



PREVALENCE OF SEROPOSITIVITY FOR VIRAL MARKERS OF HIV, HEPATITIS B AND HEPATITIS C INFECTIONS IN PATIENTS UNDERGOING CATARACT SURGERY AT A TERTIARY CARE HOSPITAL

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ABSTRACT **Aim:** To know the prevalence of HIV, HBV and HCV among patients undergoing cataract surgery and to estimate the importance of preoperative screening. **Materials and Methods:** A cross sectional study was conducted based on hospital records of 256 patients undergone cataract surgery from September 1, 2022 to September 30, 2022. Preoperative evaluation and lab investigations including HIV, HCV and HBV were done. The statistical data was analyzed using SPSS Software version 21. **Results:** Total 23 (8.97%) patients were seropositive for viral markers in which there were 14 HBsAg positive patients (5.46%), 4 (1.56%) were HCV positive and 5 were HIV positive patients (1.95%) among 256 operated for cataract with higher percentage of patients in the range of 51 years to 70 years. **Conclusion:** Pre operative assessment of HIV, HBV and HCV among cataract patients is required and should be made compulsorily before undergoing cataract surgery.

KEYWORDS : HIV, HBV, HCV, cataract, preoperative screening.

INTRODUCTION

Cataract is the preventable cause of blindness worldwide and cataract surgery is the most commonly performed surgery to improve vision. In Indian population of 121 crore, 1% is blind as per NPCB2011 (National programme for control of blindness) out of which 62% are blind due to cataract. Incidence of cataract is 0.4% to 0.5%. 7 million people are becoming blind due to cataract at any point of time approximately. 6 million cataract surgeries were being performed in India every year.¹ Surgical interventions affect safety issues in high endemic areas for HIV, HBV and HCV infections.² As estimated by Government of India in 2015 survey, there is a prevalence of 0.26% for HIV3, 3-4.2% for HBV4,5 and 1-1.5% for HCV6 in India. Surgeons and other paramedical staff are more prone to get infection, especially in a surgical setup where unknown carriers of virus are undergoing various procedures. In Ophthalmology, risk of exposure during surgery includes OPD procedures like syringing, biometry, tonometry and OT procedures during anaesthesia, handling of sharp instruments like blades, side port, needle and during cleaning and exchange of instruments and disposal of biomedical waste⁷. Therefore the aim of this is to highlight the importance of screening for HIV, Hepatitis B and Hepatitis C among cataract patients.

MATERIALS AND METHODS

A cross sectional study was conducted based on hospital records collected from operation register of Ophthalmology Department, Anil Neerukonda hospital, NRI Institute of Medical Sciences, Visakhapatnam. Previous records were taken from September 1, 2022 to September 30, 2022. A total of 256 patients were enrolled in this study. An informed written consent was obtained from all patients and information of subjects was kept confidential before performing cataract surgery. Serological rapid tests were done in the laboratory for screening according to WHO guidelines⁸. HIV was tested with ELISA (Enzyme – Linked Immunosorbent Assay) test kit which is an indirect sandwich ELISA test according to NACO guidelines. Qualitative detection of surface antigen of Hepatitis B and antibodies for Hepatitis C was done by Rapid chromatography immunoassay as the screening technique in the study. Since these patients were high risk, OPD procedures like biometry and keratometry were done using polythene paper interface and the tip disinfected. Disinfection of tonometry with 10% sodium hypochlorite (i.e., diluted bleach) was done after every patient. OT procedures included use of disposable linen, double gloves to surgeon and assistants and use of disposable instruments. They were operated in minor OT wearing HIV kits, double gloves and all precautions were undertaken during operation to prevent the spread of infections. Proper sterilisation techniques were followed, and autoclaving of surgical instruments were done.

RESULTS

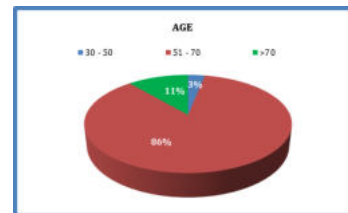
The age groups of the patients included in this study were as follows: Out of 256 patients, 8 patients belongs to 30-50years age group amounting to 3.12%, 219 (85.55%) were of 51-70years age group and

29 (11.33%) patients were above 70 years of age. Mean age of total patients was 61.80 with a SD of 8.76years.

Table 1: Distribution of cases as per age

Age	Frequency	Percent	Mean $\pm$ SD
30 - 50	8	3.12	61.80 $\pm$ 8.76
51 - 70	219	85.55	
>70	29	11.33	
Total	256	100	

Figure 1: Incidence of age

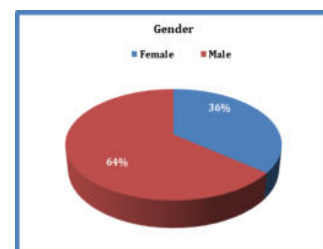


Among 256 cases, 92 were females that amounts to 35.94% and 164 were males amounting to 64.06%. Male : female ratio is 1.78.

Table 2: Distribution of patients as per gender

Gender	Frequency	Percent
Female	92	35.94
Male	164	64.06
Total	256	100.0

Figure 2: Gender distribution

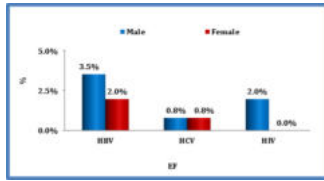


Out of 256 patients studied, total of 23 (8.97%) patients were seropositive for viral markers in which 16 (6.24%) were males and 7 (2.73%) were females. 14 (5.46%) were HBsAg positive among which 9 (3.50%) were males and 5 (1.95%) were females, 4 (1.56%) were HCV positive out of which 2 (0.78%) were males and 2 (0.78%) were females, 5 (1.95%) patients were HIV positive all of which are males.

Table 3: Distribution of positive viral markers

Viral infection	Gender				Total	
	Male		Female			
	Count	%	Count	%	Count	%
HBV	9	3.50%	5	1.95%	14	5.46%
HCV	2	0.78%	2	0.78%	4	1.56%
HIV	5	1.95%	0	0.00%	5	1.95%
Total	16	6.24%	7	2.73%	23	8.97%

Figure 3: Frequency of positive viral markers in male and female patients



OBSERVATION AND DISCUSSION

Risk of transmission of HBV, HCV or HIV during cataract surgery is possible. 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 countries¹.

Out of 256 patients in the present study, 8 patients belong to 30-50 years age group amounting to 3.12%, 219 (85.55%) were of 51-70 years age group and 29 (11.33%) patients were above 70 years of age. Mean age of total patients was 61.80 with a SD of 8.76 years.

In a study conducted by Potluri Ravi kiran et al¹⁰, most of the patients were in 55 – 64 years age group. Present study is comparable to this study in terms of distribution of patients according to age. Most of the patients studied in this group were in the elderly age group where senile cataract is predominant.

Among 256 patients in the present study, 164 (64.06%) were males and 92 (35.94%) were females. Total 23 (8.97%) patients were seropositive for viral markers in which 16 (6.24%) were males and 7 (2.73%) were females. 14 (5.46%) were HBsAg positive among which 9 (3.50%) were males and 5 (1.95%) were females, 4 (1.56%) were HCV positive out of which 2 (0.78%) were males and 2 (0.78%) were females, 5 (1.95%) patients were HIV positive all of which were males.

In a study by Ishwar Singh et al.,^{3,4,5,11,12} males were affected more with HBV and HCV infection (0.42%, 1.77%, respectively) as compared to females (0.08%, 0.93%, respectively). Males were affected more with HIV, HBV and HCV infection as compared to females could be a reflection of more males coming for treatment due to more social mobility in males than females and thus greater vulnerability to be infected by these viruses^{13,14}.

By knowing the status of HBsAg, HCV and HIV, patients can be counselled 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. 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, HCV and HBsAg. These patients need to be tested compulsory for HIV, HCV and HBsAg as they pose a real threat of transmitting infection to health care providers. The limitation of our study was that only cataract cases were taken for evaluation of viral markers positivity.

CONCLUSION

Due to the high prevalence of HBV, HCV and HIV in the patients presenting for cataract surgery as shown by our study, it has been suggested that routine preoperative screening should be carried out for all patients of cataract surgery. Mass immunization against hepatitis B should be done and awareness should be created regarding Hepatitis B, HCV and HIV among hospital staff and general public. Periodic screening of the patients has to be made mandatory to detect latent cases of seropositivity to reduce the occupational hazard of health care professionals. The patients who are diagnosed with these infections can be sent for therapy as required for the particular virus infection.

This prevents the complications and helps decrease the morbidity and mortality among these patients.

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