Pak J Med Res
Vol. 58, No. 3, 2019

Original Article

Hepatitis B & C: Frequency and Association with the Use of Mourning Blades among the Shiite Population of University of AJK Muzaffarabad and AJK Medical College Muzaffarabad Azad Jammu & Kashmir (AJK)

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Abstract

Background: Flagellation with blades has been a ritual performed exclusively by Shiite population. People share blades during this ritual and become prone to various blood borne infections including the viral infections like hepatitis B and C.
Objective: To determine the frequency of hepatitis B and C virus in Shiite population of University of AJK Muzaffarabad and AJK Medical College Muzaffarabad and its relationship with the ritual of zanjeer zani (flagellation with blades).
Study type, settings and duration: The comparative study was conducted in University of AJK Muzaffarabad and AJK Medical College Muzaffarabad from May to August 2017.
Methodology: All Shiite population of The University of AJK Muzaffarabad and AJK Medical College Muzaffarabad was screened for HBV and HCV by using the ELISA method. Questionnaires were given to determine the trend of performing the ritual of zanjeer zani among the target population. Descriptive statistics and logistic regression were used to establish the association between the study variables.
Results: Out of 761 subjects, 401 were male and 360 were female. Mean age of the subjects was 24.5 (±7.975) years. Among them 34 (4.5%) had positive viral serology including 10 (1.3%) for HCV and 24 (3.2%) for HBV infection. Increasing age and mourning ritual of zanjir zani had *p*-value <0.05 when compared among groups with positive and negative viral serology upon application of chi-square and binary logistic regression analysis.
Conclusion: The presence of Hepatitis B and C virus among the Shiite population, the ritual of zanjeer zani has emerged as an independent factor. It is concluded that special attention should be paid to the people who perform this ritual without taking the safety measures because sharing the equipment can be a cause of transmission of virus.
Key words: HBV, HCV, Shiite population.

Introduction

Hepatitis B virus is a potentially life-threatening cause of liver disease around the world. It not only causes chronic infection but also put the patients at high risk of death from cirrhosis and liver cancer.[1] Similarly HCV infection is also among the life threatening public health problems worldwide, with over 170–200 million infected people[2] including about 11.5% population of Pakistan.[3] Intravenous drug users are the most vulnerable group of population in our set up with a clear male predominance.[4] Usually HBV and HCV are transmitted through percutaneous or parenteral contact with infected blood, body fluids, and by sexual intercourse. Vertical transmission from infected mother to child is also a route for transmission of these infections.[5,6] A study on a student group in Gujranwala is related in this regard and elaborates that there is comparatively

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Received: 31 January 2019, **Accepted:** 08 August 2019,
Published: 15 October 2019

Authors Contribution

FAK conceptualized the project along with data collection. SAA, did the literature search & data statistical analysis. Drafting, revision and writing of manuscript was done by UBZ.

less prevalence of HBV and HCV in college students than general population.[7] But there is limited work available on caste-wise or sect-wise prevalence of Hepatitis B and C among our population. Only study on Shia blood donor population suggests there is a constant need of awareness in Shiite population about the risks and management of blood borne diseases including HBV and HCV.[8] Every year a large number of Shiites perform several Muharram rituals on the day of Ashura which is the 10th of Muharram, the first Islamic month. One of the rituals is known as Tatbir (in Arabic) or Zanjeer Zani (in Urdu) or flagellation in which Shiites use sharp blades (the mourning blades) connected with chains to bleed their heads and backs. These mourning blades are shared by many people without disinfection or sterilization. It is almost impossible to impose good hygiene in these environments and individual blood mourners generally do not implement any safety measures. Studies done in Iran revealed that areas with predominant Shiite populations show more prevalence of hepatitis B and C.[9,10] A study done in Kashmir, Pakistan also revealed that hepatitis B infection was more common among the Shiite group as compared to Sunni group which do not follow the ritual of zanjir zani.[11]

Limited work has been done so far on Shiite population regarding the prevalence of these viral infections in this group of population in Pakistan or Azad Jammu Kashmir. If established, ritual of zanjir zani can be a preventable cause of hepatitis virus transmission so this study was planned with the rationale to look for the frequency of HBV and HCV among the Shiite population of AJK and look for any relationship with the ritual of flagellation with blades.

Methodology

This study was carried out at the University of AJK, Muzaffarabad (Hattian Bala and Neelum Campuses) and AJK Medical College Muzaffarabad over a period of 3 months from May 2017 to August 2017. It included Shia students, faculty members and staff members of both genders and all the age groups.

After written consent Shia population of the different campuses of AJK university and Medical College's 76% participants were enrolled. 3cc venous blood sample was collected in gel tubes and kept at room temperature for 10 minutes. The samples were then centrifuged for 5 min at 4000 rpm. Serum was separated and stored in Eppendorf tubes at refrigerator for further use. The serum was screened for HBV antigen and HCV antibodies. Sandwich ELISA procedure was performed with Abbiotec machine which was USA made with model no LP 108-sandwich ELISA. The sample to be analyzed was added to the well and procedure was adopted as per protocol of the product manufacturer company. Personal data and data regarding the ritual of zanjir zani were collected on predesigned proforma.

Statistical package of social sciences SPSS 23.0 was used for statistical analysis. Chi-square and binary logistic regression analysis was performed to see the factors linked with hepatitis B and C infection.

Ethical approval for the study was taken by Institutional Review Board of Poonch Medical College, Rawalakot, Azad Kashmir.

Results

Total 770 Shiites were approached in the various campuses of AJK University and AJK Medical College Muzaffarabad. Among them 06 did not give consent and 02 did not give complete baseline data so remaining 761 subjects were included in the final analysis. Out of these 761, 401 were male and 360 were female. Mean age of the subjects was 24.5±7.975 years. Among them 34 (4.5%) had positive viral serology and 10(1.3%) were HCV positive while 24 (3.2%) were HBV positive. Increasing age and mourning ritual of zanjir zani were significantly associated with the positive viral serology when chi-square and logistic regression were applied (Table 1 & 2).

Table 1: Factors associated with positive viral serology.

Socio demo-graphic factors	*Subjects with negative viral serology*	*Subjects with positive viral serology*		
Total	*n (%) 727(95.5)*	*n % 34 (4.5)*	*χ^2*	*p-value*
Age< 20	250 (34.4)	1 (2.9)	14.531	<0.001
years ≥ 20	477 (65.6)	33 (97.1)		
Gender				
Female	349 (48.1)	11 (32.3)		
Male	378 (51.9)	23 (67.7)	3.192	0.081
Mourning with blades				
No	544 (74.8)	16 (47.1)	12.887	0.001
Yes	183 (25.2)	18 (52.9)		

Discussion

Mourning ritual of zanjir zani is performed by the Shiite population every year. It involves the bloodshed by the use of mourning blades. These blades are shared by many people on the spot and

there is a great chance of the transmission of blood-borne diseases including Hepatitis B and C.

Table 2: The correlated factors relating to positive viral serology: the binary logistic regression.

	B	*p-value*	*Odds ratio*	*Confidence Interval*	
				Lower	*Upper*
Age (ref. is <20)	2.722	0.008	15.204	2.059	112.272
Gender (ref. is female)	0.206	0.689	0.814	0.297	2.230
Mourning with blades (ref. is not practicing with blades)	1.167	0.016	3.214	1.241	8.322

Infectious HCV can persist as a dried sample for up to 1 week.[12] Similarly HBV can also survive in plasma or dried surfaces for up to a week at normal room temperature.[13] These viruses can remain on the mourning blades and can spread from one individual to other during the event. Present study found that among the Shiite population of AJK there is a clear male predominance in the positive cases. The general prevalence of Hepatitis B in Pakistan has been 2.5%[14] but this study showed higher prevalence (3.2%) of Hepatitis B in Shiite population. However, hepatitis C is less prevalent in this study population as compared to the general population of Pakistan.[14] In comparison with a similar college-based study conducted in Gujranwala which included subjects from all the sects, the total prevalence of Hepatitis B and C was higher in this study (4.5% as compared to 3.4%).[7] Overall the prevalence of hepatitis B in Shiite population of AJK found in this study (3.2%)was greater than the Hepatitis B prevalence in Sindh (2.5%), Punjab (2.4%), KPK (1.3%)[15] and Baluchistan (4.3%). However, prevalence of hepatitis C in the present studied group (1.3%) was far lesser than previously reported in general population from Punjab (6.7%) and Sindh (5.0%) and almost equal to KPK (1.1%) and Baluchistan (1.5%).[15]

Ritual of mourning with the blades had a significant relationship with positive viral serology in AJK, Pakistan. It was in accordance with the studies done in the past which showed that blade sharing is associated with high rates of viral transmission.[16,17]

Hepatitis B and C are major causes of liver cirrhosis in our set up and responsible for increase in the number of patients which are qualifying for the liver transplant.[18] This is increasing the burden on our health care budget. Prevention with cost effective measures is a real key for the problem and small measures during the mourning ritual can protect the Shiite population from acquiring these deadly infections.

This study had few limitations as well. The target population comprised of apparently healthy individuals living in an urban area from a college population. Results may differ if we include rural population and high risk groups such as health workers or intravenous drug users. Therefore, these results cannot be generalized for all the Shiite population. Larger studies in the future with more representative sample size may be helpful in generalizing the result and establishing a relationship between zanjir zani and increased spread of viral infections.

The presence of Hepatitis B and C virus among the Shiite population, the ritual of zanjeer zani has emerged as an independent factor. It is concluded that special attention should be paid to the people who perform this ritual without taking the safety measures because sharing the equipment can be a cause of transmission of virus.

Conflict of interest: None declared.

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