

Burden of Hepatitis B and C Infection According to Socioeconomic Status

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ABSTRACT

Objective: To determine the burden of hepatitis B and C infection according to socioeconomic status.

Methodology: This cross-sectional study was conducted at medicine department of Peoples University of Medical and Health science study duration was 1 year from March 2016 to February 2017. All the hepatitis B and Hepatitis C infected patients with all age groups either gender were included in the study. All the selected patients were interviewed regarding history of previous surgeries, needle pricking history, tattooing, barber's shaving and birth history to know the suspected transmitted risk factors. All the patients were also interviewed regarding socioeconomic status. All the data was recorded in predesigned proforma.

Results: Total 200 cases were studied, most of the cases 110(55.0%) were found with age group of 31-45 years. Male were most common in this study 120(60.0%). Almost all of the male patients had a history of barber shaving, on other hand extra uses of needles/syringes were most common in both male and female as 125(63.5%) out of total study population. Hepatitis C infection was most common at 71.0%, hepatitis infection was 23.5%, while only 5.5% patients were with co-infection of HCV and HBV. The poor population is mostly infected by hepatitis B and C 48.0%. Patients having poor socioeconomic status were found significantly associated with hepatitis C infection p-value 0.001. No significant difference was in hepatitis B infection according to socioeconomic status p-value 0.282.

Conclusion: It is concluded that poor socioeconomic status was significantly associated with hepatitis C infection. Socioeconomic status not a direct risk factor of hepatitis B and C, but it is significantly responsible to develop the other risk factors.

Keywords: HBV, HCV, Socioeconomic status

Introduction

Viral hepatitis has arisen as the major health event throughout the world, including in India and Pakistan. Among the five main types of hepatitis viruses, hepatitis B virus (HBV) and hepatitis C virus (HCV) are of the greatest concern due to their burden of illness and death. HBV and HCV can cause both acute and chronic disease.^{1,2} Hepatitis B and C infection major health issue worldwide especially in developing countries and also a leading cause of morbidity and mortality including Pakistan.³ The World Health Organization (WHO) estimates that there are 350 million people with chronic HBV infection and 170 million people with chronic HCV infection worldwide, it is estimated to result in 563 000 deaths and hepatitis C in 366 000 deaths annually.⁴

Given its large population (165 million) and intermediate to high rates of infection, Pakistan is among the worst afflicted nations.⁵ Hepatitis B and C are mostly transmitted as a result of blood to blood contact, injury with contaminated instruments, sharing of contaminated needles, sexual contact and also through parental transmission from mother to child.⁶ There is strong evidence to suggest that a vast majority of these chronic viral infections in Pakistan have occurred due to the widespread practice of reusing needles and syringes.⁷ Pakistan Medical Research Council has conducted a community-based study showing a reduction in the prevalence of Hepatitis B and C to 2.5% and 4.9% respectively.^{8,9} This may be due to an

increase in public awareness regarding preventive strategies and inclusion of Hepatitis B vaccine in national immunization program since 2000, however, it still needs a lot of efforts to control Hepatitis B and C.⁹ Socioeconomic status (SES) refers to an individual's position in society and may be based on criteria such as education, occupation, income, and value of dwelling place. Cross-sectional studies from the United States, Puerto Rico, Norway, and France have found associations between different SES markers and prevalence of HCV infection.¹⁰⁻¹² Costs of medical care, distance from such facilities and a lack of transportation might be related reasons for low knowledge among these patients, who might benefit from health policies and programs that consider these factors when developing HBV and HCV awareness campaigns.¹ No adequate international especially national data is available regarding the impact of socioeconomic status on the elevated burden of Hepatitis B and C. Therefore, this study has been planned to see the association of socioeconomic status in patients presented with viral hepatitis B and C infection.

Methodology

All the hepatitis B and Hepatitis C infected patients with all age groups either gender were included in the study. Selected patients with other viral infections and not agree to participate in the study were excluded from the study. All the selected patients were interviewed regarding the history of previous surgeries, needle pricking history, tattooing, barber's shaving and birth history to know the suspected transmitted risk factors. The patients were also interviewed regarding socioeconomic status. Socioeconomic status was categorized as; poor, middle and upper according to monthly income and count of family members. The data was recorded in predesigned proforma. Data were analyzed by SPSS version 20. Simple frequency and percentage were calculated for categorical variables like gender, mode of transmission and socioeconomic status. Mean and standard deviation was calculated for numerical variables like age and duration disease. Chi-square test was applied and a p-value less than 0.05 was considered as significant.

Results

Total 200 cases were studied, most of the cases 110(55.0%) were found with age group of 31-45 years, 65(32.5%) cases were with age group of 46-60 years, while only 25(12.5%) patients were noted with age group of 15-30 years. Male were most common in this study 120(60.0%), while female were 80(40.0%). 105(52.0%) patients were from urban areas and 95(47.5%) were from rural areas. Table I

Table I: Demographic characteristics of patients (n=200)

Variables	Frequency (%)
Age groups	
15-30 years	25(12.5%)
31-45 years	110(55.0%)
46-60 or >60 years	65(32.5%)
Total	200(100.0%)
Gender	
Male	120(60.0%)
Female	80(40.0%)
Total	200(100.0%)
Residential status	
Rural	95(47.5%)
Urban	105(52.0%)
Total	200(100.0%)
Risk factors	
Extra uses of needles/syringes	125(63.5%)
Barber shave	105(52.5%)
Tattooing	10(5.0%)
History of previous surgeries	30(15.0%)
History of blood transfusion	24(12.5%)
Unknown	50(25.0%)

(Mean age =38.05±6.66 years)

In this study almost, all of the male patients had history of barber shaving, on other hand extra uses of needles/syringes were most common in both male and female as 125(63.5%) out of total study population, 30(15.0%) cases had surgical history and 24(12.5%) cases had a history of blood transfusion and from these cases mostly were female with C-section history, while 50(25.0%) patients were unknown. Table II.

Hepatitis C infection was most common at 71.0%, hepatitis B infection was 23.5%, while only 5.5% patients were with co-infection of HCV and HBV. Figure. 1.

Poor population is mostly infected by hepatitis B and C according to findings of this study, as out of total cases 48.0% were with poor socioeconomic status, patients of middle socioeconomic status were 31.5%, while only 20.5% upper socioeconomic population was infected by hepatitis B and C. Figure 1

Patients having poor socioeconomic status were found significantly associated with hepatitis C infection, as out total 142 HCV patients 71 cases were poor, 43 having middle socioeconomic status and 28 were presented with upper socioeconomic status, p-value 0.001. No significant difference was in hepatitis B infection according to socioeconomic status p-value 0.282, and similarly no significant difference was found

in HCV and HBV co-infection according to socioeconomic status p-value 0.092. Table II.

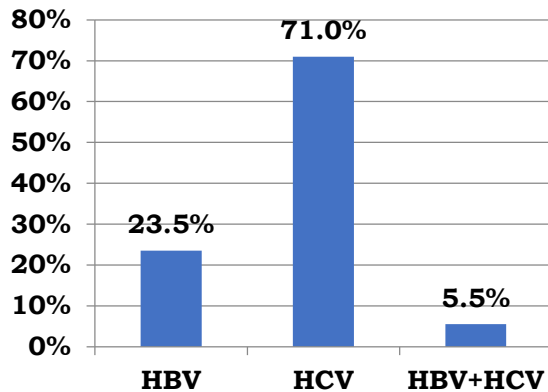


Figure 1. Patients distribution according to HBV and HCV infection (n=200)

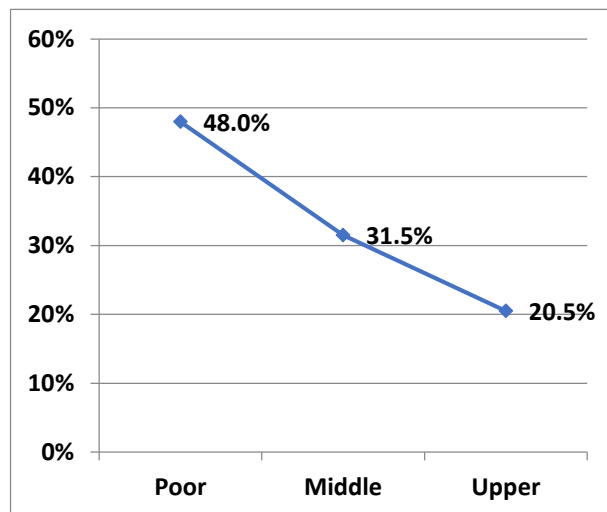


Figure 2. Patients distribution according to socioeconomic status (n=200)

Table II: Association of socioeconomic status with HBV and HCV (n=200)

Viral Hepatitis	Socioeconomic status			Total	P-value
	Poor	Middle	Upper		
HCV	71	43	28	142	0.001
HBV	18	19	10	47	0.282
HCV+HBV	07	01	03	11	0.092
Total	96	63	41	200	0.001

Discussion

Prevalence of hepatitis B and C is big prevalent in developing countries, lower quality of life and wellbeing level may be held responsible for it.¹³ This study has been conducted to evaluate

the significant impact of socioeconomic status on the transmitted burden of hepatitis B and C. In this study we found poor socioeconomic status was most common 48.0% out total study participants and was significantly associated with hepatitis C infection. Socioeconomic status not a direct risk of transmission of viral hepatitis, but it was the main event behind other risk factors as poor patients mostly from rural areas cant travel to tertiary care hospitals for treatment and therefore they prefer the local and unqualified doctors, where no any proper method of treatment, with big pricking methods and reuses of syringes, similarly pregnant women were also select the local maternity homes due unavailability of resources. Poor patients also can't afford the private Hospitals; therefore, after this study, it can say that poor socioeconomic status is the big risk factor behind the transmission of viral hepatitis in our population. In this study extra uses of needles/syringes was most common in both male and female as 125(63.5%) out of total study population, 30(15.0%) cases had surgical history and 24(12.5%) cases had history of blood transfusion and from these cases mostly were female with C-section history. In the study of Khan et al.¹⁴ reported that after the interview, 203 adult patients as they left local clinics in a peri-urban community just outside of Karachi (Sindh), the major port city located in southern Pakistan. In another study of Khan J et al¹⁵ stated that 67% patients had history of intravenous fluid therapy and blood transfusion history. Sali et al.¹⁶ visits the dentists and stated that dental procedures done by individuals other than dentists by which increased the risk of hepatitis B. Omland LH et al¹⁷ stated that mostly were HCV infected cases and 50% of patients were registered as the injection drug users. In this study almost, all male patients had a history of barber shaving and mostly were unaware as it is the risk factor, and unfortunately educated and aware patients also preferred the barber shave. It has been suspected that the barber's shaving habits may spread the hepatitis B and C by using the contaminated razors. Janjua and Nizamy eta al,¹⁸ conducted a cross-sectional study on barbers shaving in Rawalpindi/Islamabad and stated that only 13% knew that hepatitis could be transmitted through contaminated razors. It is suspected that the contaminated razors may increase the HBV and HCV transmissions, but their relative importance is still not clear.¹⁸ Due to barber shaving in this series male patients were in majority as 120(60.0%), while female were 80(40.0%). 105(52.0%) patients were from urban areas and 95(47.5%) were from rural areas. Similarly, on other hand Khan J et al¹⁵ reported that 77 (70%) were

males and 33 (30%) were female, 60% cases were from rural areas.

In this study Hepatitis C infection was most common at 71.0%, hepatitis B infection was 23.5%, while only 5.5% patients were with co-infection of HCV and HBV. In many other studies, hepatitis C prevalence was high as compare hepatitis B, in this series HCV prevalence is higher as compared to other studies and this may because in the present study all cases of HCV and HBV have been enrolled. In this series poor population is mostly infected by hepatitis B and C according to findings of this study, as out of total cases 48.0% were with poor socioeconomic status. Socioeconomic status (SES) refers to the position of an individual in the society and may basis on criteria such as educational, occupational, income, and the values of the dwelling place.¹⁹ In this series patients having poor socioeconomic status were found significantly associated with hepatitis C infection, as out total 142 HCV patients 71 cases were poor, 43 having middle socioeconomic status and 28 were presented with upper socioeconomic status, p-value 0.001. Similarly in the study of Omland LH et al¹⁷ demonstrated that low SES is linked with the elevated risk of hepatitis C infection and that once infected, patients with low SES have higher mortality. On another hand it is reported that the mechanism underlying the increased risk of HCV infection among patients with low SES is poorly understood.²⁰ It is suspected that the undocumented intravenous drug uses in a persons with low SES could explain the association.²¹

Conclusion

It is concluded that poor socioeconomic status was significantly associated with hepatitis C infection. Socioeconomic status not a direct risk factor of hepatitis B and C, but it is significantly responsible to develop the other risk factors. Strategies should be developed to control the risk factors related to poor socioeconomic status to decrease the burden of hepatitis B and C.

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