

# Preoperative testing for HBsAg and HIV among patients undergoing cataract surgery and its importance

Praveen Kumar Sadanand<sup>1</sup>, Ashwini S Waghmare<sup>2\*</sup>

{<sup>1</sup>Assistant Professor, Department of Ophthalmology} {<sup>2</sup>Tutor, Department of Microbiology}

Bidar Institute of Medical Sciences, Bidar, Karnataka, INDIA.

Email: [drpravs@yahoo.co.in](mailto:drpravs@yahoo.co.in), [ashwinishivani@gmail.com](mailto:ashwinishivani@gmail.com)

## Abstract

**Aim:** To know the prevalence of HIV and HBsAg among patients undergoing cataract and to estimate the importance of preoperative screening. **Material and Methods:** A cross sectional study was conducted based on hospital records of patients undergone cataract surgery from Jan 2016 to Dec 2018. Pre operative evaluation and lab investigations including HIV and HBsAg were done. Socioeconomic data from seropositive patients were collected. The statistical data was analyzed using Microsoft XL Windows software. **Results:** There were 16 HBsAg positive patients (0.93%) and 5 were HIV positive patients (0.31%) among 1615 operated for cataract. Age ranged from 28 years to 76 years with higher percentage of patients in the range of 55 years to 65 years. Among HBsAg positive patients, 7 were males and 9 females. 12 out of 16 HBsAg positive patients were unaware of their status. Most of them 17(80.9%) were illiterates and 11(52.4%) were labourers and 8(38%) were housewife by occupation. **Conclusion:** Pre operative assessment of HIV and HBsAg among cataract patients is required and should be made compulsory before undergoing cataract surgery.

**Key Word:** HIV, HBsAg, cataract, preoperative screening.

## \*Address for Correspondence:

Dr. Ashwini S Waghmare, BRIMS Doctors Quarters, Room No. 22, Third Floor, Bidar Institute of Medical Sciences, Bidar 585401, Karnataka, INDIA.

Email: [ashwinishivani@gmail.com](mailto:ashwinishivani@gmail.com)

Received Date: 09/12/2018 Revised Date: 15/01/2019 Accepted Date: 01/02/2019

DOI: <https://doi.org/10.26611/1008922>

## Access this article online

Quick Response Code:



Website:

[www.medpulse.in](http://www.medpulse.in)

Accessed Date:  
04 February 2019

## INTRODUCTION

HBsAg and HIV are the most common blood borne infectious agents involved in occupational transmission among healthcare workers and most of the carriers of these viral diseases are asymptomatic<sup>1</sup>. Patients undergoing cataract surgery do not know their HBsAg or HIV status and cataract patients getting operated under various programmes do not get tested because no funds are separately allocated for conducting serological tests.

Cataract surgeries are done in high numbers and in short period with the health care worker rushed and fatigued, circumstances resulting in needle stick injury. Rishi et al<sup>2</sup> reported that the average annual incidence of needle stick injuries among health care workers at a tertiary eye care centre over a 6 year period was 23/year. Previous studies have reported detection of HBV surface antigen in tears and aqueous humour of HBV seropositive individuals suggesting that Ophthalmologists may be at risk of contracting HBV infection by treating such patients<sup>3</sup>. Although the National AIDS Control Organization (NACO), INDIA, estimates HIV infection to be on a decline, the prevalence is 0.22% to 0.32% while accurate data of HBV infection in India are not available, estimated HBV prevalence is 2% to 8%, with an estimated carrier population of 56.5 million<sup>4</sup>. The present study was conducted to know the prevalence of HBsAg and HIV among cataract operated patients in this region and to estimate the need for screening for these viral infections.

**How to cite this article:** Praveen Kumar Sadanand, Ashwini S Waghmare. Preoperative testing for HBsAg and HIV among patients undergoing cataract surgery and its importance. *MedPulse International Journal of Microbiology*. February 2019;9(2): 13-15.

<https://www.medpulse.in/Microbiology/>

## MATERIALS AND METHODS

A cross sectional study was conducted based on hospital records collected from operation register from Ophthalmology Department, Bidar Institute of Medical Sciences, Bidar. Previous records was taken year wise from Jan 2016 to Dec 2018 from the past 3 years. All patients enrolled for cataract surgery attending Ophthalmology Out patients department were included in the study. Preoperative laboratory investigations as per guidelines<sup>5</sup> for management of cataract were done as follows:

For all cases

- a) Blood pressure 140/90
- b) Blood sugar Fasting <180mg/dl
- c) Biometry
- d) Syringing
- e) Body weight

Additional investigations

- A. ECG for adults (known cardiac patients), those with h/o cardiac ailments and very old patients >70years.
- B. For GA cases; Blood counts, Hb%, Chest X-ray for adults, preoperative evaluation by anesthetist.

Apart from these investigations, we conducted serological tests to detect HIV and HBsAg in all cataract patients at the ICTC department. Tests were conducted under supervision of a microbiologist. HBsAg testing was done by immunoassay based rapid diagnostic card tests (Lateral Flow Immunochromatographic Test) while HIV tests were done using HIV tridot. HIV positive patients were done retesting twice, as per the NACO guidelines<sup>6</sup>. Patients who were detected positive for HIV were sent back to ICTC for counseling and the need for starting ART after registration and assessment of CD4:CD8 counts. Patients who were HBsAg positive were confirmed by ELISA and counseled regarding the seriousness of the positive test. All patients underwent small incision cataract surgery under peribulbar anaesthesia. For all serologically positive blood test, cataract surgeries were done under safety protocol. In operation theatre, during surgery, operative surgeon and assistant used special protective kit meant for operating on seropositive cases.

## RESULTS

A total of 1615 patients were operated for cataract by small incision cataract surgery out of which 44% were males and 56% were females. There were 16 HBsAg positive patients (0.93%) and 5 were HIV positive patients (0.31%) among 1615 operated for cataract. Age ranged from 28 years to 76 years with higher percentage of patients in the range of 55 years to 65 years. Among HBsAg positive patients, 7 were males and 9 females. 12

out of 16 HBsAg positive patients were unaware of their status. Among 5 HIV positive patients, 4 patients knew about their status. On examination one patient had mature cataract with Grade IV RAPD more likely due to retinal complications with CD4 counts less than 300. After explaining the NIL visual prognosis, patient did not agree for surgery.

**Table 1:** Year wise presentation of seropositive cases

Year	Total no. Of cataract patients	HBsAg + males	HBsAg + females	HIV+ males	HIV+ females
JAN to DEC 2016	467	2	2	2	1
JAN to DEC 2017	575	1	3	0	1
JAN to DEC 2018	573	4	4	1	0
TOTAL	1615	7	9	3	2

**Table 2:** Sociodemographic data of 21 seropositive patients

Education	Illiterate	17
	Literate	4
Occupation	Labour	11
	Housewife	8
	Driver	2
Marital status	Married with living spouse	13
	Married with no spouse	6
	Unmarried	2
Co morbid conditions associated	None	0

## DISCUSSION

Risk of transmission of HBV or HIV during cataract surgery is possible. Reports on transmission of HIV or HBsAg during cataract surgery are not reported. But viral particle has been reported in donor cornea tissue for transplant<sup>7</sup>. In the present study, the prevalence rate of HBV (HBsAg) was 0.93% and for HIV 0.31% was detected. Occupational blood exposure to Ophthalmologist and paramedical assistants can occur by needle stick injury while giving peribulbar block, using sharp microsurgical instruments under microscope, during cleaning and exchange of instruments and disposal of biomedical waste. The Ophthalmology operation theatre is the second most common location for needle stick injury accounting for 17% in the developed countries<sup>8</sup>. In a study done by Parveen Rewri<sup>9</sup>, the prevalence of viral infection (HBV, HCV and HIV) was 5.9% among cataract patients. In a study done by Y Venkatesh<sup>10</sup>, revealed prevalence of HBV 1.77% and HIV 0.67%. Sociodemographic profile of seropositive patients revealed that most of them

17(80.9%) were illiterates and 11(52.4%) were labourers and 8(38%) were housewife by occupation. This indicates that seropositivity is more prevalent in low socioeconomic group. In our study among seropositive patients, HBV was more in females (56.3%) compared to males (43.7%) and HIV was (40%) in males and 60% in females. 12 out of 16 patients with HBsAg positive were unaware of their status. 3 patients concealed their status as they were denied for cataract surgery in other surrounding eye hospital. 3 out of 5 patients with HIV positive did not reveal their status. HBsAg and HIV carrier states, most of the time are asymptomatic and hence it is important to do screening for HBsAg and HIV. By knowing the status of HBsAg and HIV patients can be counseled and treated early and also contribute in the effort of surveillance of these diseases. Operation room personnel would take extra care in preventing from being infected while treating these patients. However one should not compromise on aseptic techniques whether patient is seropositive or not. HBsAg infection (0.93%) is more compared to HIV (0.31%) among cataract operated cases in our study. Hence it is important to do mass vaccination of the health care workers for hepatitis B. Sensitivity and specificity of screening tests and window period negativity remain significant fallacies of universal screening<sup>11</sup>. The national AIDS control organization mandated pre and post test counseling before HIV screening may be difficult to practice in an eye hospital<sup>8</sup>. Many of the cataract surgery camps conducted under District Blindness Control Society or Non Governmental Organization sponsored free camps, do not screen the patients for HIV and HBsAg. These patients need to be tested compulsory for HIV and HBsAg as they pose a real threat to health care providers. Our study has few limitations as we have not included HCV infection detection in considering the seroprevalence. Larger multicenter studies done at different regions would help in knowing the distribution of seropositive cases among cataract operated patients.

## CONCLUSION

Pre operative assessment of HIV and HBsAg among cataract patients is required and should be made compulsory before undergoing cataract surgery. Medical and paramedical staff should undergo mass vaccination against Hepatitis B.

## REFERENCES

1. 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 to 407.
2. Rishi E, Shantha B, Dhami 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 to 1003.
3. Ching yeo Tsai, Chih Lin Lin, Shiao Cheng Lin, Shioh Liou. Detection of Hepatitis B Virus in the aqueous humor of a Hepatitis B Virus carrier. *Ophthalmologica* 2009; 223:93 to 95.
4. Universal Screening: To do or not to do. Samrat Chatterjee. *Indian J Ophthalmology.* 2018; 400,401.
5. Guidelines for the management of cataract in India. A VISION 2020: The Right to Sight. INDIA Publication October 2011.
6. National Guidelines for HIV testing. Published by National AIDS Control Organization, Ministry of Health and Family Welfare, Government of India, 2015, p.40
7. Geier SA, Klaus V, Gurtler L. Human immunodeficiency virus type 1 and type 2 seroprevalence in cornea donors. *Ger J Ophthalmol* 1994; 3:182 to 185.
8. Santosh G Honnavar. Universal screening versus universal precautions in Ophthalmic Surgery. *Indian J of Ophthalmol.* Vol. 66 Issue3 2018 pg: 355 to 356.
9. Parveen Rewri, Madhavi Sharma, DP Vats, Aparna Singhal. Seroprevalence, risk association and cost analysis of screening for viral infections among patients for cataract surgery. *Indian J of Ophthal.* 2018, Vol66.Issue3, pg 394 to 399.
10. Y Venkataiah, V Vijayalakshmi, G Sreelakshmi. Importance of screening for HBsAg and HIV in cataract surgery cases. *Intl Journal of Rec.Scientific Research.* July 2015, Vol. 6 Issue 7, pg 5218 to 5271.
11. Ahmed R, Bhattacharya S. Universal screening versus universal precautions in the context of preoperative screening for; HIV, HBV,HCV in India. *Indian J Med Microbiol* 2013; 31: 219 to 225.

Source of Support: None Declared  
Conflict of Interest: None Declared