Original Article

HCV

Seroprevalence of Hepatitis C Virus (HCV) in Southern Punjab

1. Saadat Parveen 2. Abdul Latif 3. Muhammad Ashraf

1. Consultant Hematologist, Dept. of Pathology, CMH, Multan 2. Asstt. Prof. of Paediatric Surgery, Nishtar Hospital Multan 3. Asstt. Prof. of Paediatric Surgery, The Children's Hospital & Institute of Child Health, Multan

ABSTRACT

Objective: To find out the seroprevalence of Hepatitis C Virus (HCV) detected on blood screening in blood donors and candidates for recruitment in Armed forces of Pakistan from Southern Punjab.

Study Design: Observational study

Place and Duration of Study: This study was carried out in the Department of Pathology, Combined Military Hospital (CMH), Multan from January to December 2013.

Materials and Methods: Serological blood screening of blood donors and candidates coming for recruitment in armed forces of Pakistan at CMH Multan was performed. Test was performed with rapid screening kit initially and suspected cases were confirmed with third generation ELISA technique. Bio-data of Hepatitis C virus (HCV) positive cases was collected, analyzed and compared with national and international literature.

Results: A total of 10666 persons were screened out, 311 (2.91%) were HCV positive.

Conclusion: Seroprevalence of HCV in this region is also high like rest of the world. Public awareness about the disease, blood screening before transfusion, use of disposable syringe, proper disposal of contaminated material and prevention from sexual transmission are required to decrease the incidence and its spread.

Key Words: Hepatitis C (HCV), Blood Screening

INTRODUCTION

Hepatitis C is an infectious disease affecting the liver, caused by the hepatitis C virus (HCV).[1] The infection is usually asymptomatic initially, but chronic infection can lead to scarring of the liver and ultimately to cirrhosis, which is generally apparent after many years. In some cases, those with cirrhosis will go on to develop liver failure, liver cancer or life-threatening esophageal variceal bleeding.[1] HCV is spread mainly by blood transfusion, pricking by infected needle, poorly sterilized medical equipment. An estimated 200 million people worldwide are infected with hepatitis C.[2][3][4] . Hepatitis C initially named as non-A non-B hepatitis in the 1970s and then recognized as separate entity in 1989.[5] Hepatitis C infects human beings and chimpanzees.[6] No vaccine against hepatitis C is available. The virus persists in the liver in about 85% of those infected. This chronic infection can be treated with interferon therapy. Overall, 70% of people treated are cured. [7] Hepatitis C infection causes acute symptoms in 15% of cases.[8] Symptoms are generally mild and vague, including a decreased appetite, fatigue, nausea, muscle or joint pains, and weight loss[9] and rarely does acute liver failure result.[10] Most cases of acute infection are not associated with jaundice.[11] The infection resolves spontaneously in 10–50% of cases [11] About 80% of those exposed to the virus develop a chronic infection.[12] Most of the infected persons remain asymptomatic during initial few decades of infection.[13] Chronic hepatitis C can be associated with fatigue[14] and mild cognitive problems.[15] Late relapses after apparent cure have been reported, but these can be difficult to distinguish from reinfection.[16] Liver cirrhosis may lead to portal hypertension, ascites, easy bruising or bleeding, varices, jaundice, and a syndrome of cognitive impairment known as hepatic encephalopathy.[22] Ascites occurs at some stage in more than half of those who have a chronic infection.[23].

MATERIALS AND METHODS

This is an observational study carried out between January 2013 to December 2013 at Hematology unit, Department of Pathology, Combined Military Hospital (CMH) Multan. All the persons coming for blood screening were included in the study. Majority were the blood donors and others were the candidates for recruitment in Armed Forces of Pakistan appearing at Multan Center from different areas of southern Punjab. Among the Blood donors, majority consisted of volunteers of Armed forces, relative of patients requiring blood at CMH, Departments of Paediatric Surgery, Nishtar Medical College and Hospital and Institute of Child Health, Multan. The study protocol consisted of the informed consent, age, address, occupation, education, marital and socio economic status. Five ml blood was taken from each candidate and screened for various serologically positive infective diseases including Hepatitis C (HCV) by rapid kit screening technique. Seropositivity was confirmed by third generation ELISA technique. All the informations

were collected on a predesigned performa. Results regarding various infective diseases as Hepatitis C, Hepatitis B and HIV were noted. Bio-data of Hepatitis C (HCV) was separated, analyzed and compared with national and international literature.

RESULTS

A total of 10666 persons were screened for Hepatitis C (HCV). Among these, 6216 persons were blood donors and 4450 were candidates for recruitment in Armed forces of Pakistan at Combined Military Hospital (CMH), Multan. In blood donors, 5990 (96%) were males and 226 (4%) were females. All the candidates for recruitment were male. This means that out of 10666 persons, 10440 (98%) were male and 226(2%) were female. Age range was between 18-40 years in blood donors while candidates for recruitment were 18-24 years old. Out of 6216 blood donors, 137(2.20%) were positive. While out of 4450 candidates for recruitments in armed forces of Pakistan 174(3.91%) were positive for HCV. Overall, 10666 persons were screened and 311 (2.91%) were found positive for HCV. Out of 10440 males, 305 (2.91%) and out of 226 females 6(2.65%) were found HCV positive.

Table No.1: Prevalence in Blood Donor Group

Total number Screened	HCV +	Percentage
6216	137	2.20%

Table No.2: Prevalence in Recruits Group

Total number Screened	HCV +	Percentage
4450	174	3.91%

Table No.3: Prevalence as a whole

Gender	Number Screened	HCV +	Percentage
Male	10440	305	2.92%
Female	226	6	2.65%
Total	10666	311	2.91%

DISCUSSION

This study was an attempt to define the seroprevalence of HCV in relatively healthy and young population in Southern Punjab. Data consisted of analysis of the results of blood screening in candidates of recruitment in armed forces of Pakistan and blood donors at CMH, Multan during a year from January to December 2013. The testing method consisted of third generation ELISA technique which is used by the majority of the screening centers. As minimum age limit for blood donation and recruitment in Armed Forces is 18 years, so it was not possible to access the minimum age of acquisition of Hepatitis C in this study. Result of our study showed that prevalence of HCV in blood donors is 2.20%, in candidates for recruitment in armed forces is 3.91% .Overall, prevalence is 2.91%. HCV infection has significant morbidity and mortality worldwide. The global prevalence of HCV is 3%.[24] The World Health Organization has estimated that 200 million people worldwide are infected with HCV[2-4,25]. The prevalence in the USA is estimated in about 1 million people [26]. Khattak et al. reported a 6.2% prevalence of anti-HCV in professional blood donors[27.] Farooq et al. estimated a prevalence of 3.3% for HCV antibodies among young soldiers[28]. Butt et al reported the prevalence of HCV 1.70%. Similar results have been reported by Zakaria et al. with a 2.2% prevalence of HCV antibodies among recruits of Pakistan armed forces[29].

CONCLUSION

In this study, prevalence of HCV is comparatively high. Certain steps should be taken to stop the increasing trend of Hepatitis C like monitoring disease incidence and determine the sources of infection and modes of transmission. Certain control measures should be taken like education of high risk groups and health care personnel to reduce the chances for transmission to other. Ensuring the safety of patients by reducing the residual risk of transfusion-transmitted hepatitis is the concern of every transfusion center. Pre-donation counseling, donor self-exclusion and ensuring 100% voluntary blood donation will be effective. Use of disposable syringes for injections and incineration of contaminated material is mandatory.

REFERENCES

1. Ryan KJ, Ray CG, editors. Sherris Medical Microbiology. 4th ed. McGraw Hill; 2004.p.551–2.
2. Gravitz L A smouldering public-health crisis. Nature 2011;474(7350):S2–4.
3. Hepatitis C. World Health Organization (WHO). June 2011. Retrieved 2011-07-13.
4. Mohd Hanafiah K, Groeger J, Flaxman AD, Wiersma ST. Global epidemiology of hepatitis C virus infection: new estimates of age-specific antibody to HCV seroprevalence. Hepatol (Baltimore, Md) 2013;57(4):1333–42.
5. Houghton M. The long and winding road leading to the identification of the hepatitis C virus. J Hepatol 2009;51 (5): 939–48.
6. Teri S. Understanding viruses. 2nd ed. Burlington, MA: Jones & Bartlett Learning; 2011.p.535.
7. Rosen HR. Clinical practice. Chronic hepatitis C infection. The New Engl J Med 2011;364(25): 2429–38.
8. Maheshwari A, Ray S, Thuluvath PJ. Acute hepatitis C. Lancet 2008;372(9635): 321–32.
9. Wilkins T, Malcolm JK, Raina D, Schade RR. Hepatitis C: diagnosis and treatment. Am family Physi 2010;81(11):1351–7.

10. Bailey, Caitlin. Hepatic Failure: An Evidence-Based Approach in the Emergency Department. Emerg Med Practice 2010;12(4).
11. Chronic Hepatitis C Virus Advances in Treatment, Promise for the Future. Springer Verlag;2011. p. 4.
12. Nelson PK, Mathers BM, Cowie B, Hagan H, Des Jarlais D, Horyniak D, et al. Global epidemiology of hepatitis B and hepatitis C in people who inject drugs: results of systematic reviews. Lancet 2011;378(9791):571–83.
13. Chronic Hepatitis C Virus Advances in Treatment, Promise for the Future. Springer Verlag; 2011. p.103–104.
14. Ray, Stuart C, Thomas, David L. Chapter 154: Hepatitis C. In: Mandell, Gerald L, Bennett, John E, Dolin, Raphael, et al. Bennett's principles and practice of infectious diseases. 7th ed. Philadelphia PA: Churchill Livingstone; 2009.
15. Forton DM, Allsop JM, Cox IJ, Hamilton G, Wesnes K, Thomas HC, et al. A review of cognitive impairment and cerebral metabolite abnormalities in patients with hepatitis C infection. AIDS (London, England) 2005;19 (Suppl 3): S53–63.
16. Nicot F. Chapter 19. Liver biopsy in modern medicine. Occult hepatitis C virus infection: Where are we now? 2004.
17. El-Zayadi AR. Hepatic steatosis: a benign disease or a silent killer. World journal of gastroenterology. WJG 2008;14(26):4120–6.
18. Paradis V, Bedossa P. Definition and natural history of metabolic steatosis: histology and cellular aspects. Diabetes & metabolism 2008;34 (6 Pt 2): 638–42.
19. Alter MJ. Epidemiology of hepatitis C virus infection (PDF). World J Gastroenterol 2007; 13(17): 2436–41.
20. Mueller S, Millonig G, Seitz HK. Alcoholic liver disease and hepatitis C: a frequently underestimated combination (PDF). World journal of gastroenterology. WJG 2009;15 (28): 3462–71.
21. Fattovich G, Stroffolini T, Zagni I, Donato F. Hepatocellular carcinoma in cirrhosis: incidence and risk factors. Gastroenterol 2004;127 (5 Suppl 1): S35–50.
22. Ozaras R, Tahan V. Acute hepatitis C: prevention and treatment. Expert review of anti-infective therapy 2009;7(3):351–61.
23. Zaltron S, Spinetti A, Biasi L, Baiguera, C, Castelli F. Chronic HCV infection: epidemiological and clinical relevance. BMC infectious diseases 12 Suppl 2012;2: S2.
24. Bonkovsky HL, Mehta S, Hepatitis C. a review and update. J of the Am Acad of Dermatol 2001; 44:159–79.
25. Hepatitis C. Geneva, World Health Organization, 2002:1–69 (WHO/CDS/CSR/LYO/2003) (http://www.who.int/csr/disease/hepatitis/Hepc.pdf, accessed 22 February 2014).
26. Sherlock S. Clinical features of hepatitis. In: Zuckerman AJ, Thomas HC, editors. Viral hepatitis. 2nd ed. London: Churchill Livingston; 1998.p.1–13.
27. Khattak ME, et al. Seroprevalence of hepatitis B, C and HIV in blood donors in Northern Pakistan. Journal of the Pak Med Assoc 2002;52:398–402.
28. Farooq MA, et al. Prevalence of hepatitis B and C in a healthy cohort. Pak J Pathol 2005;16(2):42–6.
29. Zakaria M, et al. Prevalence of antihepatitis C antibodies and hepatitis B surface antigen in healthy male naval recruits. Pak Armed Forces Med J 2003;53:3–5.

Address for Corresponding Author:
Saadat Parveen,
Consultant Hematologist,
Dept. of Pathology, CMH, Multan/
Brigadier, Department of Pathology,
Combined Military Hospital, Multan ,
Phone: 0300-8639700
E-mail: saadatparveen@gmail.com