

Incidence of Hepatitis “B” in Patients Undergoing Operative Procedures at DHQ Hospital Faisalabad

Asia Parveen, Sadia Javed and Shazia Anwer Bukhari

Abstract: Incidence of hepatitis B was determined in patients undergoing operative procedures in surgical wards of DHQ Hospital Faisalabad from 26 April to 28 July, 2010. All the patients undergoing operative procedures were screened for hepatitis B. In present study a total of 620 preoperative patients were screened for hepatitis B among them 13 (2.09%) were positive for hepatitis B. The incidence of hepatitis B was 38.5% in females and 61.5% in males respectively. The results were compared with previous study conducted in other areas of Pakistan. As comparisons, the result was somewhat similar with conducted study but also shown some variation on the other hand. Precautions were also suggested to protect the patients, patient family members and medical personnel or who are at high risk. Present study suggested that all patients must be routinely screened for hepatitis B before going to surgery. Due to high incidence of hepatitis B in this study, it is suggested that all patients who are admitted for any surgery must be screened for hepatitis B. Those patients who found positive for hepatitis B by using simple assay like rapid chromatography immunoassay must be confirmed by ELISA technique. At the same time there must be ways to aware the people about hepatitis B. Such hepatitis patients must be operated in separate operation theaters in order to protect other patients who are at high risk.

Key Words: Hepatitis B, incidence, Surgery.

1. Department of Chemistry, Government College University, Faisalabad. 3800, Pakistan.

INTRODUCTION

Viral hepatitis is global problem and this malady has affected the most part of this globe. The word hepatitis “means inflammation of liver” in which liver is badly affected and unable to function properly [1]. Viral hepatitis can be transmitted enterically, by direct contact with infected people's feces or consumption of fecal contaminated food, or water may result in ample amount of virus entering through oral route to cause infection and parenterally by transfusion of infectious blood and body fluids [2]. Hepatitis B is an infectious disease caused by hepatitis B virus (HBV).

HBV infects human liver that can leads to inflammation called hepatitis, initially recognized as "serum hepatitis" [3]. Hepatitis B infection, although recognized nearly 40 years ago with the identification of Australia antigen, remains a global health problem [4]. Hepatitis B virus is a DNA virus of unique class when observed under transmission scanning electron microscope it appears as double-shelled virus like spherical particle 42nm in diameter. These particles circulate in large quantities in the blood of infected patients. The acute HBV infection is associated with inflammation of liver with generalized symptoms including nausea, loss of appetite, vomiting, mild fever, body aches, itchy skin that can ultimately progress toward jaundice. The symptoms can lasts for few weeks to months and mostly infected individuals recovers in few weeks. The infected patients can develop chronic hepatitis that continues to more than 6 months.

The immune system among these patients is incapable to eradicate the viruses and leads to liver scarring (cirrhosis) that end up with liver failure and/or liver cancer [5].

The availability of HBV vaccine provides protection among non-infected individuals therefore can limit the infection, transmission and hepato-cellular carcinoma. Other preventive measures to avoid transmission include avoidance of unprotected sex, re-use of contaminated needles and syringes and blood transfusions. The infants should be vaccinated as per vaccination schedule whereas the health care professional clinical medical laboratory and blood bank staff dealing with blood and blood products must strictly follow the standard guidelines to minimize the risk of accidental needle injury. The routine screening procedures for blood and blood products before transfusion is helpful to reduce the potential risk of HBV transmission [6]. The chronic infected patients with persistent increased serum alanine aminotransferase (ALT) levels and HBV DNA levels should be treated [7,8]. The available drugs are unable to clear the infection however, decrease or halt the viral replication can therefore can minimize liver damage. The babies born to HBV infected mothers may be treated with antibodies to the hepatitis B virus (HBIG) [9].

Globally, there were around 350 million HBV infected persons as reported in a study in 2004. The region wise prevalence varies with more than 10% in Asia and less than 0.5% in the United States and Northern Europe [10].

The prevalence of HBV infection varies between 2–7% in Russia, Eastern Europe and Japan. South East Asia, China and Africa have the highest prevalence rates and HBV transmission during childbirth or during childhood is foremost common [11].

The diagnosis of HBV infection includes the symptoms, physical findings and blood tests for anti-viral antibodies, liver enzymes and viral DNA [12]. These tests not only help in diagnosis but also the prognosis during the treatment [5]. Bilirubin level also increases in hepatitis patients from normal value (less than 1.2 mg/dL) [13].

The most important indicator of HBV infection is the presence of HBsAg in plasma or serum of infected individuals. HBsAg are routinely detected using Enzyme Immuno Assay (EIA) and was first described by Engvall, Perlmann and van Weemen and Schuur [14]. The EIA based on antigen antibody reactions and formation of color due to enzyme substrate interaction [15]. HBeAg is another marker that can be used to diagnose and monitor the HBV infection.

Various studies have reported the prevalence of hepatitis B and C as 2.5% and 4.9% respectively in different areas of Pakistan. The prevalence of HBV infection is higher in Balochistan province (4.3%) while hepatitis C is more common in Punjab (6.7%) and Sindh (5.0%). Certain districts in Punjab and Sindh have a very high prevalence ranging between 6% - 13% [5].

MATERIALS AND METHODS:

Patients, who were admitted for elective surgery in surgical wards of District Head Quarter (DHQ) Hospital Faisalabad, were screened for hepatitis B. A total of 620 patients were screened for hepatitis B (age ranging from 1 – 80). Among 620 patients, 354 patients were male and 266 were female.

Blood sample was drawn from antecubital vein of the patients; the blood was placed in sample tubes and allowed to clot. The sera were separated from cells, stored and tested within 72 hours using standard procedures in biochemistry lab of DHQ Hospital, Faisalabad. Rapid chromatographic immunoassay was used to detect the presence of HBsAg in serum or plasma specimen. The patients who were positive for hepatitis B were confirmed by enzyme linked immunosorbent assay (ELISA). The incidence of hepatitis B was determined by using statistical tools.

RESULTS:

In this study 620 patients, who were undergoing operative procedure were studied for hepatitis B (Table 1).

HBsAg was positive in 13/620 (2.09%) patients. The incidence of hepatitis B was 38.5% (5/13) in female and 61.5 (8/13) in males which are also shown in Table 2.

During the study it was felt that, most of the patients were not aware about their disease of hepatitis B, they did

not know, when they were suggested by doctors to conduct test of hepatitis before going to surgical procedure.

Only about 15% patients were aware and 85% were not aware which is also represented by Figure 1. In this study age was also considered, hepatitis B was highly prevalent in the age group ranging between 11- 20. The prevalence of HBV in other age groups is shown in Table 3. By this study, it is found that mostly young people are affected by hepatitis B. Use of contaminated syringes and unsterilized surgical instruments were the major cause of hepatitis B transmission. The incidence of hepatitis B was found high in males than in females according to my finding, which can be seen by graphical representation as shown in Figure 2.

DISCUSSION:

The incidence of hepatitis B in this study is 2.09% in patients presenting for surgery. The incidence is high in males 8(61.5%) than in females 5(38.5%). Hepatitis B is highly prevalent in age ranging between 11-20 years. By this study it is concluded that mostly young people are affected by hepatitis B and use of contaminated syringes and unsterilized surgical instruments are the major cause of hepatitis B transmission. The result of this study has compared with previous study conducted in other regions of Pakistan. The prevalence of hepatitis B was found as 2.02% in a study carried out among inpatients admitted in the Department of Orthopedics, Ayub Teaching Hospital Abbottabad, Pakistan. In another study carried out in Department of Ophthalmology PMC Nawabshah the frequency of hepatitis B was 2.18% with higher rates among male as compared to females. In another study from Rawalpindi, Pakistan, the prevalence of Hepatitis B was found as 2.8%. These results are comparable with this conducted study. However, according to study carried at Jacobabad Sindh, the incidence of hepatitis B in surgical patients was 9.33%. The incidence of hepatitis B was 6.5% among admitted patients in a tertiary care hospital at Karachi, Pakistan. The reason may be high population of Karachi and Sindh [16,17].

The use of contaminated surgical instruments, reuse of contaminated syringes infected blood products were the risk factors reported in this study. They concluded that incidence of HBsAg in hospitalized surgical patients is very high. They suggested that all the patients admitted for surgery must be screened routinely to avoid the spread of hepatitis. As comparisons, the results are somewhat similar with conducted study but also show some variation on the other hand [18,19].

CONCLUSION:

Due to high incidence of hepatitis B in this study, it is suggested that all patients who are admitted for any surgery must be screened for hepatitis B. Those patients who found positive for hepatitis B by using simple assay like rapid chromatography immunoassay must be confirmed by ELISA technique. At the same time there

must be ways to aware the people about hepatitis B. Such hepatitis patients must be operated in separate operation theaters in order to protect other patients who are at high risk.

REFERENCES

- Arankalli VA, Ticehurst J, Sreenivasun MA (1988). *Lancet*;1:550-554.
- Deinhardt F, Guest ID (1982). *WHO bulletin*;60:661-691.
- Williams R, Baltimore MD (2006). 44:521-526.
- Ganem A, Prince AM (2004). *N Eng J Med*;350:1118-1129.
- Karamat KA, Tariq W (1998). *Armed Forces Institute of Pathology, Pak.* 45-48.
- Cannor O, John (2008). *Body health resources corporation.* 21:51-57.
- Lai KN, Lui AU, Tam, Tong, Lai (1991). *New Eng J Med*;324:1457-1463.
- Lai CL, Yuen MF (2007). *Ann Int Med*;147:58-61.
- Libbus MK; Phillips LM (2009). *Pub Health Nurs*;6:353-361.
- Custer SD, Sullivan TK, Hazlet U, Iloejeveenstar KV, Kowdley (2004). *J Clin Gastroenterol*;38:158-168.
- Redd J, Baumbach J, Kohn W, Nainan O, Khristova M, Williams I (2007). *J Infect Dis*;195:1311-1314.
- Alter M (2003). *Seminars in liver disease.* 23:39-46.
- Kim HC, Nam CM, Jee SH, Han DK, Suh I (2004). *Bio Med J*;328:983-989.
- Voller A, Bidwell D, Huldt G, Engvall E (1974). *Bull WHO*;51:209-211.
- Van WBK, Schuurs AHWM (1971). *FEBS J Lett*;15:232-236.
- Hollinger FB, Lau DT (2006). *Gastroenterol Clin North Am*;35:895-931.
- Masood, Jawaid M, Khan RA, Rehan S (2005). *Pak J Med Sci*;21(4):455-459.
- Chaudhery IA, Khan SS, Majrooh AM, Alvi AA (2007). *Pak J Med Sci*;23(4):514-517.
- Daupota AQ, Soomro AW (2008). *Pak J Med Sci*;24(3):483-484.

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Table 1: Total patients investigated

No. of patients	620
Age group	01-80 years
Mean age	40 years
Male	354
Female	266

Table 2: HBV positive cases

Total No. of Patients investigated	620
HBV Positive	13(2.09%)
Male	8 (61.5%)
Female	5(38.5%)

Table 3: Age wise frequency of HBV

Age (years)	HBV Positive
1-10	Nil
11-20	6
21-30	4
31-40	3
41-50	Nil
51-60	Nil
61-Above	Nil
Total	13

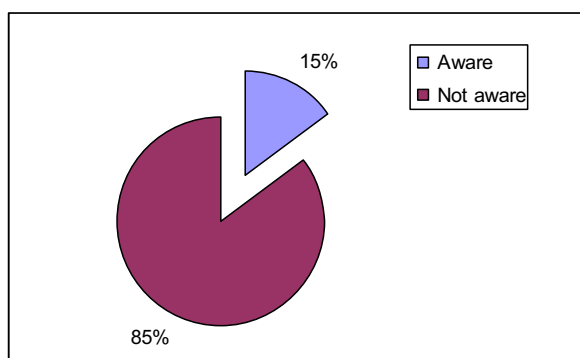


Figure 1: Aware and unaware patient ratios

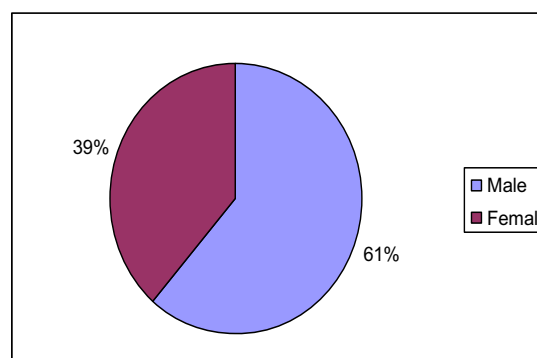


Figure 2: Incidence of hepatitis B in male and female patients