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Original Article

Frequency and Associated Risk Factors of Hepatitis B and C Infection in Tehsil Fort Abbas, Pakistan

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Abstract

Background: More than 12 million people are suffering from hepatitis infection in Pakistan and most of them are unaware of that. Hepatitis transmission occurs from one person to another through body fluids and can be controlled by risk factor awareness in the general public.
Objective: To study the frequency and associated risk factors of Hepatitis B and C infection in Tehsil Fort Abbas.
Study type, settings & duration: A cross-sectional, descriptive study carried out at Tehsil head quarter hospital Fort Abbas, Punjab, Pakistan from December 2019 to May 2020.
Methodology: The general population was screened during the study. Participants were interviewed using a semi-structured questionnaire.
Results: Overall frequency of hepatitis B &C recorded was 5.75%, whereas frequency of Hepatitis B in the study area was 2.68% while for HCV it was 3.07%. Reuse of syringes, unsafe medical procedures and equipment usage, unsafe shaving, etc. are some important risk factors. The study showed the high-risk groups of population and high-risk factors seen in positive patients of hepatitis.
Conclusion: History of surgery in females and shaving history in male was considered as the most associated risk factor during the study. By overcoming these risk factors and giving awareness to the general public, the frequency of hepatitis can be reduced.
Key words: Hepatitis B, hepatitis C, hepatitis control program, PCR, quack, risk factors.

Introduction

Hepatitis B virus (HBV) and Hepatitis C virus (HCV) infections are some of the most fatal and life-threatening diseases in developing and underdeveloped countries.[1] Safety measures are least in these countries and also public awareness about risk factors and transmission is not good enough.[2-4]

The frequency of Hepatitis in Pakistan ranges from 2.3-2.5% for Hepatitis B in the general population while that of HCV is 2.6-5.3%. It varies from area to area in different regions of Pakistan.[5] Pakistan also holds 2nd position in the list of most prevalent countries of HCV.[6]

Delay in diagnosis can lead to complications like cirrhosis, chronic liver disorder, and an increase in disease ratio in Pakistan.[7] Studies were conducted to find out the risk factors transmitting HBV and HCV. According to a study's findings, it was found that people with more than 4 injections per year had 10 times more risk of getting hepatitis infection.[8] Increased use of injections and unsafe shaves from saloons,[9] transfusion of blood without following Standard Operational Procedures (SOPs), procedures involving un-sterilized surgical equipments, quackery practices, unsafe dentistry procedures are stated as an alarming risk factor in a study.[10] Health service providers were also found at great risk[11] and also people with a history of getting hospitalized were considered a high-risk population.[12]

Mothers which have virus infection in them are believed to transfer the virus to the fetus during pregnancy. Children born with Hepatitis C virus are

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Authors Contribution

HI conceptualized the project and did the data collection. FA did the literature search & statistical analysis. The drafting, revision & writing of manuscript were done by AR.

likely to need Intensive care unit (ICU), aided ventilation and low birth weight as compared to normal child.[13]

Hepatitis is a major threat to public health because of its nature of transmission from one person to another yet information and awareness status[14] about risk factors in the general population in Pakistan is very low as compared to developed countries.[3] To the best of our knowledge limited data was available regarding burden of this fatal disease in the study area. Therefore, the purpose of the study was to find out the frequency of Hepatitis B&C viral infection burden in that particular area focusing on the most associated risk factors. Hence, to provide evidence for further workup to prevent and control hepatitis B and C infection.

Methodology

The study was conducted with the support of the Hepatitis Control Program of Punjab government supported by WHO at Tehsil headquarter hospital Fort Abbas. Patients were screened for Hepatitis B and C virus. General population was included in study who were residents of Fort Abbas. The duration of the study was 6 months starting from December 2019 to May 2020. Patients were screened on ICT (Immunochromato graphic technique) by rapid testing and those who were positive, PCR for RNA and DNA of HCV and HBV respectively was referred. Those who were positive on real-time PCR were interviewed using a semi-structured questionnaire to study the probable risk factors. The sample size was calculated using the EPI portal of CDC[15] with reference to the population of Tehsil Fort Abbas. Written consent was taken from participants to use their data for research purposes. The permission was granted from Institutional review board of the National Institute of Health. Permission letter to use the data for research from Hepatitis control program of THQ Hospital was taken as well. Data was kept confidential and secure and SPSS was used to analyze data.

The ethical approval was taken from Institutional Review Board (IRB) of National Institute of Health (NIH), Islamabad.

Results

In a timeframe of 06 months, a total of 3058 patients were screened for Hepatitis B and C virus at Hepatitis control program THQ hospital. Out of them, 181 came out to be positive on the ICT rapid test and were referred for real-time Polymerase Chain Reaction (PCR) of Serum to find out viral load and presence of Viral RNA and DNA for HCV and HBV respectively. Out of those 181, 176 were positive on PCR testing. To study the risk factors these patients were interviewed for exposure to unsafe practices in their daily life which can cause transmission of disease. Overall combined frequency of both Hepatitis B&C recorded was 5.75 %. Frequency of HBV and HCV was recorded to be 2.68% and 3.07% respectively. Hepatitis C frequency was recorded more than that of HBV. Patients were asked about visiting barbershops, having history of surgery, injections and hospitalization, and getting any dental treatment. Out of 176 patients, 80% (n=142) were married as given in Table-1. Results showed that 87% of females and 78% of men were married among patients with Hepatitis virus. Hepatitis frequency was also seen higher in the age range of 30 to 40 years old as shown in Table-1.

As stated in Table-2, 20% acknowledged of having history of frequently used injectables and almost 20% also had history of hospitalization once in their life, whereas 22% of patients mentioned that they had dental treatments in the past. Blood transfusion history was found in18% of cases. More than 20% of people have history of close contact with hepatitis positive patients. Drug history was recorded in 10% of patients. People who had someone closer diagnosed with hepatitis and used injectables periodically had a high frequency of HBV, similarly who were hospitalized or had a history of blood transfusion had a higher frequency of HCV.

Patients were also asked about a history of undergoing a surgical procedure ever and stats showed that out of 82 Females who were interviewed, 53 had a surgical procedure once in their life which is almost 65% of interviewed females and 30% of the sample size. Male who had a surgical procedure were 8% of the total sample size.

On the other hand, a comparison of shaving trends among males was studied and stats as showed in figure revealed that out of 90 Infected males, 71 used to go to public saloons for shave which is almost 80% of male sample and 51% of total sample size. One transgender acknowledged going to a public saloon for shaving.

Patients were also asked about having a history of having an STD or chronic dieses or had any dialysis procedures, 16 patients (i.e., 9.1% of sample size) had a history of such circumstances. Patients were also asked that were they satisfied with the facilities provided at Hepatitis Control Program reference to the availability of free medicine, free vaccination and screening, free referral of PCR to the centralized reference lab, and cooperative staff, 97% of patients were completely satisfied with the services.

Table 1: Marital status of Hepatitis patients and its cross tabulation with age and gender.

Gender			*Age(n)*				*Total(n)*
			10-20	*20-30*	*30-40*	*40+*	
Male	Marital Status	Married(n)	1	14	33	22	70
		Un-Married(n)	3	12	4	1	20
	Total(n)		4	26	37	23	90
Female	Marital Status	Married(n)	1	18	30	23	72
		Un-Married(n)	1	8	1	0	10
	Total(n)		2	26	31	23	82
Transgender	Marital Status	Un-Married(n)		1	3		4
	Total			1	3		4
Total	Marital Status	Married(n)	2	32	63	45	142
		Un-Married(n)	4	21	8	1	34
	Total(n)		6	53	71	46	176

Table 2: Comparison of different risk factors and their respective frequency with Infection type.

Risk Factors	*Answers*	*Infection Type*	*Infection Type*	*Statistics*
Drug History:		Hepatitis B	Hepatitis C	Total
	Yes	14	5	19 (10%)
	No	71	86	157
Total		85	91	176
Hepatitis in Someone closer				
	Yes	29	19	38 (20%)
	No	56	72	138
Total		85	91	176
Blood Transfusion History				
	Yes	11	21	32 (18.1%)
	No	74	70	144
Total		85	91	176
Dental Treatment				
	Yes	18	22	40 (22.2%)
	No	67	69	136
Total		85	91	176
Do You ever was hospitalized?				
	Yes	10	25	35 (19.8%)
	No	75	66	141
Total		85	91	176
History of having many injectables in short time?				
	Yes	16	20	36 (20.4%)
	No	69	71	140
Total		85	91	176

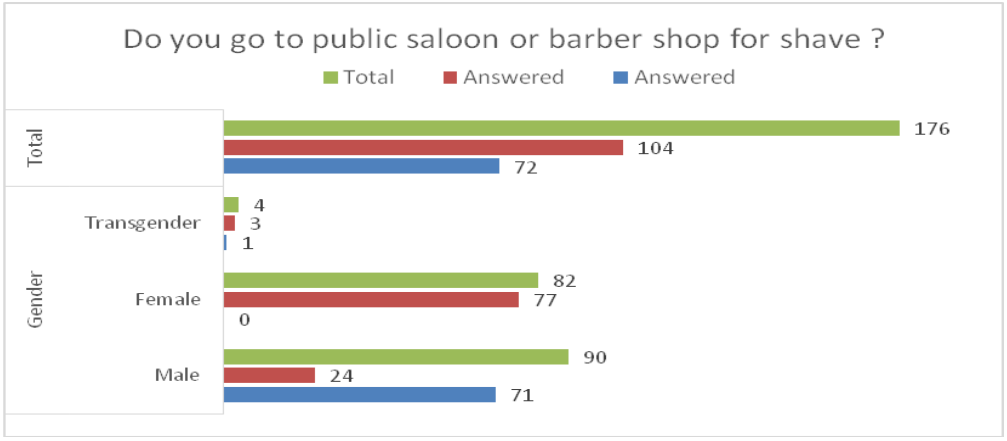

Figure: Public Shaving trends among male patients.

Discussion

Data was collected from positive patients and risk factors were studied, to find possible ways of hepatitis transmission. According to a study, the Drug users have risk of Hepatitis transmission because of the use of injectables.[8] In our study, almost 10% of positive cases of hepatitis told that they use some kind of drugs.[16] It was asked from patients if they had someone closer in their family infected and 20% of positive cases had the same condition. Similarly, patients were inquired about having a blood transfusion ever and 18% of cases had blood transfusion once in their life. Health-related procedures like dental treatment, hospitalization, IV injections are factors that are high-risk activities[17,18] Twenty two percent of Hepatitis patients have history of dental treatment, in past 6 months. They didn't know anything about instruments used in their treatment if they were sterilized or not. Dental treatments without sterilization of surgical tools can cause transmission of virus.[19]

Similarly, hospitalization is a high-risk factor in the transmission of Hepatitis, and 19.8% of cases were hospitalized once in their life. Of all therapeutic IV injections used worldwide, almost 50% of them are not safe and almost 80% did not even need them.[17,20] More than 20% of cases had a history of having many injectables in a shorter time period. Barbering tattooing and body piercing are risk exposures too.[18,21]

Studies showed a higher frequency of hepatitis in people with surgical histories, low social status, more unsafe medical procedures[5,22.] Females were found to have more surgical procedures possibly because of C-sections and pregnancy complications. Out of 82 females, 53 had a surgical procedure in their past 06 months which is 65% of reference patients (Females only). A surgical procedure is considered to be a high-risk factor.[19] Hepatitis treatment is not possible during pregnancy which adds to its complications.[23]

Most men aged 20 years and above go to barber shops for shave. The higher incidence of HCV in males than females can be due to contact with unsterilized and used razors.[24] Out of 90 male patients, 71 (almost 80%) were found using public saloons and barber shops for shave and haircut. This is alarming because of the lack of sterilization facilities the risk of hepatitis transmission is high.[11,18] People were also asked about having any STD, dialysis procedures or chronic inflammations and 9.1% cases had these complication along hepatitis.

Facilities like free treatment, vaccination, screening and PCR referral made more than 97% patients saying that they were satisfied with the facilities provided in Hepatitis Control Program of Government.[10,25]

Our study has limitations like small sample size and limited resources, therefore it is suggested to arrange a study at larger scale to find out most associated risk factors of Hepatitis which can be helpful in awareness campaigns among general public resulting decrease in Hepatitis frequency.

Despite the Hepatitis control programs running all over the country, the frequency of hepatitis is still higher instead of reducing. Our study showed the frequency, important risk factors and their association with Hepatitis B and C infection. Most associated risk factors includes use of blades for a shave in male, history of surgery in females and dental treatments, hospital history and having a close relative with hepatitis for both genders. Services being provided at the hepatitis control program were found satisfactory to the general population. Campaigns and awareness drive about risk factors should be arranged for the prevention of the general population. The high-risk population and their families should be screened periodically. Improvement in the field healthcare structures should be looked for by providing tests with immediate results, advice, immunization or treatment if appropriate.

Conflict of interest: None declared.

References

1. WHO EMRO. Prevention and control of hepatitis Programmes Pakistan. (Accessed on 17th March 2021) Available at: http://www.emro.who.int/pak/programmes/prevention-a-control-of-hepatitis.html
2. Lavanchy D. The global burden of hepatitis C. Liver Int 2009; 29(Suppl-1): 74–81.
3. Shepard CW, Finelli L, Alter MJ. Global epidemiology of hepatitis C virus infection. Lancet Infect Dis 2005; 5: 558–67.
4. Rantala M, van de Laar MJ. Surveillance and epidemiology of hepatitis B and C in Europe – a review. Eurosurveillance 2008;13(21):18880.
5. Qureshi H, Bile KM, Jooma R, Alam SE, Afridi HUR. Frequency of hepatitis B and C viral infections in Pakistan: findings of a national survey appealing for effective prevention and control measures. East Mediterr Health J 2010;16 Suppl: S15-23.
6. Alter MJ. Epidemiology of hepatitis C virus infection. World J Gastroenterol 2007; 13(17): 2436–41.
7. Ghias M, Khalid Pervaiz M. Identification of epidemiological risk factors for hepatitis C in Punjab, Pakistan. J Ayub Med Coll Abbottabad. 2009; 21(2): 156-61.
8. Pasha O, Luby SP, Khan AJ, Shah SA, McCormick

JB, Fisher-Hoch SP. Household members of hepatitis C virus-infected people in Hafizabad, Pakistan: Infection by injections from health care providers. Epidemiol Infect 1999; 123(3): 515–8.
9. Bari A, Akhtar S, Rahbar MH, Luby SP. Risk factors for hepatitis C virus infection in male adults in Rawalpindi-Islamabad, Pakistan. Trop Med Int Heal 2001; 6(9): 732–8.
10. Akhtar H, Badshah Y, Akhtar S, Hasan F, Faisal M, us Sahar Sadaf Zaidi N, et al. Prevalence of hepatitis B and hepatitis C Virus infections among male to female (MFT) transgenders in Rawalpindi (Pakistan) Advancements in Life Sciences 2018; 5(2): 46-55.
11. Khattak MN, Akhtar S, Mahmud S, Roshan TM. Factors influencing hepatitis C virus sero-prevalence among blood donors in north west Pakistan. J Public Health Policy 2008; 29(2): 207–25.
12. Akhtar S, Younus M, Adil S, Jafri SH, Hassan F. Hepatitis C virus infection in asymptomatic male volunteer blood donors in Karachi, Pakistan. J Viral Hepat 2004; 11(6): 527–35.
13. Pergam SA, Wang CC, Gardella CM, Sandison TG, Phipps WT, Hawes SE. Pregnancy complications associated with hepatitis C: data from a 2003-2005 Washington state birth cohort. Am J Obstet Gynecol 2008; 199(1): 1-9.
14. Qayoom Daudpota A, Soomro AW. Sero Prevalence Of Hepatitis B And C In Surgical Patients. Pak J Med Sci 2008; 24(3): 483-4.
15. Epi Info™ , CDC . (Accessed on 17th March 2021). Available at:http://www.cdc.gov/epiinfo/index.html
16. Ali SA, Donahue RMJ, Qureshi H, Vermund SH. Hepatitis B and hepatitis C in Pakistan: prevalence and risk factors. Int J Infect Dis 2009; 13: 9–19.
17. Koerner K, Cardoso M, Dengler T, Kerowgan M, Kubanek B. Estimated Risk of Transmission of Hepatitis C Virus by Blood Transfusion. Vox Sang 1998;74(4): 213–6.
18. Krishanani MK, Qidwai W, Ali BS, Khuwaja AK. Educational intervention among barbers about liver cancer-inducing viruses: A pilot study from a developing country. J Cancer Educ 2010; 25(4): 632–6.
19. Sood A, Sarin SK, Midha V, Hissar S, Sood N, Bansal P, et al. Prevalence of hepatitis C virus in a selected geographical area of northern India: A population based survey. Indian J Gastroenterol 2012; 31(5): 232–6.
20. Simonsen L, Kane A, Lloyd J, Zaffran M, Kane M. Unsafe injections in the developing world and transmission of bloodborne pathogens: A review Bulletin of the World Health Organization 1999; 77: 789–800.
21. Csiki IE, Gabriela S. The Prevalence and Risk Factors of Hepatitis C Virus Infection in Adult Population in Romania: a Nationwide Survey Speranta Iacob Institutul Clinic Fundeni, 2006. (Accessed on 17th March 2021). Available at:http://www.researchgate.net/publication/49711786
22. Stvilia K, Tsertsvadze T, Sharvadze L, Aladashvili M, Del Rio C, Kuniholm MH, et al. Prevalence of hepatitis C, HIV, and risk behaviors for blood-borne infections: A population-based survey of the adult population of T'bilisi, Republic of Georgia. J Urban Heal 2006; 83(2): 289–98.
23. Costa ZB, Machado GC, Avelino MM, Filho CG, Filho JVM, Minuzzi AL, et al. Prevalence and risk factors for Hepatitis C and HIV-1 infections among pregnant women in Central Brazil. BMC Infect Dis 2009; 9(1): 116.
24. Finelli L, Miller JT, Tokars JI, Alter MJ, Arduino MJ. Special Article: National Surveillance of Dialysis-Associated Diseases in the United States, 2002. Semin Dial 2005; 18(1): 52–61.
25. Collumbien M, Qureshi AA, Mayhew SH, Rizvi N, Rabbani A, Rolfe B, et al. Understanding the context of male and transgender sex work using peer ethnography. Sex Transm Infect 2009; 85(Suppl-2): 3–7.