

# Screening of Hepatitis B and C Viruses in Patients before Ocular Surgical Procedures

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## ABSTRACT

**Objective:** To screen and see the incidence of hepatitis B and C among patients before ocular surgical procedures.

**Study Design:** Prospective / Observational Study

**Place and Duration of Study:** This study was conducted at the Department of Ophthalmology, Dow University Hospital (ojha campus) of Dow International Medical College, Karachi, Pakistan from May 2014 to December 2014.

**Patients and Methods:** 223 patients above the age of 18 years were screened for hepatitis B and C before going ocular surgery by immune-chromatographic method (ICT). The patients who were positive for hepatitis were further confirmed by Enzyme Linked Immunosorbent Assay (ELISA).

**Results:** Total number of patients screened was 223. 11 (4.93%) patients were positive for hepatitis B and C, out of which 2(0.9%) were hepatitis B positive and 9(4%) were hepatitis C positive. Prevalence among male patient was 6.97% while among female was 2.12%.

**Conclusion:** The eye patients show high incidence of hepatitis B and C. Therefore, it is mandatory for all patients who need ocular surgery to be screened by serological test for hepatitis B and C preoperatively.

**Key Words:** Hepatitis B, Hepatitis C, Surgery

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## INTRODUCTION

Viral hepatitis B and C are common and important causes of chronic liver disease and in Pakistan hepatitis B and C are leading health problems.<sup>1</sup> Chronic hepatitis B and C are also the major risk factors of primary hepatic cancer worldwide.<sup>2-5</sup>

Hepatitis viruses are blood borne and can be transferred through blood or body secretions( serous, saliva, or vaginal secretions)<sup>6,7</sup> but hepatitis C virus(HCV) is spread only by blood borne and transmitted through blood.<sup>8</sup> In ophthalmology, there are risk of transmission of hepatitis B virus(HBV) and HCV during various ocular procedures like biometry, measuring of intraocular pressure and in operation theatre while giving anesthesia, using of sharp instruments(blades, needles etc) and during sterilization and finally disposal of biomedical waste.<sup>9</sup>

In developing countries like Pakistan, preoperative screening facilities for hepatitis B and C are not available particularly at primary and secondary level even for elective/planned surgery. Tertiary care facilities are available only in large/teaching hospitals of big cities. Hepatitis B and C is highly prevalent in our country and its incidence is on the rise. In this situation the most effective preventive measure against these two blood borne pathogens is building awareness

and adopting preventive measures to minimize transmission.

This study was carried out to determine the incidence of hepatitis B and C in patients before ocular surgical procedures.

## MATERIALS AND METHODS

This study was conducted in eye department of Dow University Hospital (ojha campus), Dow International Medical College, Karachi from May 2014 to December 2014. The informed consent was taken from every patient. We included all patients who came to eye Out Patient department(OPD) and underwent ocular surgery. All patients were interviewed in detail especially of jaundice and blood transfusion. The blood samples of all these patients were taken in hospital lab and hepatitis B and C serological test were carried out using immunochromatography(ICT) method. Enzyme Linked Immunosorbent Assay(ELISA) was done in patients in which the serological test results were found to be positive. Data was analysed using SPSS version 16.0.

## RESULTS

The total number of patient included in our study was 223. Out of 223 patients 129(57.8%) were male and 94(42.2%) were females(Table 1). There ages ranged from 18 years to 75 years(Table 2). A total of

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11(4.9%) were found to be positive for HBV and HCV. Out of 11(4.9%) patients, 2(.9%) were positive for HBV and 9(4%) were positive for HCV (Table 3).

Out of 129 male patients, 9(6.97%) patients were positive for hepatitis B and C and out of 94 female patients, 2(2.12%) were positive for hepatitis C. Table 1

**Table No.1: Incidence of Hepatitis B and C cases regarding gender.(n=223)**

	No. of Cases	Hepatitis B		Hepatitis C		Hep. B+C
Gender	n (%)	Positive, n (%)	Negative, n (%)	Positive, n (%)	Negative, n (%)	Positive, n (%)
Male	129 (57.8)	2 (1.6)	127 (98.4)	7 (5.4)	122 (94.6)	9 (6.97)%
Female	94 (42.2)	0 (0)	94 (100)	2 (2.1)	92 (97.9)	2 (2.12)%
Total	223 (100)	2 (0.9)	221 (99.1)	9 (4.0)	214 (96.0)	11 (4.9)

**Table No.2: Incidence of Hepatitis B and C cases at different age groups.(n=223)**

	No. of Cases	Hepatitis B		Hepatitis C	
Age	n (%)	Positive, n (%)	Negative, n (%)	Positive, n (%)	Negative, n (%)
< 20	7 (3.1)	0 (0)	7 (100)	1 (14.3)	6 (85.7)
21 - 30	13 (5.8)	0 (0)	13 (100)	0 (0)	13 (100)
31 - 40	8 (3.6)	0 (0)	8 (100)	0 (0)	8 (100)
41 - 50	49 (22.0)	1 (2.0)	48 (98.0)	2 (4.1)	47 (95.9)
51 - 60	69 (30.9)	0 (0)	69 (100)	4 (5.8)	65 (94.2)
> 60	77 (34.5)	1 (1.3)	76 (98.7)	2 (2.6)	75 (97.4)
Total	223 (100)	2 (0.9)	221 (99.1)	9 (4.0)	214 (96.0)

**Table NO.3: Incidence of Hepatitis B and C Positive at different diagnosis. (n=223)**

	No. of Cases	Hepatitis B (Positive)	Hepatitis C (Positive)	Hep. B+C (Positive)
Diagnosis	n (%)	n (%)	n (%)	n (%)
Cataract	155 (69.5)	1 (50.0)	7 (77.8)	8 (72.8)
Intravitreal Avastin	31 (13.9)	0 (0)	1 (11.1)	1 (9.0)
Other Surgery	37 (16.6)	1 (50.0)	1 (11.1)	2 (18.2)
Total	223 (100)	2 (0.9)	9 (4.0)	11 (4.9)

## DISCUSSION

Hepatitis B and C is very common in Pakistan and its incidence is increasing within last 10 years<sup>4,5</sup> and the possible sources include sharing by barbers, dental treatment, use of contaminated syringes and instruments, needles and improper sterilization of medical devices.<sup>10</sup> A large number of carriers of hepatitis B and C found in Pakistan. 10%<sup>4,11</sup> were found to be carriers of HBsAg while anti HCV antibodies were seen in 4% to 7% in of Pakistani population.<sup>12,13</sup>

In our study the prevalence of hepatitis infection among patients operated is 4.93%, in which HCV infection is 4% and hepatitis B is 0.9%, which is high as compared to hepatitis B. This is similar to studies carried out in NWFP and Punjab, where studies showed high

prevalence of HCV as compared to HBV.<sup>1,14,15,16,17,18</sup>. Different studies conducted by Sheikh et al<sup>19</sup>, Malik et al<sup>20</sup>, Kazam and colleagues<sup>21</sup> and Khattak<sup>22</sup> and other members found 2.8% to 10% of HBsAg carrier rate. These are on much higher side than our study, which is 0.9%. The seroprevalence of hepatitis C observed in our study is 4% which is much lower than that 11.6% reported in other studies.<sup>23,24</sup>. The seroprevalence of Hepatitis C virus in our study is on the lower side and it might be because the targeted population in our study belong to middle class and educated and they have adequate awareness about infection as well as routes of transmission of infection and they can easily bear the cost of routine screening tests.

The seroprevalence of Hepatitis B and hepatitis C virus in our study is high in males 6.97% compared to female

patients 2.1%. This could be because of more social mobility in males and more males went to OPD than the females, thus the higher detection rate and this is comparable to other studies<sup>25,26,27</sup> in which prevalence of Hepatitis B and C is more in males as compared to females.

Both Hepatitis B and C are found in between forty and sixty years of age. This phenomenon can be partly explained because more cataract patients were screened in older age group. This finding is comparable to the study of Talpur et al, in which 65% positive patients were above the age of 40 years.<sup>23</sup>

Screening for Hepatitis B and C is not routinely carried out in most of public health settings as well as government hospitals. We recommended screening for hepatitis B and C and this should be made compulsory for all patients undergoing surgical procedures because of high incidence of hepatitis B and C in our population.

## CONCLUSION

All patients undergoing ocular surgeries are highly recommended to be screened for hepatitis B and C, as the prevalence of these infections are high. The awareness program amongst people should be arranged on major scale through electronic media, newspaper and workshops as a precautionary measure.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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