

Prevalence of Hepatitis B and Hepatitis C in Elective Ocular Surgery (rural origin) at Shifa Eye Hospital, Khanpur

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Purpose: To estimate the prevalence of hepatitis B and C infection in elective ocular surgery in patients of rural origin.

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Material and Methods: The study was conducted at Al Shifa Eye Hospital Khanpur from July 2010 to June 2012. Patients who were admitted for ocular surgery were included in this study. A proforma was designed for collection of data and consent was obtained from patients for the study. Patients of rural origin of either sex between the ages of 40 to 90 years were included in the study.

Results: Two thousand and fifty six (2,056) patients who had been admitted for elective ocular surgery were screened for Hepatitis B and Hepatitis C. Among them one thousand and forty three (50.73%) patients were male and one thousand and thirteen (49.27%) were female. Of these four hundred and twenty five (20.67%) patients were serologically positive for hepatitis. Forty eight patients were serologically positive for Hepatitis B positive (11.29%) and three hundred seventy seven (88.70%) were positive for hepatitis C. Among hepatitis B seropositive patients twenty seven (56.25%) were male and twenty one (43.75%) were female. Among Hepatitis C patients one hundred and ninety four (51.45%) were male and one hundred and eighty three (48.54%) patients were female.

Conclusion: The prevalence of hepatitis C antibodies is high in our rural population that is about to undergo ocular surgery.

Viral hepatitis is a major health problem. Hepatitis B virus (HBV) has infected more than 2000 million persons and 350 million people are carrier of the virus. Each year approximately one million people die from hepatitis B which makes it one of the major causes of morbidity and mortality¹. Hepatitis C virus (HCV) infection is increasing even more rapidly and has occurred in endemic situation in most parts of the world, with a prevalence of about 3% world wide². Hepatitis C virus infection progresses slowly and carries high risk of chronic liver disease (70 - 80%) and later liver malignancy³. In Pakistan a large proportion of the population is already infected with hepatitis B and C

with a prevalence of 10 % for hepatitis B and 4-7 % for hepatitis C⁴. In certain parts especially in the rural areas the percentage of infected individuals is significantly higher than the above quoted figures^{5,6}. The transmission of virus is through the blood and secretions. Most common source of spread of these infections is through the use of unsterilized syringes or instruments especially dental instruments or unchecked blood transfusion, other factors involved in the spread of hepatitis are contaminated instruments (e.g.: haemodialysis sets, reuse of contaminated medical devices, tattooing devices, acupuncture needles and razors) and occupational and nosocomial exposures⁷.

The study was conducted at Shifa Eye hospital Khanpur to see the prevalence of hepatitis B and Hepatitis C in patients attending the hospital.

MATERIAL AND METHODS

This retrospective study was conducted at Shifa Eye Hospital Khanpur from July 2010 to June 2012. A total of 2,056 patients were included in this study that had undergone elective ocular surgery. Patients from rural origin of either sex or occupation were included in the study and patients from urban origin were excluded.

Every patient was serologically screened by rapid chromatography immunoassay (ICT) for qualitative detection of Hepatitis C virus and hepatitis B antibodies in patients before surgery. This test is done by a cassette containing a membrane strip which is pre-coated with mouse monoclonal anti-HBs capture antibody on the test band region. The mouse monoclonal anti -HBs- colloid gold conjugate and serum sample move along the membrane chromatographically to the test region (T) and form a visible line as the antibody - antigen-antibody gold particle complex forms. The cassette used for this is of Standard Diagnostics Inc. (Korea).

RESULTS

A total number of 2056 patients were operated during the study; one thousand and forty three (50.73%) patients were male and one thousand and thirteen (49.27%) were female Table 1. Of these four hundred and twenty five (20.67%) patients were serologically positive for hepatitis. Forty eight patients were serologically positive for Hepatitis B positive (11.29%) and three hundred seventy seven (88.70%) were positive for hepatitis C. Among hepatitis B seropositive patients twenty seven (56.25%) were male and twenty one (43.75 %) were female. Among Hepatitis C patients one hundred and ninety four (51.45%) were male and one hundred and eighty three (48.54%) patients were female (Table 2).

DISCUSSION

Hepatitis B virus (HBV) is a member of the Hepadnavirus family⁸. The virus particle, (virion) consists of an outer lipid envelope and an icosahedral nucleocapsid core composed of protein. The virus particle, (virion) consists of an outer lipid envelope and an icosahedral nucleocapsid core composed of protein.

Table 1: HBV and HCV Positive

Age (Yrs)	No. of patient	Male n (%)	Female n (%)
40-90	2056	1043 (50.73)	1013 (49.27)

HBV and HCV Positive

Table 2: HCV and HBV Positive

	Male n (%)	Female n (%)
HCV Positive	194 (51.45%)	183 (48.54%)
HBV Positive	27 (56.25%)	21 (43.75%)
Total	221	204

The hepatitis C virus is a small (50 nm in size), enveloped, single-stranded, positive sense RNA virus. It is the only known member of the hepacivirus genus in the family Flaviviridae. There are six major genotypes of the hepatitis C virus, which are indicated numerically (e.g., genotype 1, genotype 2, etc.). Based on the NS5 gene there are three major and eleven minor genotypes. The major genotypes diverged about 300–400 years ago from the ancestor virus. The minor genotypes diverged about 200 years ago from their major genotypes. All of the extant genotypes appear to have evolved from genotype 1 subtype 1b genotypes diverged about 200 years ago from their major genotypes.

The earliest record of an epidemic caused by hepatitis B virus was made by Lurman in 1885⁹. In the mid 1970s, Harvey J. Alter, Chief of the Infectious Disease Section in the Department of Transfusion Medicine at the National Institutes of Health, and his research team demonstrated how most post transfusion hepatitis cases were not due to hepatitis A or B viruses. In 1988, the virus was confirmed by Alter by verifying its presence in a panel of NANBH specimens. In April 1989, the discovery of the virus, renamed hepatitis C virus (HCV), was published in two articles in the journal *Sciences*^{10,11}. The incidence of hepatitis B and C has achieved alarming situation in many countries of the world, especially in underdeveloped countries. In Pakistan the condition more grave in rural areas where patients are more exposed to infection due to protean constraints. According to Cloud Hay and his colleagues the prevalence of hepatitis C was 11.26%. Ali and his associates¹² reported 5.1% patients suffering from hepatitis C in their study and carrier state of HBs Ag

was found to be 2.8%. The carrier state of HBs Ag is around 10% in different segments of Pakistani people. Surgeons and operation room personnel have the high risk of occupational exposure. In our study the prevalence of hepatitis was 20.67%. Among these 425 patients prevalence of Hepatitis B was 11.29% while Hepatitis C was 88.70%. There is high prevalence of Hepatitis C as compared to Hepatitis B. Also the prevalence of hepatitis was more as compared to previous studies. The reason for this might be people of rural origin get health facility from medical and dental quakes due to protean reasons. Quakes are unaware of hazards of unsterilized syringes. Dental quakes also use unsterilized dental instruments for dental diseases managements and exposed the community toward hepatitis. With such high rate of transmission in a highly developed country like USA little is known about the rate of risk in our part of the world. Once inflicted this disease results in social, psychological and economic problems for the patient.

CONCLUSION

The incidence of hepatitis C antibodies positive is higher in our population. Invasive procedures represent an important mode of HBV and HCV transmission. Since a large proportion of the adult general population is exposed to these procedures and an effective HCV vaccine is not yet available, non-immunological means of controlling iatrogenic modes of transmission are extremely important.

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