

Are the Adults of Rural Community Aware of the Risk Factors Associated with Transmission of Hepatitis B and C - A Cross-Sectional Study in Layyah, Pakistan

BUSHRA BINT-E-AFZAL, HAFIZA HAFSA MEHWISH, FAKEHA REHMAN

ABSTRACT

Background: HBV and HCV are the major source of rapidly transmitting viral hepatitis which has become a major health problem in the whole world. Awareness of people regarding its prevention and transmission in the rural areas of Layyah district is of prime importance.

Aim: To evaluate the level of awareness regarding prevalence, transmission and prevention of HBV and HCV.

Method: A hospital-based cross-sectional study was carried out by interviewing 220 consecutive, consenting adults visiting Tehsil Headquarter Hospital, Layyah. Data in respect of age, gender, education, religion, family status, and awareness about types of viral hepatitis, prevalence, possible routes of transmission, symptoms, complications and false perceptions pertaining to it were collected and analyzed using SPSS software.

Results: The rural community of District Layyah was fairly educated (only 11.4% were illiterate) and well-aware of major routes of transmission of HBV and HCV (90% and 88.6% knew transmission occurs by transfusion of blood and re-use of syringes respectively) but the knowledge about screening tests and vaccination was seemingly non-existent.

Conclusion: Realization of rural community regarding preventable measures and knowledge about routes of transmission of HBV and HCV needs further improvement.

Keywords: viral hepatitis, HBV, HCV, transmission.

INTRODUCTION

Around 250 and 130-150 million people are infected with Hepatitis B and C respectively globally^{1,2}. Termed as an occupational hazard by World Health Organization, 257 million people worldwide are estimated to be infected by HBV causing 887,000 deaths per annum³ by causing liver failure and hepatocellular carcinoma⁴. Despite currently available safe and effective vaccination for HBV in Pakistan, chronic carriage rate is rising among general population⁵. As for HCV, around 71 million people are chronically infected with HCV globally with increasing death toll of about 399,000 people each year mostly from its long term complications⁶. Due to higher degree of strain variation leading to unavailability of vaccine⁷ and presentation of HCV-related chronic liver disease after decades of infection⁸, the risk of transmission is high and global burden of HCV is expected to increase worldwide⁹.

HBV and HCV are blood-borne viruses and share common modes of transmission. According to a research conducted by Pakistan Medical and Research Council in 2007-08 in all provinces of the state shows around 13 million Pakistanis are infected

with hepatitis B & C¹⁰. The reason for high prevalence can be attributed to many factors including horizontal transmission, particularly in early childhood accounts for majority of cases of chronic HBV infection¹¹. Chronic HCV infection is mainly transmitted by transfusion of blood and blood-products without using screening/proper method of screening techniques as a survey conducted in large urban areas showed very few blood banks used proper screening methods before blood donations in order to keep low cost¹². Pakistan is the country with highest number of intramuscular injections injected per person per year¹³ probably due to an overwhelming trend of parenteral treatment therapy, including IV fluids, antibiotics, vitamins and analgesics which could also be taken orally most of the time. This enormous dependence driven by cultural beliefs and quacks amount to a large group of people infected with HCV¹⁴. The re-use of contaminated or inadequately sterilized syringes and needles used in medical, paramedical and dental procedures^{15,16,17}, the re-use of injections among IV drug abusers¹⁸, excessive use of barbers for shaving¹⁹, un-protected sexual contact, ear/nose-piercing, tattooing, sharing personal items like tooth-brushes, miswaak, nail-clippers, razors of infected individual, absolute unawareness of the people towards prevention, immunization and transmission of disease is proving havoc to the

Department of Pathology, K.E. Medical University, Lahore
Correspondence to Dr. BushraBinteAfzalAssistant Professor
Email: pink_panther_pinky2004@yahoo.com

quality and longevity of life and the economy of an underdeveloped country like Pakistan. Data of prevalence and awareness of risk factors for HBV and HCV transmission was necessary in order to deal with the ever-growing size of infected individuals. Hence this research was conducted to evaluate the awareness of people, possible risk factors and false perceptions of the people of rural areas regarding its spread and acquisition.

MATERIALS AND METHODS

A hospital-based cross-sectional study was conducted in the field practice area of Tehsil Headquarter Hospital, District Layyah from February-April, 2017. 220 consecutive, consenting adults (age 18 to 60) were taken as study subjects. Patients who refused to give consent were excluded. The study subjects were interviewed with a pre-designed, pre-tested and structured questionnaire with closed-ended questions. Informed consent was documented before interviewing the patient. The prospects of this study and full closure of personal information was explained to the respondent. The subjects were interviewed individually after translating the questions in the native language. The data was analyzed using SPSS software.

RESULTS

A total of 220 individuals were recruited out of which 121(55%) were males and 99(45%) females. Demographic variables are shown in following table.

Majority of population (61.8%) did not have any idea regarding any types of viral hepatitis. When asked 3.6%, 12.7% and 21.8% people knew about one, two and three types of hepatitis-causing viruses respectively. When they were inquired about the

number of people infected in Pakistan in general 19.5% answered that <2 in every 100 persons are carrying the disease and 40.9% said it was 2-9 and >10 infected with HBV/HCV in every 100 people of the country. Awareness regarding the routes of transmission is shown in the given table.

Age in years	
• 18-24	30.5%
• 25-34	24%
• 35-44	20%
• 45-60	25.5%
Religion	
• Islam	99%
• Christianity	0.5%
• Ehmadi	0.5%
Marital status	
• Single	26.8%
• Married	72.3%
• Divorced/widowed	0.9%
Family system	
• Joint	86.7%
• Nuclear	12.8%
• Broken	0.5%
Occupation	
• Skilled worker with a job	59.6%
• Self-employed	29.5%
• Unemployed/housewife	10.9%
Education:	
• Primary	16.4%
• Elementary and Secondary	51.8%
• Higher secondary	19.5%
• Graduation and above	0.9%
• No schooling	11.4%

Routes of Transmission	Yes	No	Do not know
Mother to infant during childbirth	76.8%	1.4%	21.8%
Transfusion of blood or blood-products	90%	1%	9.1%
Re-use of unsterilized or used syringes	88.6%	0.5%	10.9%
Unprotected sexual contact	73.6%	2.7%	23.6%
Use of shaving-razors, tooth-brushes or nail-clippers of affected person	78.6%	0.9%	20.5%
Tattooing with unsterilized equipment	70.5%	0.7%	26.8%
Body piercing(ear/nose) with non-sterile instruments	65%	3.2%	31.8%

Regarding false perceptions, people were convinced that hepatitis B and C viruses pass from infected individual to healthy ones by mosquitoes (12.7%) and hot weather (27.3%). Almost all of them (86.7%) knew about yellowness of skin and mucosa as one of the most common presentations of viral hepatitis. However only a few were aware of the fact that pain in abdomen(12.7%), nausea/vomiting (0.5%), fatigue and weight-loss (0.5%) are also one

of the symptoms of disease and require medical attention in people at risk. A total of 26.8% and 4.1% of population pool responded in favor of liver failure and hepatocellular carcinoma as one of the complications of chronic viral hepatitis. Furthermore 122 adults (55.5%) knew that if left untreated for a very long time, the disease can cause death of the person affected.

When people were asked about the history of vaccination, only 27.3% had done vaccination during their childhood. A total of 72.7% had no idea about vaccination protocols or immunization if exposed. Patients were questioned if they have ever done screening for HBV and HCV and 35% of people have never done screening tests. Among population, 33.2% were positive for HCV and 31.8% tested negative for both HCV and HBV.

DISCUSSION

For an under-developed country like Pakistan, the provision of health-care facilities by the government to the people dwelling in distant areas has always been a challenge. Treatment, management and follow-up care for even the commonest of all diseases like hypertension, diabetes etc is seemingly impossible due to lack of education, quackery and false perceptions about the disease. The objective of this cross-sectional study was to determine the general knowledge and understanding of rural population of Layyah district regarding HBV and HCV transmission, acquisition and ways to hinder the spread. In the study conducted, despite the level of education (only 11.4% had no schooling), 61.8% of study group did not have a clue about any types of viral hepatitis as seen in other studies conducted in Karachi and other parts of the country^{20,21}. The results were similar to the one in Germany, as a majority of people had no idea about prevalence and various routes of transmission of these blood borne-viruses²². Around 90% of population knew for sure that HBV and HCV can be transmitted during transfusion of blood²³ and 88.6% claimed that reuse of syringes is another contributing factor as in study done by Luby et. al²⁴. Similar to study conducted in India, people were well aware of disease transmission by sharing shaving-razors, nail clippers, tooth-brushes/miswak and tattooing²⁵. A large number of people however did not know that even ear and nose piercing by unsterilized equipment (3.2%), unprotected sexual contact (2.7%) and horizontal transmission (1.4%) can spread the disease. These results are in line with those found by Raziet. Al²⁶. As far as the misperceptions are concerned, 27.3% of people responded in favor of viral transmission occurring during hot weather and 12.7% said mosquitoes have a role to play in the spread. These results may be due to the increasing number of patients seeking medical attention in summer with similar complaints and get diagnosed by usual screening tests. Similar misbeliefs were shown by results of research in Egypt²⁷ and Iran²⁸. The knowledge about complications like liver failure (26.8%) and hepatocellular carcinoma (4.1%) was

fairly inadequate but more than half (55.5%) were totally convinced that long term complications can ultimately lead to death of the patient. In the present study, out of 220 individuals only 45% had done screening for HBV and HCV. Among them 33.2% were positive for HCV and none for HBV. This data suggests a huge difference between the prevalence of the two blood-borne viruses when compared with the study conducted by Pakistan Medical and Research Council in the year 2007-08²⁹. This variation in prevalence of HBV and HCV in different regions of the same country occurs worldwide and in Pakistan^{30,31}. After becoming a part of EPI (Expanded Program of Immunization) in our country³² although complete eradication of HBV has not yet achieved but in this study not one individual tested positive for HBV while 72.7% had no idea regarding vaccination protocols or immunization after exposure. Moreover 27.3% of the whole population was vaccinated in childhood and no one had taken booster doses. These results showed a very low rate of vaccination against HBV when compared with studies done in Mirpurkhas, Iran, India and Palestine^{33,34,35,36}. The sheer obliviousness of people towards the subtle signs and outcome of HBV and HCV, the delay in diagnosis and treatment due to the unawareness and misperceptions about the side-effects of vaccination are major contributing factors in plaguing the rural areas^{37,38}.

Limitation: The limitation of this study was that the study subjects were recruited from rural adults presenting to THQ hospital who were from nearby areas and suburbs. Hence the findings cannot be generalized to the whole rural population. Furthermore there is a certain community in the area who are more inclined towards getting medical advice from District Head-Quarter Hospital Layyah, which lies within a 3 miles radius, another reason for which the results cannot be considered true for entire rural community.

CONCLUSION

This study showed that despite the general population of rural area is not entirely illiterate, the awareness of risk factors and routes of transmission is quite inadequate.

Acknowledgement: We sincerely thank and acknowledge the respondents for their participation in the study.

Conflict of interest: The author declares no conflict of interest.

REFERENCES

1. Issur M, Götte M. Resistance patterns associated with HCV NS5A inhibitors provide limited insight into drug binding. *Viruses* 2014; 6:4227–4241.
2. Aljarbou AN. The Emergent Concern of Hepatitis B globally with special attention to Kingdom of Saudi Arabia. *Int J Health Sci (Qassim)* 2013; 7:333–340.
3. WHO. Hepatitis B fact sheet. 2017 [Updated 2017 April; cited 2017.May]. Available from: <http://www.who.int/mediacentre/factsheets/fs204/en/>
4. Perz, J.F., Armstrong, G.L., Farrington, L.A., Hutin, Y.J. and Bell, B.P. (2006) The Contributions of Hepatitis B Virus and Hepatitis C Virus Infections to Cirrhosis and Primary Liver Cancer Worldwide. *Journal of Hepatology*, 45, 529-538.
5. Abdul-Mujeeb S, Jamal Q, Khanani R, Iqbal N, Kaher S: Prevalence of hepatitis B surface antigen and HCV antibodies in hepatocellular carcinoma cases in Karachi, Pakistan. *Trop Doct.* 1997, 27: 45-6
6. WHO. Hepatitis C fact sheet. 2017 [Updated 2017 April; cited 2017.May]. Available from: <http://www.who.int/mediacentre/factsheets/fs164/en/index.html/>
7. Ashfaq UA, Javed T, Rehman S, Nawaz Z, Riazuddin S. An overview of HCV molecular biology, replication and immune responses. *Virology journal.* 2011; 8:161.
8. Hayashi J, Kishihara Y, Yamaji K, Yoshimura E, Kawakami Y, Akazawa K, et al. Transmission of hepatitis C virus by health care workers in a rural area of Japan. *The American journal of gastroenterology.* 1995; 90(5):794.
9. Lavanchy, D. (2009) the Global Burden of Hepatitis C. *Liver International*, 29, 74-81.
10. Farhat M, Yasmeen A, Ahmad A. An overview of hepatitis B and C in Pakistan. *Int J Microbiol Allied Sci* 2014; 1(2): 98–102.
11. Abdul-Mujeeb S, Jamal Q, Khanani R, Iqbal N, Kaher S: Prevalence of hepatitis B surface antigen and HCV antibodies in hepatocellular carcinoma cases in Karachi, Pakistan. *Trop Doct.* 1997, 27: 45-6.
12. Luby S, Khanani R, Zia M, Vellani Z, Ali M, Qureshi AH. et al. Evaluation of blood bank practices in Karachi, Pakistan, and the government's response. *Health Policy Plan.* 2000; 15:217–222. Doi: 10.1093/heapol/15.2.217.
13. Hauri, A.M., Armstrong, G.L. and Hutin, Y.J. (2004) The Global Burden of Disease Attributable to Contaminated Injections Given in Health Care Settings. *International Journal of STD & AIDS*, 15, 7-16.
14. Khan AJ, Luby SP, Fikree F, Karim A, Obaid S, Dellawala S. et al. Unsafe injections and the transmission of hepatitis B and C in a periurban community in Pakistan. *Bull World Health Organ.* 2000; 78:956–963.
15. Hutin YJ, Chen RT. Injection safety: a global challenge. *Bull World Health Organ* 1999; 77: 787–8.
16. Medhat A, Shehata M, Magder LS, et al. Hepatitis C in a community in Upper Egypt: risk factors for infection. *Am J Trop Med Hyg* 2002; 66: 633–8
17. Stoszek SK, Abdel-Hamid M, Narooz S, et al. Prevalence of and risk factors for hepatitis C in rural pregnant Egyptian women. *Trans R Soc Trop Med Hyg* 2006; 100: 102–7.
18. Wasley A, Alter M. Epidemiology of hepatitis C: geographic differences and temporal trends. *Semin Liver Dis* 2000; 20: 1–16
19. 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 Health.* 2001, 6: 732-8. 10.1046/j.1365-3156.2001.00779.x
20. Ali A, Ahmad H, Ali I, Khan S, Zaidi G, Idrees M. Prevalence of active hepatitis c virus infection in district mansehrapakistan. *Virology Journal.* 2010;7:334. doi:10.1186/1743-422X-7-334.
21. Jafri W, Jafri N, Yakoob J, et al. Hepatitis B and C: prevalence and risk factors associated with seropositivity among children in Karachi, Pakistan. *BMC Infectious Diseases.* 2006;6:101. doi:10.1186/1471-2334-6-101.
22. Crutzen R, Goritz AS. Public awareness and practical knowledge regarding Hepatitis A, B, and C: a two-country survey. *Journal of infection and public health.* 2012;5(2):195-8
23. Rahman M, Jawaid SA. Need for national blood policy to ensure safe blood transfusion. *Pak J Med Sci.* 2004;20:81–4
24. Luby SP, Qamruddin K, Shah AA et al. (1997) The relationship between therapeutic injections and high prevalence of hepatitis C infection in Hafizabad, Pakistan. *Epidemiology and Infection* 119,349–356.
25. Setia S, Gambhir R, Kapoor V, Jindal G, Garg S, Setia S. Attitudes and Awareness Regarding Hepatitis B and Hepatitis C Amongst Health-care Workers of a Tertiary Hospital in India. *Annals of Medical and Health Sciences Research.* 2013;3(4):551-558. doi:10.4103/2141-9248.122105.
26. Razi A, Rehman R, Naz S, Ghafoor F, Ullah MA. Knowledge attitude and practices of university students regarding hepatitis B and C. *ARPN J Agric Biol Sci.* 2010;5:38–43.
27. Hassan SG, El-Ghitany EM, El-Sheikh W. Knowledge, Attitude and Lifestyle Changes among Chronic Hepatitis C Patients in Alexandria, Egypt: A Fear-Appeal Intervention.
28. Kabir A, Tabatabaei SV, Khaleghi S, Agah S, Kashani AHF, Moghimi M, Kerahroodi FH, Alavian SH, Alavian SM. Knowledge, attitudes and practice of iranian medical specialists regarding hepatitis B and C. *Hepat Mon.* 2010;10:176–182
29. Ashraf A, Ahmad A. 2015. *Asian Pac J Trop Biomed*, 5: 190–191.
30. Anwar MI, Rahman M, Hassan MU, Iqbal M. Prevalence of active hepatitis C virus infections among general public of Lahore, Pakistan. *Virol J* 2013; 10: 351.
31. Muzaffar F, Hussain I, Haroon TS. Review Article Hepatitis C : the dermatologic profile 2008; 171–181.
32. Global alliance for vaccines and immunization (GAVI). Second annual progress report. Government of Pakistan; 2003.
33. Muhammad A, Waseem R, Zulfikar AG (2011) Hepatitis B vaccination coverage in medical students at a medical college of Mirpurkhas. *J Pak Med Assoc* 61(7): 680–682.
34. Ali K, Seyed VT, Siamak K, Shahram A, Amir HFK, et al. (2010) Knowledge, Attitudes and Practice of Iranian Medical Specialists regarding Hepatitis B and C. *Hepat Mon.* 10(3): 176–182.
35. Biju IK, Sattar A, Kate M (2002) Incidence and awareness of hepatitis B infection among paramedical students. *Indian J Gastroenterol* 21(1): 104–5.
36. Okeke EN, Ladep NG, Agaba EI, Malu AO. Hepatitis B vaccination status and needle stick injuries among medical students in a Nigerian University. *Niger J Med.* 2008;17(3):330–332.
37. Haider G, Haider A. Awareness of women regarding hepatitis B. *J Ayub Med Coll.* 2008;20:141–144.
38. Talpur AA, Memon N, Solangi R, Ghumro A. Knowledge and attitude of patients towards hepatitis B and C. *Pak J Surg.* 2007;23:162–165.