

ORIGINAL ARTICLE

FREQUENCY OF HEPATITIS B IN ASYMPTOMATIC PATIENTS OF DISTRICT HEADQUARTER HOSPITAL KOTLI, AZAD KASHMIR

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Background: Hepatitis B is prevalent throughout the world including Pakistan. A large proportion of patients suffering from Hepatitis B may be asymptomatic and can transmit the disease to healthy population. Objectives of this study were to estimate the frequency of Hepatitis B in asymptomatic adult population coming to District Headquarter Hospital Kotli, Azad Kashmir and to determine the risk factors associated with its transmission. **Methods:** This was a cross-sectional study extending from January to December 2008. Subjects were randomly selected from those who attended the medial OPD of DHQ Hospital Kotli, Azad Kashmir for non-Hepatitis related problems. Both males and females between the ages of 15–80 years were included in the study. Blood samples taken from selected subjects were analysed for Hepatitis B surface antigen (HBsAg) by Immunochromatographic kit methods (ICT). Hepatitis B positive samples were further confirmed by third generation ELIZA. The patients thus confirmed were interrogated for different risk factors associated with transmission of Hepatitis B. **Results:** A total of 9,564 patients were analysed. Out of them 4230 (44.22%) were males and 5334 (55.77%) were females. Overall 141 (1.47%) patients were positive for HBsAg, 71 (1.68%) males and 70 (1.31%) females. Patients between 21–30 years of age were most commonly effected (35.46%, n=50). Blood transfusion was the most common risk factor (24.82%, n=35) associated with Hepatitis B transmission followed by dental procedures (14.18%, n=20). **Conclusion:** Frequency of Hepatitis B in asymptomatic people in this study was quite high. Blood transfusions and dental procedures were the most common risk factors associated with the transmission of Hepatitis B.

Keywords: Hepatitis B, HBsAg, asymptomatic carriers, risk factors

INTRODUCTION

Hepatitis B is an infectious disease of human beings which affects mainly the liver. It is one of the most wide spread and prevalent infections of human beings. Hepatitis B Virus (HBV) infects almost one third of human population (2 billion people worldwide), and of those who are infected, 350 millions are chronic carriers.^{1,3} Every year approximately 600,000 people die of hepatitis related illnesses.¹ In endemic regions Hepatitis B constitutes 60–80% of those who suffer from hepatocellular carcinoma which has become the 5th leading cause of death in these areas.²

Globally Hepatitis B contributes 30% of the cases of liver cirrhosis and 53% of those who had hepatocellular carcinoma.⁴ In patients who are suffering from chronic Hepatitis B, cumulative incidence of developing liver cirrhosis over a period of 5 years after diagnosis was 8–20%.⁵ Economic burden of treatment of these patients is huge not only for their families but also for health resources of the country.

Prevalence of Hepatitis B varies in different regions of the world. The regions have been distributed in areas of high prevalence (prevalence rate >8%), intermediate (prevalence rate 2–8%) and low prevalence (prevalence <2%). Developed countries like USA, Canada, Western Europe and Australia have low prevalence. China, Southeast Asia, most of Africa and

parts of South and Central America are included in high prevalence areas. Rest of the world including Pakistan lies in intermediate prevalence range.^{3,6} Carrier rate in Pakistan has been found to be 3–4%.⁶ Rate of carriage of chronic hepatitis B in Middle East and Indian Subcontinent is 2–5% among general population.⁷

Hepatitis B virus spreads by parenteral route like blood transfusion, needle stick injury and cuts with infected razors. Virus can survive for seven days outside the body for example on a used razor.³ Other important modes of transmission are through sexual contact and intimate close contact via body secretions.

Pattern of infection varies in different areas. In endemic high prevalence regions infection is acquired during infancy and childhood due to perinatal transmission or transmission through close contact in childhood.^{2,8} Certain high risk groups include⁷:

- Staff and patients of haemodialysis units
- Health care workers
- Staff and residents of prolonged care residential facilities for disabled and elderly as well as psychiatric patients
- Thalassaemics and haemophiliacs
- People involved with sharp instruments
- Homosexuals, heterosexuals, and having other sexually transmitted diseases
- Household and sexual contacts of infected carriers

Screening of blood for Hepatitis B was available since 1974 reducing the frequency of transmission by this portal. In 1992 WHO proposed that vaccination against Hepatitis B virus should be included in EPI programme which proved to be the most effective way of decreasing the prevalence of this infection in ensuing years.² It was planned that it should be available to all infants and children up to the age of 12 years throughout the world by 1997.¹ This strategy has decreased the incidence of Hepatitis B infection (<1% in immunized) in areas who have adopted this programme, a good example of which is Taiwan.² Other preventive measures include health education, screening of blood products, vaccination of high risk groups, safe sex methods, proper disposal of hospital waste and avoiding the practice of needle sharing especially in Intravenous Drug Abusers (IVDA).

As Pakistan is a country with a large rapidly growing population, large numbers of people are expected to be suffering from chronic hepatitis, cirrhosis and hepatocellular carcinoma.⁹ As many of the patients suffering from chronic hepatitis B may be asymptomatic, prevalence of hepatitis B cannot be calculated accurately if only symptomatic patients are surveyed.

Objective of this study was to determine the frequency of Hepatitis B in asymptomatic adult people coming to DHQ Hospital Kotli, Azad Kashmir. It was also intended to study the risk factors responsible for transmission of infection in those who were found seropositive.

MATERIAL AND METHODS

This was a hospital based cross-sectional study carried out from January 2008 to December 2008. Subjects included were those who attended the medical OPD of District Hospital, Kotli, Azad Kashmir during the study period. Asymptomatic patients who did not have symptoms of hepatitis were included. Those who had symptoms of hepatitis or were already diagnosed cases of hepatitis were not included. These patients came to hospital for problems other than hepatitis and most of them were having non-specific vague complaints like body aches and dyspepsia. Study included both males and females between the ages of 15–80 years. Patients' selection was random. Blood samples were taken from the selected patients and sent for HBsAg and anti-HCV by Immunochromatographic (ICT) kit method by accurate rapid device test. Those who were found positive for Hepatitis B surface antigen were further confirmed by third generation ELISA. The patients thus confirmed were interrogated for different risk factors associated with the transmission of this infection.

RESULTS

During the study period, 9,564 patients were analysed. Their ages ranged between 15–80 years. Out of them

4,230 (44.22%) were males and 5,334 (55.77%) were females. Overall 141 (1.47%) were positive for HBsAg. Amongst 4,230 males 71 (1.68%) were positive while in 5,334 females 70 (1.31%) were positive for Hepatitis B (Table-1). Patients of 21–30 year age were most commonly effected (50, 35.46%). Next commonly effected age group was 41–50 years (25, 17.73%). Frequency of infection in persons of >60 years age was quite low (11, 7.8%) (Table-2).

Blood transfusion came out to be the most frequent risk factor associated with Hepatitis B infection (35, 24.82%), followed by history of dental procedures (20, 14.18%). In quite high number (57, 40.4%) of patients no risk factors could be identified (Table-3).

Table-1: Gender-wise distribution of Hepatitis B positive patients

| Gender | Total | Hepatitis B positive | Percentage |
|--------------|--------------|----------------------|-------------|
| Males | 4,230 | 71 | 1.68 |
| Females | 5,334 | 70 | 1.31 |
| Total | 9,564 | 141 | 1.47 |

Table-2: Age-wise distribution of Hepatitis B positive patients

| Age group(Yrs) | Hepatitis B positive | Percentage |
|----------------|----------------------|------------|
| 15–20 | 20 | 14.18 |
| 21–30 | 50 | 35.46 |
| 31–40 | 20 | 14.18 |
| 41–50 | 25 | 17.73 |
| 51–60 | 15 | 10.63 |
| 61–70 | 6 | 4.2 |
| 71–80 | 5 | 3.5 |
| Total | 141 | 100 |

Table-3: Risk factors associated with Hepatitis B transmission

| Risk factors | Number amongst positive cases | Percentage |
|------------------------|-------------------------------|------------|
| Dental procedures | 20 | 14.18 |
| Blood transfusion | 35 | 24.82 |
| Surgical interventions | 10 | 7.09 |
| Needle stick injury | 12 | 8.05 |
| Haemodialysis | 5 | 3.05 |
| Tattooing | 2 | 1.04 |
| Unknown | 57 | 40.0 |
| Total | 141 | 100 |

DISCUSSION

Frequency of Hepatitis B in this study was 1.47%. It included only asymptomatic patients. If symptomatic and already diagnosed cases of Hepatitis B were also included, it would have been even higher which is in concordance with WHO estimates for this region. A study by Alam *et al*, including subjects from all regions of Pakistan, showed a prevalence rate of 4%.¹⁰ Some other studies gave prevalence rates of 2.9% from Bahawalpur, 2.04% from Lahore, and 2.06% in healthy blood donors in Faisalabad.¹⁰ A big study of 47,538 people who belonged mainly to male healthy population, was conducted in Shifa International Hospital Islamabad and showed Hepatitis B prevalence rate of

2.56% while 0.19% were positive for both Hepatitis B and C.¹¹ In a review of medical and public health literature about prevalence of Hepatitis B and C in Pakistan from 1994 to 2007, Ali *et al* concluded that overall seroprevalence of HBsAg in healthy adults was 2.4%. It was found to be higher in high-risk groups like haemophiliacs and thalassaemics (7.8%), haemodialysis patients (14.6%), and health care workers (6%).⁹ A study conducted in semi-urban areas of Dhaka, Bangladesh showed prevalence rate of 5.5% in general population.¹² In a meta analysis from Egypt, prevalence rate of Hepatitis B was found to be 6.7% while 25.9% of hepatocellular carcinoma cases were infected with Hepatitis B.¹³

In our study males were more frequently affected than females. In the study by Alam *et al* the females were more commonly affected.¹⁰ Women in our society are restricted to their houses. Their chances of being involved in activities like IVDA, tattooing and multipartner sex practice, are low. These may be the reasons of somewhat lower prevalence of Hepatitis B in this subgroup.

In Hepatitis B positive patients, highest prevalence was found between 21 to 30 years of age followed by 41–50 years. Overall 130 subjects (92.19%) found positive were between 15 to 60 years of age and only 11 (7.8%) were above the age of 60. These figures are more like those observed in developed countries with low prevalence where adolescent and young adults are more commonly affected.

Blood transfusion was the most common risk factor in our study followed by dental procedures. This is quite alarming. In fact it is a negligible source of transmission in developed countries now. Persistence of this risk factor in our setup may indicate the inadequacy of donors' screening programme. Approximately 1.5 million units of blood products are transfused each year in Pakistan, the safety record of which is unknown. This huge transfusion network is poorly organised and can pose a serious threat for the transmission of infectious diseases.⁹ Proper health regulatory measures should be employed to overcome this problem. Another important underlying factor may be the practice of professional blood donation. According to a study by Luby *et al* in 1995 in Karachi, 50% blood banks utilised the services of paid professional blood donors and only 25% had made an arrangement to actively recruit non-professional voluntary blood donors.¹⁴ Majority of these donors is poor and many of them are addicts involved in IVDA. Their chances of being infected are quite high leading to transmission of infection in recipients. According to a report by Ahmad in 2001, there was a higher prevalence of Hepatitis B virus in professional blood donors (9%) compared to voluntary blood donors (0.8%).⁹ A potential problem which should be looked into is that blood bags and their needles may be infected.

Used blood bags and needles, instead of being destroyed properly, may be reused illegally which can pose a serious threat for spread of infection.

Dental procedures (14.18%) and surgical interventions (7.09%) collectively contributed about 21% of the risk of transmission in this study. Other risk factors like needle stick injuries (8.05%) and tattooing (1.04%) emphasise the need to take proper precautions and impart health education.

In very high percentage (40%), no risk factor could be identified. This is a grey area and needs to be investigated thoroughly. A very important risk factor in this respect may be improper disposal of hospital waste including sharps, swabs, gloves and other material soiled with human secretions.

Barbers in our country may be an important source of spread of Hepatitis B infection. Apart from hair cutting and shaving beard and armpits, they also perform other potentially dangerous jobs like circumcision and minor surgery like abscess drainage. Their knowledge about the risks associated with these practices is found to be quite low.¹⁵ The rate of reuse of razors was quite high (46%).¹⁶ According Gerlich¹⁷, asymptotically infected health care workers may have high viraemia and can transmit the infection to their patients while performing high risk procedures like surgeries. Higher the level of viraemia, higher will be the risk. This factor is more pertinent to barbers who are mostly illiterate and in view of dangerous procedures performed by them in our society they can be an extremely dangerous source of disease transmission. In a study by Jokhio *et al*, only 3.2% of the barbers were vaccinated against Hepatitis B.¹⁸ Health education to the masses as well as barbers, would be an important preventive measure in this regard.¹⁹

Undiagnosed, asymptomatic patients may be a source of infection in many ways like by intimate personal contact with other family members and by sexual transmission to sex partners. In a study by Ashraf *et al* high prevalence of Hepatitis B was noted in the family members of Hepatitis B positive patients living in the same house.⁷ More the prevalence of the disease more will be number of asymptomatic patients. Standard preventive strategies like immunisation may overcome this problem as has occurred in many countries.²⁰

CONCLUSION

Frequency of Hepatitis B in our asymptomatic population is quite high. Children up to age of 12 years who are not vaccinated may be given primary series of vaccination. All the high risk groups should also be vaccinated. All blood donations should be strictly screened for Hepatitis B. Strict regulatory measures should be adopted to monitor the surgical practices.

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