leave, and hospital stay.

Introduction

Viral hepatitis is a cause of considerable morbidity and mortality in the human population, both from acute infection and chronic sequelae[1]. Chronic hepatitis is an important medical problem and causes significant hospital admission[2]. More so, Epidemic and sporadic viral hepatitis is a common health problem in Bangladesh[3]. Among the hepatotropic viruses, Hepatitis B virus (HBV) is the most common to follow the post hepatitis sequelae like chronic active hepatitis, cirrhosis of liver and hepatocellular carcinoma[4].

Viral hepatitis constitutes an important military health problem in all parts of the world as soldiers have to serve in areas of armed strife at the borders or outside their homelands in operations and wars as a part of the united peacekeeping operations[5]. It's also prevalent in Bangladesh Armed Forces Personnel[6]. Several studies[7,8] revealed that 3.7% and 5.6% admitted patients of various military hospitals were suffering from viral hepatitis.

A recent study[9] has been done in Dhaka among admitted hepatitis patients which showed that the mean duration of hospital stay of patient was 24.3 ± 13.7 days and the duration was significantly higher among the patients of HBV infection which measures about 20 -30 of man days loss for every hepatitis patient. Besides this 4 weeks sick leave is given to every hepatitis patient while discharge from hospital which is another loss of 30 man days. So it is very much important in public health point of view to have first-hand knowledge and information about the magnitude of the problem and also to know related factors to organize health care delivery service in a more effective way. The objective of the study was to calculate the loss of man days of patients (army personnel) admitted in Combined Military Hospital (CMH), Dhaka due to suffering from different types of viral hepatitis; also due to sick leave after discharge and sick rest. Another objective was to find out the difference in loss of man days among different ranks if any.

Materials and Methods

This cross sectional study was conducted at CMH, Dhaka Cantonment. Data of 103 hepatitis patients were collected by simple random sampling with predefined semi-structured questionnaire (in patient's native language, Bangla) and Face to face interview were taken after taking verbal consent from the participants and administrative authority. The places of study were OPD (Out Patient Department), Medical Ward-3, JCOs (Junior Commissioned Officers) ward and Officers ward of CMH. Data were collected in 6 months duration, from June 2014 to November 2014; from the patients, who were treated during the period of study. A questionnaire was prepared for data collection. The data were consolidated, processed and edited and finally analyzed by using 'Statistical Package for Social Science' (SPSS) version -19. The inclusion criteria includes: (a) Male patients. (b) Those were admitted or came for follow up in CMH Dhaka. (c) All were 1st attack of hepatitis patients. (d) Patients who were willing to participate.

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Results

The age of the hepatitis patients ranged from 20 years to 43 years. The proportion was higher among those of 35 to 39 years (32%) of age. Mean age was 33.2 with SD ± 5.8 years. In this study no female respondent was selected.

The maximum numbers of respondents were married 89(86.4%). According to living area, majority were resided in Sainik line 48(47%).The distribution of respondents according to income group, revealed that the respondents of middle income group are maximum 74(71.8%) and very high income group were mimimum 03(2.9%).

In this study hepatitis A (6.8%), hepatitis B (29.1%) and hepatitis E (6.8%) were found in highest among respondents living in Sainik line. Hepatitis B was maximum among all groups of hepatitis (68.9%). Hepatitis C was absent among the respondents living in rent house. Hepatitis E was same in respondent living in both government and rented house. Among the respondents the numbers of admitted patients were more 43(41.7%) than two groups of OPD patients (before admission or after discharge).

Table-I shows the distribution of different types of viral hepatitis according to rank status. Here it was observed that, NCOs are majority 53(51.4%) among all reported patients, as well as among the admitted patients 19 (18.4%). In this group, hepatitis B was 35 (34%) which was more then any other groups of hepatitis. In the study no respondent of hepatitis D (Non A and non B hepatitis) was found.

Table-I: Distribution of different types of viral hepatitis according to rank status (n=103)

Rank status	Type of Viral Hepatitis				Total
	Hepatitis A	Hepatitis B	Hepatitis C	Hepatitis E	
Sainik	7 (6.8%)	26 (25.2%)	1 (1%)	3 (2.9%)	37 (35.9%)
NCO	1 (1%)	35 (34%)	6 (5.8%)	11 (10.7%)	53 (51.5%)
JCO	2 (1.9%)	7 (6.8%)	0 (0%)	1 (1%)	10 (9.7%)
Officer	0 (0%)	3 (2.9%)	0 (0%)	0 (0%)	3 (2.9%)
Total	10 (9.7%)	71 (68.9%)	7 (6.8%)	15 (14.6%)	103 (100%)

Table-II shows the distribution of different types of viral hepatitis according to age groups. It revealed that, 35-39 years age group was more vulnerable than any other age groups. The respondents in this group were 33 (32.0%). Hepatitis A (2.9%) and Hepatitis E (10.7%) were more common in 30-34 years of age group 24; but Hepatitis B (23.3%) was higher in 30-34 years of age group. The respondents of hepatitis C were less than other groups of hepatitis and it was equal in 30-34, 35-39 and 40- 44 years age groups (1.9% each). Among the respondents, the highest percentage is from Hepatitis B (68.9%), followed by of hepatitis E (14.6%) and hepatitis A (9.7%).

Table-II: Distribution of different types of viral hepatitis according to age group (n=103)

Age group	Type of Viral Hepatitis				Total
	Hepatitis A	Hepatitis B	Hepatitis C	Hepatitis E	
20-24 years	2(1.9%)	6(5.8%)	1(1%)	0(0%)	9(8.7%)
25-29 years	5(4.9%)	12 (11.7%)	0(0%)	4(3.9%)	21 (20.4%)
30-34 years	0(0%)	24 (23.3%)	2(1.9%)	0(0%)	26 (25.2%)
35-39 years	3(2.9%)	17 (16.5%)	2(1.9%)	11(10.7%)	33 (32.0%)
40- 44 years	0(0%)	12 (11.7%)	2(1.9%)	0(0%)	14 (13.6%)
Total	10 (9.7%)	71 (68.9%)	7(6.8%)	15 (14.6)	103 (100%)

The distribution of respondents according to rest days showed that, majority of the participants, 79 (76.7%) availed their rest up to ten (0-10) days and only 2 (1.9%) persons got rest between 31-40 days. Here it depicts that, maximum rest had been taken by the NCOs (51.5%). In Table-III, the NCOs (47.1%) were the highest number of respondents among those who took admission for viral hepatitis and most of the days being admitted is between 21-30 days. Only 3(2.9%) respondents were admitted for 31-40 days. The percentages of officer's admission were very less (2.9%). Here association of Sainik and NCO regarding 11-20 and 21-30 admission days was not statistically significant.

Table-III: Distribution of admission days according to rank status(n=68)

Rank status	Range of admission days				Total
	11-20 days	21-30 days	31-40 days	>40 days	
Sainik	6(5.8%)	19 (18.4%)	0(0%)	2(1.9%)	27 (39.7%)
NCO	12(11.7%)	14 (13.6%)	3(2.9%)	3(2.9%)	32 (47.1%)
JCO	1(1%)	3(2.9%)	0(0%)	3(2.9%)	7 (10.3%)
Officer	0(0%)	2(1.9%)	0(0%)	0(0%)	2(2.9%)
Total	19(18.4%)	38 (36.9%)	3(2.9%)	8(7.8%)	68(100%)
Mean ± SD = 17 ± 13.7					

The distribution according to sick leave, 35(34%) of respondents had not been given sick leave and were treated as OPD cases. Total 29 (28.2%) of respondents had availed more than 4 weeks sick leave and 28(27.2%) respondents hah got sick leave less than 4 weeks.NCO has taken more sick leave(51.5%) than other groups.

The findings of loss of man days due to reporting at OPD revealed that, the maximum number of respondents (73.8%) had lost 1-7 man days due to reporting at OPD. The highest percentage (33%) of respondents had lost man days in the range of 1-30 days. Few numbers of respondents (3.9%) had lost maximum 121-150 total man days.

Table-IV shows the distribution of respondents as per rank status according to total loss of man days. NCO had lost maximum man days (51.5%) and officer had lost least man days (2.9%), due to suffering from viral hepatitis. In this NCO group, 1-30 man days loss had been taken by more persons (19.4%).

Table-IV: Distribution of respondants as per rank status according to total loss of man days (n=103)

Rank status	Range of total loss of man days					Total
	1-30 days	31-60 days	61-90 days	91-120 days	121-150 days	
Sainik	10 (9.7%)	8(7.8%)	18 (17.5%)	1(1%)	0(0%)	37 (35.9%)
NCO	20 (19.4%)	15 (14.6%)	11(10.7%)	6(5.8%	1(1%)	53 (51.5%)
JCO	3(2.9%)	2(1.9%)	0(0%)	2 (1.9%)	3(2.9%)	10 (9.7%)
Officer	1(1%)	0(0%)	0(0%)	2 (2%)	0(0%)	3(2.9%)
Total	34 (33.0%)	25 (24.3%)	29 (28.2%)	11(10.7%)	4 (3.9%)	103(100%)
Mean ± SD	55 ± 36					

Distribution of respondents as per rank status according to total loss of man days (n=59) was analyzed. Among them, 10 Sainiks had lost 1-30 man days and 18 Sainiks had lost 61-90 man days due to suffering from hepatitis. Similarly, 20 NCOs had lost 1-30 days and 11 NCOs had lost 61-90 man days. Chi square test was done and statistically significant association was found within losing total man days between these two groups ($\chi^2 = 4.88$, df = 1, $p < .05$).

Discussion

This study was carried out among 103 viral hepatitis patients treated at CMH Dhaka, where both admitted and OPD patients were included. In this study, 65.3% cases belong to the age group of 20-29 years followed by 28.6% in the age group 30 years and above. Mean age of these armed forces personals were 27.3±6.1 years. It corresponds with the finding of Mondol[10] which reflected that majority of viral hepatitis patients belong to the age group 20-29 years. This study finding was also similar to the study finding observed in a study[11]. This age group has some relation to the circumstances leading to transmission. In this study it was also found that maximum respondent were married (86.4%). It might be due to trend of earlier marriage of Sainik due to solvency. Among the participants, about 63% patients resided in Sainik line. The increase percentage of viral hepatitis cases among the respondents residing in Sainik line might be due to overcrowding, poor personal hygiene and chances of taking contaminated food and drinks from outside sources during on leave/out pass.

In this study, most hepatitis cases (87%) were found among Sainik and NCO; which indicates that, prevalence of hepatitis was more about lower socio-economic group. It agrees with the study of Hossain[12]. About 57% cases availed leave within 6 months of appearing symptoms. This data indicates that most the viral hepatitis patients might get information from outside cantonment. Mean duration of hospital stay, in this study was 17.00 ± 13.7 days and the duration was significantly higher among the patients of HBV infection (68.9%). A study by Waiz[9], on Hepatitis B profile in the Armed Forces, found that the mean duration of hospital stay was 29 days.

This study revealed that a good number of patients were admitted (41.7%) in hospital; as the viral hepatitis causes super infection with chronic liver disease and takes little longer time to be symptom free[13]. Loss of man days of army personnel were due to reporting at OPD, sick rest given at OPD by concerned specialists, total admission days due suffering from same disease, further loss of man days due to reporting at OPD for follow up and sick rest given by the concerned specialists after discharge from hospital and finally total sick leave given to the patients. Here, in Armed Forces, no such in depth hospital based research regarding loss of man days due to viral hepatitis was conducted, so far. In this study, to calculate the loss of man days of army personnel due to viral hepatitis, it was observed that 76.7% respondents have got 1-10 days sick rest and among them majority were Sainik (35.92%) and NCOs (51.45%). 1-7 man days loss had been done by the 73.8% respondents. To consider the total loss of man days of army personnel due to suffering from viral hepatitis, was 33% in the range of 1-60 days and 28.2% have lost total man days in the range of 61-90 days. The association of losing total man days due to hepatitis between Sainik and NCO groups was significant ($\chi^2 = 4.88$, df =1, $p < .05$). There was no any such study in army personnel in national and international. Though there are demographic differences, but a study in Sweden found that, lost

an average of 87 extra workdays per year due to Hepatitis[14]. Another similar finding by Jun Su (2020) in USA, found significantly higher annual sick leave, short-term and long-term disability and absence days for employees among Viral Hepatitis Patients[15]. It expresses that, patients most likely experienced with increased symptoms as the disease progress; which lead to a frequent sick leave and hospital staying. The ultimate loss of total man days, reveals that Hepatitis has significant impact on general health status of patients.

Conclusion

This study confirms the significance presence of viral hepatitis infection in Armed Forces Personnel and it should be considered as public health importance of Bangladesh Army as well as for whole nation. Moreover the percentage of hepatitis B patients (68.9%) indicates the preponderance of Hepatitis B among the Armed Forces Personnel and the highest (59%) from age group of 30-39 years. As The burden of chronic HBV and HCV remains disproportionately high in low and middle-income countries (LMICs)[16], so it leads to high morbidity in relatively young adults who are the main stream of the Armed Forces. The timely preventive measures for effective control of hepatitis like health education, increasing awareness against hepatitis transmission, safe and protective active/passive immunization can reduce more suffering of army personnel in future. It will also decrease the loss of man days as well as the morbidity burden of this disease among the Armed Forces personnel. The blood test for screening hepatitis of new recruits can also be an effective way to reduce hepatitis case in Army personnel by making of positive cases unfit which demands attention of the concerned authority.

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