



Prevalence of Hepatitis B and Hepatitis C Infection in Individuals Undergoing Preoperative Evaluation for Cataract Surgery: A Cross-Sectional Analysis of Screening Outcomes and Risk Factors

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ABSTRACT

Background: HBV and HCV infections are transmitted through blood and body secretions and cause acute hepatitis which clears within 6 months in 80% cases of HBV and 20% cases of HCV. The infection becomes chronic and may progress to chronic liver disease in 20% HBV and 80% HCV.

Purpose: To find out the prevalence of Hepatitis B and C among patients planned for cataract surgery in Sialkot region.

Study design: A quantitative descriptive study.

Place and duration of study: This study was conducted in a Tertiary care Hospital from 1st July to 31st December 2025.

Material and Methods: In the six months study period 462 patients were diagnosed to have cataract in one or both eyes and planned for surgery. All these patients were pre operatively screened for Hepatitis B and C virus in the hospital laboratory. Data of positive cases was analysed using various variables.

Results: Total 462 patients were planned for cataract surgery, 263 (56.92%) were males and 199 (43.08%) females. They were all screened for HBV and HCV in hospital laboratory.

There were 46 (9.95%) positive cases, 22 (4.76%) were males and 24 (5.19%) females. HBs Ag was positive in 9 (1.95%) and anti HCV in 37 (8.00%) patients. In gender comparison



HBV was positive in 5 males (1.08%) and 4 (0.86%) female, whereas HCV was detected in 17 (3.68%) males and 20 (4.32%) female patients respectively. None of the patient was suffering from both hepatitis B and C simultaneously. Mean age of our study participants was 67.5 years.

Conclusion: The prevalence of Hepatitis B and C is high and awareness about its prevention and transmission is limited in Pakistan. Therefore all patients planned for any interventional procedure must be screened pre operatively to reduce the risk of transmission.

Key Words: Cataract Surgery, Hepatitis B, Hepatitis C.

INTRODUCTION:

Hepatitis B virus (HBV) and C virus (HCV) are among the principal causes of severe liver disease. According to World Health Organization (WHO), worldwide there are 350 million people with chronic HBV infection and 170 million people with chronic HCV infection.^{1, 2} These health problems are more common in developing countries where health care system lack safety measures and public awareness about the mode of transmission is insufficient. Pakistan is among the few countries where prevalence of HBV and HCV is increasing instead of decreasing with a reported prevalence of 10% of HBV and 4% to 10% of HCV infection. Vaccine is available for HBV but not for HCV infection. Therefore prevention is the best option for both infections in general and HCV in particular.³

HBV and HCV infections are transmitted through blood and body secretions and cause acute hepatitis which clears within 6 months in 80% cases of HBV and 20% cases of HCV. The infection becomes chronic and may progress to chronic liver disease in 20% HBV and 80% HCV.⁴

The consequences of HBV infection depends upon the age of its acquisition. There is over 90% risk of a new born to get infected and become a long term carrier of HBV. This risk drops from 90% in the first six months of life to about 25% by the age of five years, and 10% by

the age of 15 years. It is unusual (2% to 5%) for adults who are infected later in life to become chronic carriers.⁵

In developed countries HCV is commonly transmitted through intravenous drug use, blood transfusions, haemodialysis, needle-stick injuries, tattooing, sexual intercourse and peri-natal infections. In developing countries, injections from reused needles and syringes and improper sterilization of surgical instruments are the major vehicle for transmission of hepatitis B and C viruses.⁶ Overuse and unsafe injection practices cause an estimated 8 to 16 million Hepatitis B virus infections and 2 to 5 million Hepatitis C virus infections globally.⁷

Unknown carriers of HBV and HCV presenting to different hospitals for various surgical procedures emergency / elective are not routinely screened. Since majority of these carriers are asymptomatic, they pose a real threat to surgeons, health care staff through contact of percutaneous blood in the form of incisions, intravenous lines and injections and other patients through reusable same surgical instruments/ equipment's.^{8, 9}

Cataract is the opacification of natural lens inside the eye, it is the most common cause of surgically treatable blindness worldwide. Operating surgeons and paramedical staff are at higher risk of occupational



exposure while operating upon cataract patients who are unknown carriers of HBV and HCV.¹⁰

The aim of this study is to determine the prevalence of Hepatitis B and C virus in patients planned for an elective cataract surgery in Sialkot and surrounding areas.

MATERIAL AND METHODS:

A quantitative descriptive study was conducted in eye department of a Tertiary Care Hospital Sialkot from 1st July to 31st December 2019 after approval from the hospital ethical committee.

In this six-month study period, 462 patients were diagnosed having cataract and planned for surgery. All these patients were sent to hospital laboratory for hepatitis screening. Venous blood samples were collected and tested for hepatitis B surface antigen and hepatitis C virus antibodies by Enzyme Linked Immunosorbent Assay (ELISA). All positive patients were included in the study. Mean age of our study group was 67.5 (range 22 to 88) years.

Data was collected on a structured compilation sheet and analysed through SPSS 17 software. Data included various variables like age, gender, previous history of surgery, road traffic accident, intravenous drugs, blood transfusions, treatment from street dentist, services of street barbers, extra marital relations and travel abroad. An informed written consent was obtained from all patients ensuring the confidentiality.

RESULTS:

Our study spread over six month's period. Total 462 patients having cataract were included in the study, 263 (56.92%) were males and 199 (43.08%) females. Majority of the patients 65.8% were between 51 and 70 (mean age 67.5) years, the age bracket where cataract is more common, figure 1.

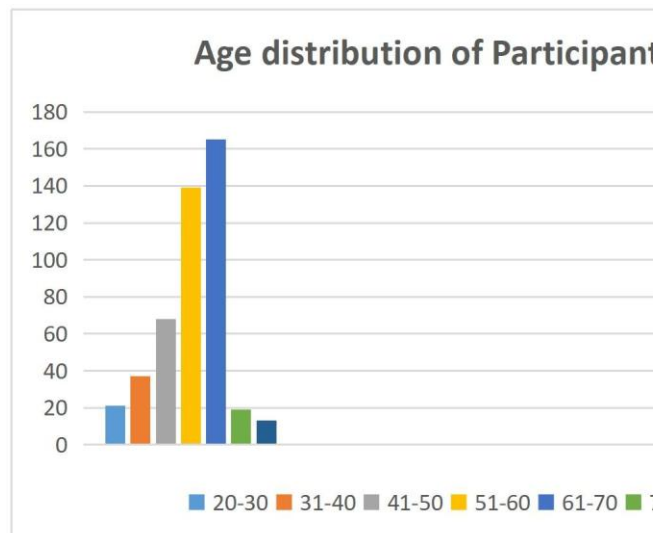


Fig-1: Age distribution of study participants

All patients were pre operatively screened for hepatitis. Laboratory test revealed that 46/462 (9.95%) patients were positive for hepatitis. HBV was positive in 1.95% and HCV in 8.00% cases, figure 2.

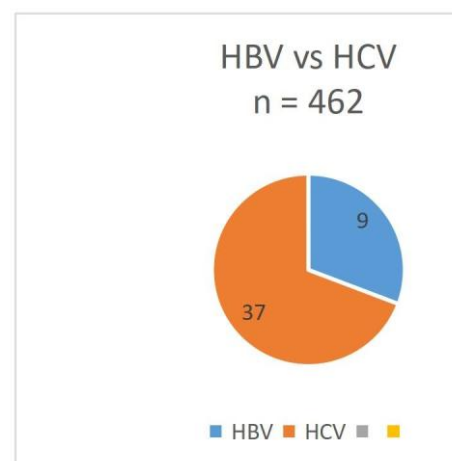


Fig-2: Gender distribution of HBV and HCV

Data reveals that Hepatitis was more common among female patients, hepatitis C was more prevalent and that no patient had simultaneously both hepatitis B and C virus infection, table 1.

Table 1: Gender distribution of Hepatitis



Hepatitis	Male patients n = 263 (56.92%)	Female patients n = 199 (43.08%)	Total n = 462	1 (4.54%)
			Abusive	-
HBV	5 (1.08%)	4 (0.86%)	9 (1.95%)	1 (4.54%)
HCV	17 (3.68%)	20 (4.32%)	37 (8.00%)	
Total cases	22 (4.76%)	24 (5.19%)	46 (9.95%)	4 (18.18%)

Among 46 patients positive for hepatitis, 45.65% had history of various surgical procedures, 6.52% had voluntary intravenous non abusive drugs use, 8.69% had blood transfusion, 13.04% had dental treatment from street dentist, 10.86% had history of shaving from street barbers and in 15.21% no relevant cause can be attributed, table 2.

Table 2: Possible cause of Hepatitis in our patients (n = 46)

Street Barbers	Shaving	5 (22.72%)
Extra marital contact		-
Travel Abroad		-
Unknown		4 (18.18%)

Possible Causes		Male n = 22	Female n = 24	Total n = 46
Surgery	Traffic Accidents	3 (13.63%)	1 (4.16%)	4 (8.69%)
	Cholecystectomy	-	3 (12.5%)	3 (6.52%)
	Hysterectomy	-	1 (4.16%)	1 (2.17%)
	C-Section	-	4 (16.66%)	4 (8.69%)
	Major/Minor	4 (18.18%)	5 (20.83%)	9 (19.56%)

DISCUSSION:
According to World Health Organization, in Southeast Asia an average person receives four injections per year, most of which are unnecessary and up to 75% are unsafe given with reused syringes. In Pakistan due to prevalent view that injectable medicines are more effective than oral, these unnecessary intramuscular and intravenous injections are commonly practiced and healthcare providers even encourage this injection-seeking behaviour of patients as they are willing to pay an additional money for injections.¹¹ Syringes are reused and sterility of injections is often not maintained due to financial strains and lack of risk awareness. These injections are the single most significant factor in the spread of HBV and HCV in the general population in Pakistan, other factors are street



barbers, street dentists and unsafe surgeries in local clinics.

Our study provides six months data of patients who came for cataract surgery in Sialkot, were asymptomatic, most of them were unaware of their infection and were found to have hepatitis B or C on preoperative screening.

In our study hepatitis was detected in 9.95% cases, HBV was positive in 1.95% and HCV positive in 8.00% cases. Moiz et al conducted a study in Rawalpindi on 215 patients planned for invasive ophthalmic procedures, hepatitis was diagnosed in 10.23% patients, HBV was found in 2.79% and HCV in 7.44% patients.³ Naeem et al in Karachi found Hepatitis in preoperative cataract patients to be 12.99% with Hepatitis B in 2.1% and Hepatitis C in

11.1% cases.⁴ Tahir et al conducted a study on 648 cataract patients in Karachi, 8.8% patients had hepatitis, HBV in 2.62% and HCV in 6.2% patients.¹⁰ In a study conducted in Dera Ismail Khan (D.I.Khan) by Iftikhar and co-workers on patients planned for cataract surgery found hepatitis in 5.75% cases, HBV in 3.18% and HCV in 2.57%.¹¹ In another study

Nangrejo et al on 437 patients in a cataract surgical camp in Nawab Shah, found Hepatitis in 24.7%, Hepatitis B in 4.34% and Hepatitis C in 20.36% cases.¹²

A study on 554 preoperative cataract patients by Asim in Kharian found Hepatitis in 8.72%, with HBV in 2.35% and C in 6.37%.¹³

Mahesh Kumar and co-workers in a study on 2200 preoperative eye surgery patients in

Hyderabad found hepatitis in 15.36% patients, HBV in 2.54% and C in 12.81%.¹⁴ In Lahore Samia et al conducted a study on 1304 patients planned for cataract surgery and detected hepatitis in 15.2%, HBV

in 7.7% and HCV in 7.5% respectively.¹⁵ The prevalence of hepatitis in Jarranwala was 48.81%, HBV 1.59% and HCV 47.60% as reported by Zahid

Latif and co-workers in a study conducted on 379 patients in free eye camp.¹⁶ In a study by Hashim et al in Rawalpindi on 315 cataract patients found hepatitis in 14.29% patients and all were HCV positive and with female predominance.¹⁷

In Egypt Ahmed et al conducted a study on 3067 patients planned for elective eye surgery in a specialized eye hospital with 12.6% positive for hepatitis, 0.2% with HBV and 12.4% with HCV infection.¹⁸ Mehmet et al conducted a study on 1040 cataract patients in Turkey and found Hepatitis in 5.01% patients, HBsAg was positive in 3.8% and Anti-HCV in 1.3%.¹⁹

A study on hepatitis virus infection and age related cataract in Korea National Health and Nutrition Examination Survey 2010–2012 found Hepatitis in 5.2% cases, HBV was positive in 3.9% and HCV in 1.3%.²⁰

Data from original studies carried out in different centres of Pakistan reveals that the total prevalence of Hepatitis in cataract patients is maximum in Jarranwala (Faisalabad) and minimum in DI Khan. In the light of these studies the average prevalence of Hepatitis in Pakistan is about 15.89%, HBV is 2.80% and HCV 13.10%. In Pakistan and Egypt HCV is common whereas HBV is common in Turkey and Korea.

In our study, the incidence of hepatitis was highest in the age group 50-70 years, similar

results were seen in other studies as well.^{3, 4, 10, 12, 13, 14, 15}

There is female predominance in HCV infection as revealed in our study and other studies in Pakistan. 3, 10, 12, 13, 14, 15, 17



In Pakistan the documented prevalence of HBV and HCV does not give true picture due to lack of awareness and proper screening facilities in rural areas.

CONCLUSION:

The prevalence of hepatitis is high in our society, most of the patients are in the carrier state unaware of their infection. Routinely cataract patients are not screened for HBV and HCV which exposes health care professionals and other patient's to high risk.

RECOMMENDATIONS

It is recommended to carry out;

1. Mandatory preoperative screening of all patients preoperatively.
2. Mass immunization against Hepatitis B, especially health care providers.
3. Public awareness about the spread and prevention of Hepatitis.
4. Staff awareness about the use of disposable or separate set of instruments.

CONFLICT OF INTEREST

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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