



PATTERN DISTRIBUTION OF SEROPOSITIVE PATIENTS POSTED FOR CATARACT SURGERY IN TERTIARY CARE HOSPITAL IN SOUTH EAST MAHARASHTRA

Ophthalmology

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ABSTRACT

HBsAg, HIV, HCV 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. Patients undergoing cataract surgery do not know their seropositive 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 a short period with the health care worker feeling rushed and fatigued; circumstances resulting in needle stick injury. Rishi et al reported that the average annual incidence of needle stick injuries among health care workers at a tertiary eye care center over a 6 year period was 23 per year. Previous studies have reported detection of HBV surface antigen in tears and aqueous humor of HBV seropositive individuals suggesting that Ophthalmologists may be at risk of contracting HBV infection by treating such patients. This study is being conducted to know the prevalence of seropositivity among cataract operated patients in this region and to estimate the need for screening for these viral infections. **Objective :** To assess seroprevalence and estimate the need for screening for seropositive among cataract patients in South-east Maharashtra. **Material and Methods:** Study population : Patients above 20 years undergoing cataract surgery in tertiary care centre in South-east Maharashtra. **Study Design:** Retrospective cross sectional study for 28 months. **Results :** During the study period 2789 patients, 1193 males and 1595 females were studied. 14 patients work positive for HIV, 27 patients were positive for hepatitis B and 20 patients were found positive for HCV. There was significant association between mean age and HIV seropositive patients ($P < 0.007$). **Conclusions :** Preoperative screening for HIV, HBV, HCV should be made compulsory for all the patients undergoing cataract surgery.

KEYWORDS

Cataract, Viral biomarkers, Seroprevalence, Inadvertant diagnosis

INTRODUCTION

Globally, cataract surgery is the most frequently performed surgery in high volume settings with more than 8.34 million cataract surgeries done in India alone.[1,2] There are chances of sharp instrument injury or needle prick injury especially with 24 - Gauge needle used for peribulbar anaesthesia [3] before cataract surgery. The incidence of needle-prick injury in ophthalmological practice was reported as 0.06–0.08 per 1,000 surgeries. [4,5,6] Every fluid in the body including aqueous and tears is prone to shed viral load. However, viral seropositivity testing for HIV, HBsAg and HCV are not routinely done in most of the patients before cataract surgery; though Hepatitis B, C virus and HIV are major global health concerns. WHO reported 39 million HIV, 257 million HBV and 71 million HCV in 2022.[6,7,8] Occult carriers of viral infections were prone to infecting others especially the ophthalmologist and the OT personnel; and were deprived of proper treatment.[6,9-11]

Aim

To study the prevalence of Human Immunodeficiency virus (HIV), Hepatitis B (HBV) and Hepatitis C (HCV) viral seropositives among the patients posted for cataract surgery at a tertiary care centre in Southeast Maharashtra.

MATERIAL AND METHODS

Retrospective Cross Sectional Hospital based study done in Ashwini Rural Medical College and Research Centre Kumbhari, Solapur (South east Maharashtra) over a period of 28 months (December 2021 to February 2024).

Protocol was approved by the Institutional Ethical committee and strictly adhered to the Declaration of Helsinki.

All patients planned for elective cataract surgery, were included in the study and were tested for HIV (TRI-DOT) test, HBsAg and HCV (Rapid Antigen test) preoperatively. Informed consent was obtained. Patients demographic details like age, sex, frequency of single HIV, HBsAg, HCV infections and coinfections were collected.

Post test counselling was given to seropositive cases and they were referred to the further antiretroviral therapy (ART) to centre for further

management.

The Chi-square test was used to find the association between HBV, HCV and HIV with age group (years) and gender. The P value < 0.05 was considered significant.

RESULTS

Total of 2789 cataract patients were operated over 28 months, of these 1193 (43%) patients were males, while 1595 (57%) were females (figure 1).

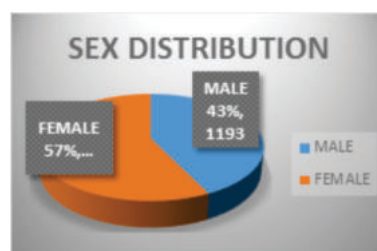


Figure 1: Sex Distribution

Their ages ranged from 30 years to 90 years. Maximum seropositive patients were seen in 41 to 60 years age group. 61 (2.18%) patients were found to be seropositive for one of the viruses. The prevalence of HBV was 27 (0.96%), HCV was 20 (0.71%) and HIV was 14 (0.50%). No dual infections were seen in our study (figure 2).

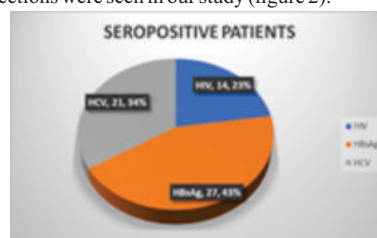


Figure 2: Seropositive Patients

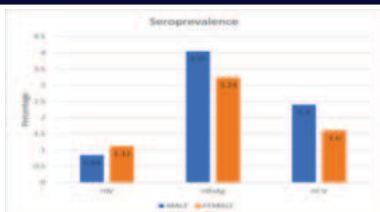


Figure 3 : Gender Wise Seropositivity

Table 1. Age And Gender Distribution Among HIV, HBV, HCV Seropositive Cases

AGE					GENDER				
HIV	Nega- tive	Posi- tive	Total	P - Value	HIV	Nega- tive	Posi- tive	Total	P - Value
<40 years	142 (97.93)	3 (2.06)	145	0.007	Male	1187 (99.4 9%)	6 (0.50)	1193	0.99
41-60 years	1005 (99.30)	7 (0.69)	1012		Female	1587 (99.4 9%)	8 (0.50)	1595	
>60 years	1628 (99.75)	4 (0.24)	1632		Total	2775 (99.4 9%)	14 (0.50)	2789	
Total	2775 (81.57)	14 (0.50)	2789						
HBSAg	Nega- tive	Posi- tive	Total	P - Value	HBSAg	Nega- tive	Posi- tive	Total	P - Value
<40 years	145 (100)	0 (0%)	145	0.30	Male	1178 (98.7 4%)	15 (1.25)	1193	0.17
41-60 years	1004 (99.20)	8 (0.79)	1012		Female	1583 (99.2 4%)	12 (0.76)	1595	
>60 years	1613 (98.83)	19 (1.16)	1632		Total	2762 (99.0 3%)	27 (0.96)	2789	
Total	2762 (99.03)	27 (0.96)	2789						
HCV	Nega- tive	Posi- tive	Total	P - Value	HCV	Nega- tive	Posi- tive	Total	P - Value
<40 years	145 (100)	0 (0%)	145	0.42	Male	1181 (98.9 9%)	12 (1.00)	1193	0.12
41-60 years	1006 (99.40)	6 (0.60)	1012		Female	1587 (99.4 9%)	8 (0.50)	1595	
>60 years	1618 (99.14)	14 (0.85)	1632		Total	2769 (99.2 8%)	20 (0.71)	2789	
Total	2769 (99.28)	20 (0.71)	2789						

Hepatitis B was present in total 27 (0.96%) patients, Hepatitis B was found in 15 (0.53%) male patients and 12 (0.43%) female patient.

There were 21(0.75%) patients unexpectedly positive for hepatitis C, out of which 8 (0.28%) were female and 12 (0.43%) were male patients.

Out of total 14(0.50%) HIV positive patients, 6 (0.21%) were male patients and 8 (0.28%) were female from figure 2, 3.

There was significant association between mean age and HIV seropositive patients ($P < 0.007$).

No association was found between age and gender of HBsAg and HCV positive patients (table 1).

DISCUSSION

In our study the overall seroprevalence was 2.18% among cataract patients. Out of all the seropositives, HBV patients were maximum (0.96%), followed by HCV (0.75%) patients and HIV (0.50%) were the least. In similar studies, seroprevalence was 5.9% by Rewri et al

and 4.8% by Ambastha et al.[12,13]

No co-infections were noted in our study. Though significant association was found between age and HIV positives, it is so because maximum elderly patients presented for cataract surgery at this age group.

Seropositivity was seen in females more than males; and more so in older patients.

In MSICS, needle prick during peribulbar anaesthesia, and bleeding during peritomy and fashioning of sclerocorneal tunnel, these asymptomatic viral carrier patients pose a major threat to the surgeon and the OT personnel. Surgical interventions pose safety issues in areas of high endemicity for HIV, HBV and HCV.

Sensitization of ophthalmologist to be aware about the seroprevalence in their practise area could help in safeguarding against accidental injury and transmission. So they can observe universal precautions in these cases.[3]

Limitation of our study was that only cataract cases were considered in our study. Pediatric cases were not included. Also, it is not a representative of the entire population.

CONCLUSIONS

Mandatory screening of viral markers before cataract surgery, is strongly recommended.

This would help in early detection and management of viral carrier patients.

Centres must have dedicated cataract sets for seropositive patients.

Mass immunization against Hepatitis B should be done. Awareness should be promoted regarding HBV, HCV and HIV among hospital staff and general public; thus ensuring their health and, of caregivers.

It would be simpler to persuade medical professionals of the value of viral seropositivity and the advantages of testing, thanks to the Covid pandemic.

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