

Prevalence of Accidental Hepatitis B and Hepatitis C Seropositivity among Patients Scheduled for Cataract Surgery is Evaluated.

Received: 25 October 2022, **Revised:** 24 November 2022, **Accepted:** 26 December 2022

¹Dr. Sanvedya Kadam, ²Dr. D.B. Shirke, ³Dr. Manglesh Mohan Gupta

1,2Assistant Professor, 3Resident, Department of Ophthalmology, Krishna Institute of Medical Sciences (Deemed to be University) (KIMS), Karad, Maharashtra, India

Corresponding author: Dr. Manglesh Mohan Gupta, Resident, Department of Ophthalmology, Krishna Institute of Medical Sciences (Deemed to be University) (KIMS), Karad, Maharashtra, India Email: manglesh1122@gmail.com

Key words

Cataract, Hepatitis B, Hepatitis C

Abstract

Background: In the entire world, cataract surgery is the most common type of operation. The goal of the current study was to determine the prevalence of accidental hepatitis B and hepatitis C seropositivity among cataract surgery patients.

Materials and Methods: ighty five patients with cataracts of both sexes had their eyes examined by a skilled ophthalmologist. A fast diagnostic antibody test kit was used to determine the presence of hepatitis B and C in five ml of venous blood that had been aspirated from the ante-cubital fossa.

Results: Fifty two of the Eighty two cases were male, and thirty two were female. Eight HBsAg positive and twelve negative individuals were in the twenty-forty year age range. In the forty to sixty year age range, twelve HBsAg positive and eighteen negative. There were twenty negative and fifteen positive HBsAg results for people aged sixty to eighty. The variation was substantial. There were fifteen female and twenty male HBsAg positive individuals. The variation was substantial. Sixteen HCV tests were negative and four were positive in people aged twenty to forty. Twenty HCV tests were negative and six were positive in the forty-sixty age range. Thirty four HCV tests were negative and five were positive in people aged sixty to eighty. The variation was substantial. There were six women and nine men who tested positive for HCV. The variation was substantial.

Conclusion: Patients with cataracts had a higher frequency of hepatitis B than hepatitis C. It should be obligatory to perform a routine serological screening before surgery so that asymptomatic patients don't continue to be a hazard to the disease's spread.

1. Introduction

In the entire world, cataract surgery is the most common type of operation. More than five point nine million cataract extractions were performed in India last year.¹

Hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus were

the most often reported blood-borne infections (HIV). Acute and chronic forms of hepatitis can be brought on by hepatitis B (HBV) and hepatitis C (HCV), two viral forms of hepatitis that cause irritation, inflammation, and edoema of the liver.² Three hundred and fifty million people (five–fifteen percent of all cases) are HBV

carriers, and two billion people worldwide carry the infection. WHO estimates that there are one hundred seventy million cases of HCV worldwide, or three percent of the population. Three The risk of liver cirrhosis and liver cancer increases in around fifty percent of all cases. Blood, semen, vaginal secretions, and other bodily fluids of a person with hepatitis B infection can all be sources of HBV transmission. HCV, on the other hand, is only spread through blood-to-blood contact. Patients having blood transfusions or those who use injectable drugs are more at risk of these infections spreading to others.⁴

The most popular type of anaesthetic for cataract surgery was called peribulbar anaesthesia, and it was administered with a fine twenty four gauge needle. In our country, there are 0.06 to 0.08 needle prick injuries for every one thousand procedures performed in ophthalmology. Five The majority of cataract surgery patients in India did not regularly undergo tests for virus seropositivity. Occult carriers of viral illnesses were more likely to spread the infection and were not given the required care.⁶ The goal of the current study was to

determine the prevalence of accidental hepatitis B and hepatitis C seropositivity among cataract surgery patients.

2. Materials and Methods

Eighty five patients with cataracts from both sexes participated in the current study. Once they provided their written agreement, everyone was enrolled in the study. All patients between the ages of twenty and eighty who gave their assent voluntarily were chosen, whereas those with congenital and developing cataracts were eliminated.

Names, ages, genders, and other information were recorded. All were subjected to an experienced ophthalmologist's eye examination. A fast diagnostic antibody test kit was used to determine the presence of hepatitis B and C in five ml of venous blood that had been aspirated from the ante-cubital fossa. Complete blood count/hemogram testing and random blood sugar testing were two more laboratory procedures. Results were collated and statistically evaluated. P value under zero point zero zero five was regarded as significant.

3. Results

Table I Distribution of patients

Total- 85		
Gender	Male	Female
Number	52	33

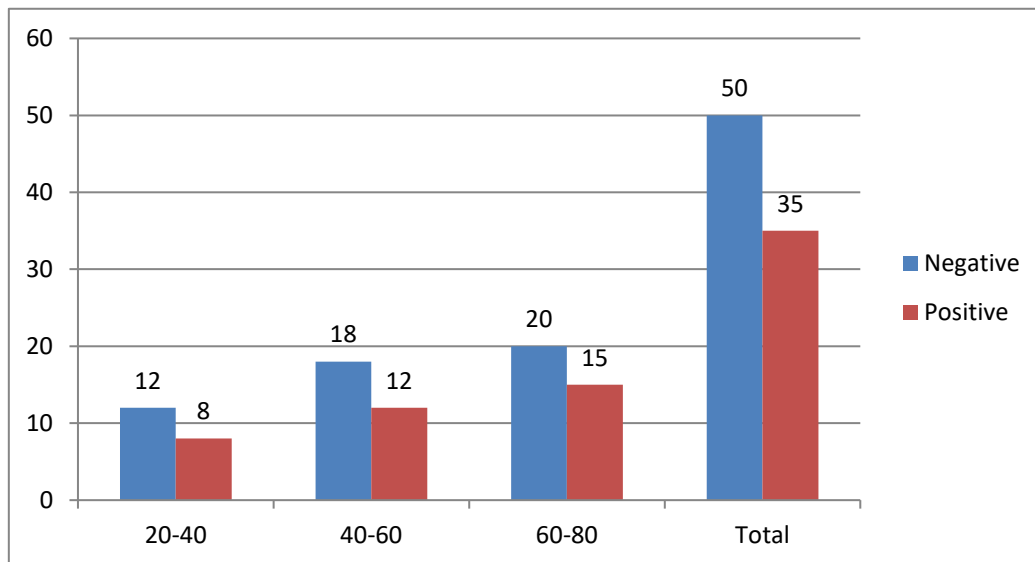
Table I shows that out of 85 patients, males were 52 and females were 32.

Table II Prevalence of hepatitis B among cataract patients based on age group

Age group (years)	Negative	Positive	P value
20-40	12	8	0.02
40-60	18	12	
60-80	20	15	
Total	50	35	

Age group twenty to forty years showed twelve negative and eight positive HBsAg results, according to Table II, Graph I. In the forty to sixty year age range, twelve HBsAg positive and eighteen negative.

There were twenty negative and fifteen positive HBsAg results for people aged sixty to eighty. The variation was substantial.



Graph I Prevalence of hepatitis B among cataract patients based on age group

Table III Prevalence of hepatitis B among cataract patients based gender

Gender	Negative	Positive	P value
Male	32	20	0.02
Female	18	15	
Total	50	35	

Table III shows that there were 20 HBsAg positive males and 15 females. The difference was significant ($P < 0.05$).

Table IV Prevalence of hepatitis C among cataract patients based on age group

Age group (years)	Negative	Positive	P value
20-40	16	4	0.04
40-60	20	6	
60-80	34	5	
Total	70	15	

Table IV reveals that four HCV positives and sixteen negatives were found in the age group of twenty to forty. Twenty HCV tests were negative and six were positive

in the forty–sixty age range. Thirty four HCV tests were negative and five were positive in people aged sixty to eighty. The variation was substantial.

Table V Prevalence of hepatitis C among cataract patients based gender

Gender	Negative	Positive	P value
Male	43	9	0.02
Female	27	6	
Total	70	15	

Table V shows that there were nine HCV positive males and six females. The difference was significant.

4. Discussion

Cataracts are alterations in the normal lens of the eye that slowly deteriorate visual clarity. Cataracts can form for a number of reasons, including chronic UV exposure, radiation exposure, the aftereffects of some diseases, such as diabetes, and many more.^{7,8} The procedure for obtaining consent for viral seropositivity and the post-test counselling will both significantly raise knowledge of the diseases among all parties involved, including not just patients but also carers and medical professionals.^{9,10} The goal of the current study was to determine the prevalence of accidental hepatitis B and hepatitis C seropositivity among cataract surgery patients.

Out of eighty five patients, we discovered that fifty two were male and thirty two were female. Eight HBsAg positive and twelve negative individuals were in the twenty–forty year age range. We found that twelve HBsAg positives and eighteen negatives were present in the age group forty to sixty. There were twenty negative and fifteen positive HBsAg results for people aged sixty to eighty. There were fifteen female and twenty male HBsAg positive individuals. In a tertiary care facility in north India, Mishra et al.¹¹ examined the prevalence of human immunodeficiency virus (HIV), hepatitis B (HBV), and hepatitis C (HCV) viral

seropositive among the patients scheduled for cataract surgery. 4,073 of the 7,316 patients who underwent cataract surgery between January 2016 and August 2018 were men, making up fifty five point seven percent of the total. HIV prevalence was zero point eight percent, HBsAg prevalence was two point one percent, and HCV prevalence was zero point one percent. Twenty eight out of fifty eight (forty eight point three percent) HIV positives and thirty seven out of one hundred fifty one (twenty four point five percent) HBsAg positives and four out of eleven (thirty six point four percent) HCV positives did not know they were positive until they were tested. There was a significant correlation between anti HCV and the mean age of HIV patients. The bulk of the seropositive patients had low levels of education (forty five point six percent), followed by those who had completed high school (twenty nine point one percent), and those who had received a graduate degree (twenty five percent).

Sixteen HCV tests were negative and four HCV tests were positive in the age category of twenty to forty. Twenty HCV tests were negative and six were positive in the forty–sixty age range. Thirty four HCV tests were negative and five were positive in people aged sixty to eighty. There were six women and nine men who tested positive for HCV. Preoperative

screening results on the prevalence of Hepatitis B and Hepatitis C in patients coming for cataract surgery were reported by Naeem et al. in a study published in 2012. It was discovered that forty nine out of three hundred and seventy seven (twelve point ninety nine percent) preoperative cataract patients had both Hepatitis B and C. In total, forty two out of three hundred and seventy seven patients (eleven point one percent) and eight out of three hundred and seventy seven (two point one percent) were HBsAg positive and anti-HCV positive, respectively. HBsAg and anti-HCV co-infection in one patient only was discovered. In a research by Adhi et al.¹³, three hundred and seventy seven individuals who were scheduled for cataract surgery were evaluated. It was discovered that forty nine out of three hundred and seventy seven (twelve point ninety nine percent) preoperative cataract patients had both Hepatitis B and C. In total, forty two out of thpatients (eleven point one percent) and eight out of three hundred and seventy seven (two point one percent) were HBsAg positive and anti-HCV positive, respectively. HBsAg and anti-HCV co-infection in one patient only was discovered. A 2010 study found that one hundred eight out of four hundred and thirty seven individuals had hepatitis B and c, with females having a higher frequency of the diseases than males, who had a prevalence of 39.81%.¹⁴

The history of receiving an injection from a local physician and the history of having teeth extracted were two common risk factors for the HCV infection, according to Verma et al. In rural India, seventy percent of the healthcare professionals did not

obtain any formal training before beginning their careers.

The study's weakness is the limited sample size.

5. Conclusion

Researchers discovered that among cataract patients, hepatitis B was more common than hepatitis C. It should be obligatory to perform a routine serological screening before surgery so that asymptomatic patients don't continue to be a hazard to the disease's spread.

References

- [1] Rewari P, Sharma M, Lohan A, Singh D, Yadav V, Singhal A. Practice pattern of cataract surgeons when operating on seropositive patients. *Indian J Ophthalmol* 2019;67:335-9.
- [2] Rishi E, Shantha B, Dhama A, Rishi P, Rajapriya HC. Needle stick injuries in a tertiary eye-care hospital: Incidence, management, outcomes and recommendations. *Indian J Ophthalmol* 2017;65:999-1003.
- [3] Ayanniyi AA, Olatunji FO, Majengbasan T, Ayanniyi RO, Danfulani M. Ophthalmic practice health hazards among ophthalmologists in a resource limited setting. *Asian Pac J Trop Dis* 2011;1:17-20.
- [4] Beltrami EM, Williams IT, Shapiro CN, Chamberland ME. Risk and management of blood- borne infections in health care workers. *Clin Microbiol Rev* 2000;13:385-407.
- [5] Vardell E. Global health observatory data repository. *Medical reference services quarterly* 2020;39:67-74.
- [6] TemelA, Seber E, Gunay M. Detection of hepatitis B surface antigen in

- aqueous humor. *Acta Ophthalmol* 1990;68:205-8.
- [7] Atas M, Karatepe HashasAS, Demircan S, Sariguzel FM, Baskan B, Yuvacı I, et al. The investigation of HCV RNA in tear fluid and aqueous humor in patients with anti-HCV antibody positive who underwent cataract surgery. *Ocul Immunol Inflamm* 2016;24:297-301.
- [8] Raimondo G, Pollicino T, Cacciola I, Squadrito G. Occult hepatitis B virus infection. *J Hepatol* 2007;46:160-70.
- [9] Rezaee-Zavareh MS, Hadi R, Karimi-Sari H, Hossein Khosravi M, Ajudani R, Dolatimehr F, et al. Occult HCV infection. The current state of knowledge. *Iran Red Crescent Med J* 2015;17:e34181.
- [10] Sahu GK, McNearney T, Evans A, Turner A, Weaver S, Huang JC, et al. Transient or occult HIV infections may occur more frequently than progressive infections: Changing the paradigm about HIV persistence. *Arch Virol Suppl* 2005:131-45.
- [11] Mishra D, Singh H, Gogate P, Bhushan P, Singh MK, Srivastav T, et al. Prevalence of incidental and total human immunodeficiency virus, hepatitis B and hepatitis C seropositivity among patients posted for cataract surgery at a tertiary care center in India. *Indian J Ophthalmol* 2022;70:400-4.
- [12] Naeem SS, Siddiqui EU, Kazi AN, Khan S, Abdullah FE, Adhi I. Prevalence of Hepatitis 'B' and Hepatitis 'C' among preoperative cataract patients in Karachi. *BMC research notes*. 2012 Dec;5(1):1-4.
- [13] Adhi I, Abdullah FE, Khan S, Kazi AN, Siddiqui EU, Naeem SS. Prevalence of Hepatitis 'B' and Hepatitis 'C' among preoperative cataract patients in Karachi. *BMC Research Notes* 2012, 5:492.
- [14] Nangrejo KM, Qureshi MA, Sahto AA, Siddiqui SJ: Prevalence of Hepatitis B and C in the patients Undergoing Cataract Surgery at Eye Camps. *Pak J Ophthalmol* 2011; 27:1.
- [15] Verma R, Behera BK, Jain RB, Arora V, Chayal V, Gill PS. Hepatitis C, a silent threat to the community of Haryana, India: A community-based study. *Australas Med J* 2014;7:11-6.