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The Frequency of Hepatitis B and C Among Volunteer Blood Donors in Balochistan

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Background and Aims: **In this cross-sectional study, the frequency of hepatitis B and C among volunteer blood donors in blood banks of Sandeman Provincial & Lady Duffren Hospitals, Quetta, Pakistan was estimated.**
Methods: **1474 blood donors were selected by convenient sampling. After obtaining informed consent, brief history and examination were done. They were tested for HBsAg and anti-HCV antibodies in laboratory. The collected data analyzed by SPSS 12.0 and results shown in frequencies and percentages.**
Results: **Out of 1474 blood donors, 1284 (87.1%) were males and 190 (12.9%) were females. The mean age was 25 (range: 16-49) years. 71 (4.8%) were positive for HBsAg (63 males & 8 females), 26 (1.8%) for anti-HCV (21 males & 5 females) and 4 (0.27%) were positive for both (3 males & 1 female). Most of them belonged to ages 21-40 years.**
Conclusions: **The frequency of hepatitis B is same as that of other part of the country contrary to the belief that Balochistan is a high prevalent region for hepatitis B as compare to the rest of the country, while the frequency of hepatitis C is less than expected. Health education and vaccination for hepatitis B should be encouraged and more vigilant efforts should be done.**
Keywords: **Hepatitis B, Hepatitis C, Awareness, Balochistan**

Introduction

Viral hepatitis is one of the major causes of chronic liver disease, including chronic hepatitis, cirrhosis, and hepatocellular carcinoma (HCC). Two main causes of this group of illnesses are hepatitis B and C viruses. More than 350 million people worldwide are affected with chronic hepatitis B and thus pose a serious threat to public health, although it is prevalent all around the world but Asian region remains an area with high hepatitis B endemicity [1, 2], more than 75% of these 350 million people are from South East Asia and the Western Pacific region. Hepatitis B infection claims the lives of 1-2 million people every year and thus represents an important public health challenge [1].

Similarly Hepatitis C virus (HCV) infection is also an important worldwide public health problem. It is believed that 2-3% of the world's population is persistently infected with HCV and up to 170 million individuals may be infected, all of them are at risk of developing cirrhosis and primary liver cancer. Unsafe injections, use of blood-contaminated implements for surgery, traditional scarification, injecting drug use, acupuncture, tattooing, body piercing, mother-infant transmission, and sexual transmission are few sources of viral hepatitis transmission but in undeveloped countries or in countries where laws for safe blood transfusions are not implemented blood and blood products transfusion are the most common sources of viral hepatitis transmission [3], there fore its prevalence is expected to be higher in larger urban centers, where there is easy access to complex medical care, including blood therapy and also a higher concentration of injected drug use.

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Several epidemiological studies on hepatitis B and C have been conducted, mostly on blood banks [4, 5], and some of them analyze specific subpopulations, usually at a higher risk for blood-borne or sexually-transmitted infections, such as patients infected with HIV [6, 7], sex workers [8], dialysis patients [9, 10], intravenous drug users [11], prisoners [12], hemophiliacs [13], and populations in hyper endemic regions [14-16]. In Pakistan both these infections are common with considerable variation in different parts of the country because of variability in the ethnicity and geography [17, 18]. Despite the clinical and epidemiological importance and the impact of these diseases, no nationwide study on hepatitis B and C has been conducted in Pakistan. The objective of our study was to evaluate the seroprevalence of hepatitis B and C among the blood donors in Quetta city and its suburbs.

Materials and Methods

This cross-sectional study was carried out in Quetta from January 2006 to June 2006. 1474 blood donors presenting to the blood banks of Sandeman Provincial and Lady Duffren hospitals, Quetta for blood donation who were not professional blood donor were selected. Questions regarding frequent blood donation, surgical procedure in past and other risk factors about hepatitis B and C transmission were asked. Informed consent obtained, physical examination was done and then blood drawn for test. They were tested for HBsAg and anti-HCV antibodies in the laboratory; the collected data analyzed by SPSS 12.0 and results shown in frequencies and percentages.

Results

Out of 1474 blood donors selected by random sampling 1284 (87.1%) were males and 190 (12.9%) were females. The mean age was 25 (range: 16-49) years. 71 (4.8%) were positive for HBsAg (63 males & 8 females), 26 (1.8%) for anti HCV (21 males & 5 females) and 4 (0.27%) were positive for both (3 males & 1 female). Most of them (84.8%) belonged to ages 21-40 years. Among 71 positive cases of HBsAg, the mean age was 23 (range: 18-44) years. In 26 cases of hepatitis C, the mean age was 29 (range: 21-44) years; while in combine hepatitis B and C positive group total number of cases were 4 with mean age of 28 (range: 23-44) years (Table 1 and 2).

Discussion

Pakistan remains in the intermediate HBV and HCV prevalence area [19, 20]. The important risk factors identified world wide for the spread of hepatitis B and C are transfusion of blood and blood products, I/V drug abuse, therapeutic injections, re-use of syringes and needles, high risk sexual behavior,

Table 1. Frequency according to age groups

	No.	Percent	Positive anti-HCV	CI*	Positive HBsAg	CI*	Positive HBsAg & anti-HCV	CI*
15 to 20 years	120	8.1%	0 (0%)	0	7 (5.8%)	2.3-11.6	0 (0%)	0
21 to 40 years	1250	84.8%	24 (1.9%)	1.2-2.8	62 (5%)	3.8-6.3	3 (0.2%)	0.04-0.6
41 to 50 years	104	7.1%	2 (1.9%)	0.2-6.7	2 (1.9%)	0.2-6.7	1 (0.06%)	0.02-5.2

*CI: 95% Confidence Interval

Table 2. Collective case summery for hepatitis B, C and both

	No.	Mean age (yrs)	Minimum age (yrs)	Maximum age (yrs)	Male	Female
Positive HBsAg	71 (4.8%)	23.2	18	44	63 (4.9%)	8 (4.2%)
Positive anti-HCV	26 (1.8%)	29.9	21	44	21 (1.6%)	5 (2.6%)
Positive HBsAg & anti-HCV	4 (0.27%)	28.2	23	44	3 (0.2%)	1 (0.06%)

mother to child etc. Local studies suggest that risk factors for HBV and HCV infections in this part of the world differ from those in Europe and United Stated. High poverty with low education level, unnecessary use of injections, re-use of syringes and lack of knowledge about the transfusion of unsafe blood and blood products has lead to increased frequency of hepatitis B and C in this region with parenteral mode of transmission as common source [21-23].

Scott Gottlieb [24] showed that almost 2% of US and 1% of UK population is infected with hepatitis C which in our study is 1.8% which is very close to those studies the low frequency in our study could be due to fact that this region is lacking in basic health facilities and use of blood and blood products and reuse of syringes is thought to be one of the common cause of hepatitis B and C transmission in our region [21, 23]. In Shame's [25] study prevalence of HCV antibodies were 37% and hepatitis B was 8.7% in prisoners of Ireland which is much higher then our study in which it is 1.8% and 4.8% for hepatitis C and B respectively this major difference could be due to the fact that the study by Shame was conducted in prisoners which is a high risk group because most of them are sexually active and are prone to drug abuse.

Amin *et al.* [26] in Lahore and Tanwani and Ahmad [27] in Islamabad showed high prevalence for hepatitis B and C in their studies much higher then our study, the much more chances of blood transfusion, use of unsterilized syringes should be kept in mind as theses are common problems in big cities like these two. Study by Ali *et al.* [28] showed frequency of HCV anti bodies 1.87% in Quetta CMH which is very close to the frequency that is observed in our study for hepatitis C. In an other study by Ally [29] showed that the frequency of HBsAg was 4.36% and anti HCV antibodies was 5.84% which is decreasing with the passage of time and the reason for this reduction in prevalence is due to better awareness and knowledge about these diseases and their mode of transmission. Toledo *et al.* [30] showed that the prevalence of hepatic c antibodies was 1.5% and that of hepatitis was 2.6% these frequencies for both the infection are very close to the one which we have observed in our study the brazil being and under develop country like us could be having similar problems as we have in basic health facilities this could be one of the reason.

Conclusion

The overall prevalence of HBsAg observed 4.8% which is similar as in the rest of the country contrary to the belief that it is very high in Balochistan the vaccination program implementation in this province will stop it from rising high. The frequency of HCV is 1.8% which is much less then the frequency noted in other studies in the country better education regarding mode of transmission and safe blood transfusion will prevent the spread of these disease further.

References

1. Lok A. Chronic hepatitis B. *N Engl J Med* 2002; **346**: 1682-3.
2. Thomas H. Hepatitis B and D in Medicine. Oxon, UK: The Medicine Publishing Company Ltd. 2002.
3. Dusheiko G. Hepatitis C in Medicine. Oxon, UK: The Medicine Publishing Company Ltd. 2002.
4. Aguiar JI, Aguiar E, Paniago A, Cunha R, Galvao L, Daher R. Prevalence of antibodies to hepatitis B core antigen in blood donors in the middle West region of Brazil. *Mem Inst Oswaldo Cruz* 2001; **96**: 185-7.
5. Brandao AB, Fuchs SC. Risk factors for hepatitis C virus infection among blood donors in southern Brazil: a case-control study. *BMC Gastroenterol* 2002; **2**: 18.
6. Santos EA, Yoshida CF, Rolla VC, Mendes JM, Vieira IF, Arabe J, *et al.* Frequent occult hepatitis B virus infection in patients infected with human immunodeficiency virus type 1. *Eur J Clin Microbiol Infect Dis* 2003; **22**: 92-8.
7. Segurado AC, Braga P, Etzel A, Cardoso MR. Hepatitis C virus coinfection in a cohort of HIV-infected individuals from Santos, Brazil: seroprevalence and associated factors. *AIDS Patient Care STDS* 2004; **18**: 135-43.
8. Mesquita PE, Granato CF, Castelo A. Risk factors associated with hepatitis C virus (HCV) infection among prostitutes and their clients in the city of Santos, Sao Paulo State, Brazil. *J Med Virol* 1997; **51**: 338-43.
9. Busek SU, Baba EH, Tavares Filho HA, Pimenta L, Salomao A, Correa-Oliveira R, *et al.* Hepatitis C and hepatitis B virus infection in different hemodialysis units in Belo Horizonte, Minas Gerais, Brazil. *Mem Inst Oswaldo Cruz* 2002; **97**: 775-8.
10. Souza KP, Luz JA, Teles SA, Carneiro MA, Oliveira LA, Gomes AS, *et al.* Hepatitis B and C in the hemodialysis unit of Tocantins, Brazil: serological and molecular profiles. *Mem Inst Oswaldo Cruz* 2003; **98**: 599-603.
11. Oliveira ML, Bastos FI, Telles PR, Yoshida CF, Schatzmayr HG, Paetzold U, *et al.* Prevalence and risk factors for HBV, HCV and HDV infections among injecting drug users from Rio de Janeiro, Brazil. *Braz J Med Biol Res* 1999; **32**: 1107-14.
12. Guimaraes T, Granato CF, Varella D, Ferraz ML, Castelo A, Kallas EG. High prevalence of hepatitis C infection in a Brazilian prison: identification of risk factors for infection. *Braz J Infect Dis* 2001; **5**: 111-8.
13. Carmo RA, Oliveira GC, Guimaraes MD, Oliveira MS, Lima AA, Buzek SC, *et al.* Hepatitis C virus infection among Brazilian hemophiliacs: a virological, clinical and epidemiological study. *Braz J Med Biol Res* 2002; **35**: 589-98.
14. Camargo LM, Moura MM, Engracia V, Pagotto RC, Basano SA, da Silva LH, *et al.* A rural community in a Brazilian Western Amazonian Region: some demographic and epidemiological patterns. *Mem Inst Oswaldo Cruz* 2002; **97**: 193-5.

15. de PV, Arruda ME, Vitral CL, Gaspar AM. Seroprevalence of viral hepatitis in riverine communities from the Western Region of the Brazilian Amazon Basin. *Mem Inst Oswaldo Cruz* 2001; **96**: 1123-8.
16. Souto FJ, Fontes CJ, Gaspar AM. Prevalence of hepatitis B and C virus markers among malaria-exposed gold miners in Brazilian Amazon. *Mem Inst Oswaldo Cruz* 2001; **96**: 751-5.
17. JI Farooqi RF. Relative frequency of hepatitis B virus and hepatitis C virus infections in patients of cirrhosis in NWFP. *J Coll Physicians Surg Pak* 2000; **10**: 217-9.
18. Manzoor S. Hepatitis-B related chronic liver disease in Rawalpindi-Islamabad area. *J Coll Physicians Surg Pak* 1997; **7**: 43-6.
19. Andre F. Hepatitis B epidemiology in Asia, the Middle East and Africa. *Vaccine* 2000; **18** Suppl 1: S20-S2.
20. Zuberi S. Seroepidemiology of HBV/HCV in Pakistan. *International Hepatology Communications* 1995; **3** (Supplement): 8.
21. 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.
22. 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**: 217-22.
23. Luby SP, Qamruddin K, Shah AA, Omair A, Pahsa O, Khan AJ, *et al*. The relationship between therapeutic injections and high prevalence of hepatitis C infection in Hafizabad, Pakistan. *Epidemiol Infect* 1997; **119**: 349-56.
24. Gottlieb S. Hepatitis C infects almost 2% of US population. *BMJ* 1999; **319**: 535A.
25. Allwright S, Bradley F, Long J, Barry J, Thornton L, Parry JV. Prevalence of antibodies to hepatitis B, hepatitis C, and HIV and risk factors in Irish prisoners: results of a national cross sectional survey. *BMJ* 2000; **321**: 78-82.
26. Amin J, Yousef H, Mumtaz A, Iqbal M, Ahmad R, Malik K. Prevalence of hepatitis B surface antigen and anti HCV antibodies. *Professional Med J* 2000; **11**: 334-7.
27. Tanwani AK, Ahmad N. Prevalence of hepatitis B surface antigen and anti-hepatitis C virus in laboratory based data at Islamabad. *J Surg* 2000; **19**: 25-9.
28. Ali N, Anwar M, Ayyub M, Bhatti FA, Nadeem M, Nadeem A. Frequency of glucose-6-phosphate dehydrogenase deficiency in some ethnic groups of Pakistan. *J Coll Physicians Surg Pak* 2005; **15**: 137-41.
29. Ally SH, Hanif R, Ahmed A. HBsAg and HCV: increasing test requests and decreasing frequency of positive tests at clinical laboratory of Ayub Teaching Hospital, Abbottabad. *J Ayub Med Coll Abbottabad* 2005; **17**: 81-4.
30. Toledo AC, Jr., Greco DB, Felga M, Barreira D, Gadelha MF, Speranza FA. Seroprevalence of hepatitis B and C in Brazilian army conscripts in 2002: a cross-sectional study. *Braz J Infect Dis* 2005; **9**: 374-83.