

ORIGINAL ARTICLE

FREQUENCY OF HEPATITIS B AND C VIRUS IN SURGICAL PATIENTS IN A TERTIARY CARE HOSPITAL OF MUZAFFARABAD

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Background: Hepatitis B and C, parenterally transmitted diseases are major health problems all over the world especially in the developing countries. Patients presenting in different hospitals are not routinely screened for hepatitis B and C if they are not symptomatic. Since majority of carriers are asymptomatic, they create a real threat to health staff through self pricks, and other patients who share the same surgical instruments. Objective of this study was to assess the extent of hepatitis B and C in hospitalized surgical patients. **Methods:** This study, a cross-sectional survey, was carried out in Department of Surgery, Abbas Institute of Medical Sciences Muzaffarabad, from June to December 2018. Sample size was calculated using WHO sample size calculator for cross-sectional surveys. Non-probability convenient sampling technique was used. **Results:** Out of the total 100 patients included in this study, there were 54 (54%) males and 46 (46%) females, with ages ranging from 20 to 70 years. Three percent (3%) patients were hepatitis B positive while 12% were hepatitis C positive. Highest frequency of hepatitis C was seen in the age group 61–70 years, while hepatitis B patients were one each in age group of 20–30 years, 41–50 years, and 51–60 years. **Conclusion:** The frequency of hepatitis B surface antigen and hepatitis C virus in patients undergoing surgery is increasing which is a public health concern. There is an urgent need to implement infection control practices and preventive measures.

Keywords: Hepatitis B, Hepatitis C, Screening, Surgical, Healthy, Patients

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INTRODUCTION

Hepatitis B and C, parenterally transmitted diseases, are major health problems all over the world especially in the developing countries.¹ Parenteral transmission is facilitated by contaminated blood and blood products, multiple transfusions, needle sharing, use of contaminated instruments, for example in haemodialysis or surgeries, reuse of contaminated medical devices, tattooing devices, acupuncture needles etc.²

The prevalence of disease among general public due to HBV and HCV infection in Pakistan is 10%³, and in another study it is 4–10%⁴. Operating room personnel including surgeons have the highest risk of exposure.^{5,6} Sharp injuries with needles in the operating room are least likely to be reported⁷ hence putting operating room personnel even at a higher risk. Since majority of carriers are asymptomatic, they create a real threat to health staff through self pricks and other patients who share the same surgical instruments.⁸

Screening for hepatitis B and C should be mandatory as routine pre-operative investigations to assess their prevalence and to plan better preventive strategies against transmission to surgical team, universal precaution by using enhanced personal protective equipment (PPE), post-exposure prophylaxis and patient counselling about disease and further management.⁹

Transmission of hepatitis B and C by percutaneous exposure to contaminated blood is common. The fact that hepatitis virus and the HIV share similar routes of transmission contributes to co-infection. Healthcare personal that have exposure to blood are at risk of infection. As little as 0.01 ml of contaminated blood can transmit infection making it a big problem.¹⁰ The annual incidence of HBV infection in surgeons is estimated to be 50 times greater than that in general population, and more than twice that of physicians.⁹

Exposure rate in operation theatre settings is perceived to be high. Very little is known about the current prevalence of hepatitis B and C among healthy patients booked for surgery. The objective of this study was to assess the extent of hepatitis B and C in hospitalized surgical patients.

PATIENTS AND METHODS

This cross-sectional survey was carried out in the Department of Surgery, Abbas Institute of Medical Sciences (AIMS) —a teaching hospital of AJK Medical College, Muzaffarabad from Jun to Dec 2018. Ethical approval was taken from Ethical Committee of AIMS.

During the preoperative period all the elective patients from 21 to 70 years of age were screened while patients with known hepatitis B and C disease were excluded from the study. Initially patients were screened

by Immunochromatographic device (Rapid testing) and positive samples were confirmed by Enzyme Linked Immunosorbent Assay (ELISA) which has a sensitivity and specificity of 99%.

Sample size calculated using WHO sample size calculator for cross-sectional surveys with 95% CI was 97, and rounded up as 100. Non-probability convenient sampling technique was used.

RESULTS

Out of the total 100 patients included in this study, there were 54 (54%) males and 46 (46%) females, with ages ranging 20–70 years. Table-1 shows age distribution of study participants, maximum number of participants were 20–30 years of age.

Table-2 reveals that total three (3%) patients had hepatitis B infection while 12 (12%) were hepatitis C positive.

Highest Frequency of hepatitis C was in the age group 61–70 years, followed by 51–60 years age group, while hepatitis B patients were one each in age group of 20–30 years, 41–50 years, and 51–60 years.

Table-1: Age Distribution of study participants

Age (Years)	Frequency	Percentage
20–30	38	38
31–40	21	21
41–50	21	21
51–60	12	12
61–70	8	8
Total	100	100

Table-2: Frequency of hepatitis B and C

	Frequency	Percentage
Hepatitis B	3	3
Hepatitis C	12	12
None	85	85
Total	100	100

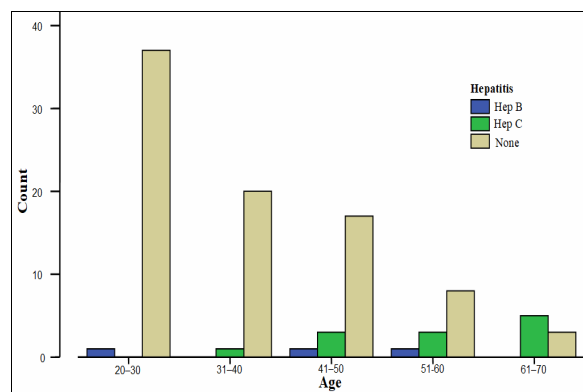


Figure-1: Age-wise distribution of Hepatitis B and C

The frequency of hepatitis in males was higher than females as shown in Figure-2. The percentage of hepatitis B in female patients was 1% while the frequency of hepatitis C was 5%. In male patients the frequency of hepatitis B was 2% while the frequency of hepatitis C was 7%.

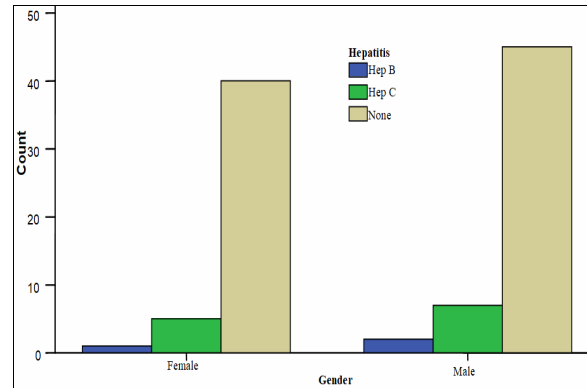


Figure-2: Gender-wise frequency of hepatitis B and C

DISCUSSION

Global prevalence of Hepatitis B varies from high (>8%) in Africa, Asia and Western Pacific, to low (<2%) in Western Europe, North America and Australia.¹¹ The overall prevalence for HBV and HCV was 8.4% and 42.7%, respectively in a study done in Pakistan. Moreover several community-based studies report a higher prevalence of viral hepatitis in Pakistan both in Sindh and Punjab Province.¹²

Studies on understanding the epidemiology of viral hepatitis and related risk factors in Pakistan are limited.¹² Our study documents a low frequency of hepatitis B and increased frequency of hepatitis C amongst admitted patients for surgery. Frequency of HBV was 3% and HCV 12%. Comparing with data HBsAg carrier rate is around 10% in different areas of Pakistan.³ Other studies carried out in different areas of Pakistan for hepatitis B virus frequency reported carrier state as 2.8%¹³, 8.6%¹⁴, and 10%¹⁵ respectively.

Several social factors are responsible for the higher prevalence of HBV and HCV; these include lack of health and safety standards due to insufficient awareness and knowledge of the disease in the general population. Furthermore, the higher prevalence of hepatitis is also linked to the inappropriate disposal of hospital waste in Pakistan.¹⁶

Prevalence of hepatitis C is also seen increasing in another study undertaken at Nawabshah on 523 patients.¹⁷ That study reported 14.3% prevalence of hepatitis C. Such high magnitude of these communicable diseases warrant public health measures to be undertaken and infection control guidelines to be strictly followed for prevention of disease to spread in healthcare workers who are at high risk during surgical procedures.

Positive patients with hepatitis B or C and surgical team require planned management strategies from admission to discharge. Patients with their family should be properly counselled about the disease, treatment, prevention, cost enhancement, and compromised outcome. If there is no emergency,

patients should be properly treated for hepatitis C and vaccinated for HBV. In emergency cases surgical team should use personal protective equipments.⁹

Emphasis should be laid on public health education particularly creating awareness about the risk factors of hepatitis B and hepatitis C, its prevention and control to minimize its transmission. Mass media should be used for this purpose. All patients should be routinely screened for hepatitis B (HBsAg) and hepatitis C (Anti HCV) prior to any surgical procedure.¹⁸

CONCLUSION

The frequency of hepatitis B and C in patients undergoing surgery is going up. This warrants mandatory screening before any surgical procedure, prophylaxis against hepatitis B, and use of personal protective equipment.

REFERENCES

1. Khokhar N, Gill ML, Malik GJ. General seroprevalence of hepatitis B and C infection in the population. *J Coll Physicians Surg Pak* 2004;14:534–6.
2. Spradling PR, Tong X, Rupp LB, Moorman AC, Lu M, Teshale EH, *et al.* Trends in HCV RNA Testing Among HCV Antibody-Positive Persons in Care, 2003–2010. *Clin Infect Dis* 2014;59(7):976–81.
3. Yusuf A, Mahmood A, Ishaq M, Yusuf M. Can we afford to operate on patient without HBsAg screening. *J Coll Physicians Surg Pak* 1996;6(2):98–100.
4. Malik IA, Legters LJ, Luqman M, Ahmed A, Qamar MA, Akhtar KA, *et al.* The serological markers of hepatitis A and B in healthy population in northern Pakistan. *J Pak Med Assoc* 1988;38(3):69–72.
5. Garcia-Fulgueiras A, Tormo MJ, Rodriguez T, Perez-Flores D, Chirlaque D, Navaroo C. Prevalence of Hepatitis B and C markers in the South-east of Spain: An unlinked community-based serosurvey of 2,203 adults. *Scand J Infect Dis* 1996;28(1):17–20.
6. Bell DM. Occupational risk of human immunodeficiency virus infection in health care workers: an overview. *Am J Med* 1997;102(5B):9–15.
7. Tokars JI, Bell DM, Culver DH, Marcus R, Mendelson MH, Sloan EP, *et al.* Percutaneous injuries during surgical procedures. *JAMA* 1992;267:2899–904.
8. Malik IA, Khan SA, Tariq WUZ. Hepatitis C virus in prospective: where do we stand, (Editorial). *J Coll Physicians Surg Pak* 1996;6(4):185–6.
9. Mohan M, Sharma M, Pandey CP, Agarwal AM. Preoperative screening of HIV, HBV, HCV essential for surgical team and patients both –A research study in Department of Surgery, Tertiary Care Institute of North India, Rohilkhand Medical College and Hospital, Bareilly (UP) India. *Int J Contemp Med Res (Online)* 2018;5(7):G1–G4.
10. Zuckerman M. Viral Infections of human beings. In: Walter JB, Israel MS. (Eds) *General Pathology*. 6th ed. Edinburgh; New York: Churchill Livingstone; 1987. pp 310.
11. Shaikh MH, Shams K. Prevalence of HBV markers in health care personals vs matched control. *J Coll Physicians Surg Pak* 1995;5:19–21.
12. Khan A, Afzal S, Yaqoob A, Fatima R, Haq MU, Junaid K, *et al.* Epidemiology of viral hepatitis B and C in Punjab, Pakistan: a multicenter cross-sectional study, 2017–18. [version 1; peer review: 2 approved with reservations]. *F1000Research* 2019; 8:2065 (<https://doi.org/10.12688/f1000research.20174.1>)
13. Talpur AA, Ansari AG, Awan MS, Ghumro AA. Prevalence of Hepatitis B and C in Surgical Patients. *Pak J Surg* 2006;22(3):150–3.
14. Malik IA, Legters LJ, Luqman M, Ahmed A, Qamar MA, Akhtar KA, *et al.* The serological markers of hepatitis A and B in healthy population in Northern Pakistan. *J Pak Med Assoc* 1988;38(3):69–72.
15. Hafeez-ud-din, Siddiqui TS, Lahrasab W, Sharif MA. Prevalence of hepatitis B and C in healthy adult males of paramilitary personnel in Punjab. *J Ayub Med Coll Abbottabad* 2012;24(3–4):138–40.
16. Riaz H, Riaz T, Ullah F, Aziz S, Khan MU, Pervaiz R, *et al.* Assessment of the seroprevalence of viral hepatitis B, viral hepatitis C and HIV in multitransfused thalassaemia major patients in Karachi, Pakistan. *Trop Doct* 2011;41(1):23–5.
17. Samo AA, Laghari ZA, Baig NM, Khoso GM. Prevalence and risk factors associated with hepatitis B and C in Nawabshah, Sindh, Pakistan. *Am J Trop Med Hyg* 2021;104(3):1101–5.
18. Wazir S, Khan M, Ahmad T, Asad K. Frequency of hepatitis B and C in patients operated in oral and maxillofacial surgery unit –a hospital based study. *Pak Oral Dent J* 2016; 36(3):364–7.

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