

## “A study of Prevalence of HIV, HBV and HCV Infections in Patients Undergoing Cataract Surgery, in a Tertiary Care Hospital”.

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### **Abstract:**

*Aim:* To study the prevalence of Human Immunodeficiency Virus infection, Hepatitis B and Hepatitis C infection, in patients undergoing cataract surgery.

*Materials and Methods:* This is a retrospective study conducted in the Department of Ophthalmology, attached to a Tertiary Care Hospital, in South India, during the period of Feb 2021 – December 2021. A total of 478 cataract surgeries were performed in the year 2021, over a period of 6 months, as the routine elective surgeries were suspended for 7 months, due to COVID-19 pandemic.

*Results:* A total of 478 patients, undergoing Cataract surgery are included in the study. HIV infection was recorded in 27 patients (5.6%). HBs Ag was positive in 3 patients (0.6%) and Anti -HCV was positive in 1 patient (0.2%).

*Conclusion:* HIV is the most common infection among cataract patients and it is very important to follow infection prevention methods.

**Key words:** HIV, HBV, HCV, Cataract Surgery, Prevalence.

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Date of Submission: 16-01-2022

Date of Acceptance: 31-01-2022

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### **I. Introduction:**

Human Immunodeficiency Virus, Hepatitis-B Virus and Hepatitis-C virus cause infections that can be transmitted by blood, blood products and body fluids. The prevalence among general population, is very common. According to World Health Organization (WHO), HIV prevalence ranges from 0.4-3.1%, HBV from 0.7-6.2% and HCV from 0.5-2.3% (1).

India harbors the third largest number of HIV infected individuals in the world (2).

Prevalence of hepatitis C is 3% around the world (3).

These infections can be contracted by the Surgeons, the Paramedical Staff and also can be transmitted from patient to patient, easily.

Cataract is one of the most common eye diseases in the world. Surgery is performed under local anesthesia. It is estimated that a surgeon sustains 0.8 injuries/100 hour of surgery time, resulting in a 6.9% lifetime risk of HIV infection (1).

HBV, HCV and HIV can be transmitted by percutaneous or perinatal route, contacts with infected person and sexually transmitted. The frequency of transmission of HBV and HCV is higher among health workers since HBV and HCV can remain on surgical tools, in body fluids such as saliva, ejaculate.

Some studies have also showed the risk of transmission of HBV, HCV and HIV during sequential phacoemulsification.

The aim of the present study, is to analyze the prevalence of HIV, HBV and HCV infections in patients undergoing cataract surgery.

## II. Material and Methods:

The present study was done in the Department of Ophthalmology, attached to a tertiary care hospital, located in south coastal districts of Andhra Pradesh, India, during the year 2021 for a period of 7 months. Elective surgeries were suspended for a period of 5 months, due to COVID-19 pandemic.

A total of 479 patients, undergoing Cataract surgery are included in the study. Serological tests for HIV, HBV and HCV were done , before the surgery, using one-step immunoassay-based rapid diagnostic card tests for anti-HIV antibodies, HBS Ag(Hepatitis B surface antigen) and anti -HCV antibodies.

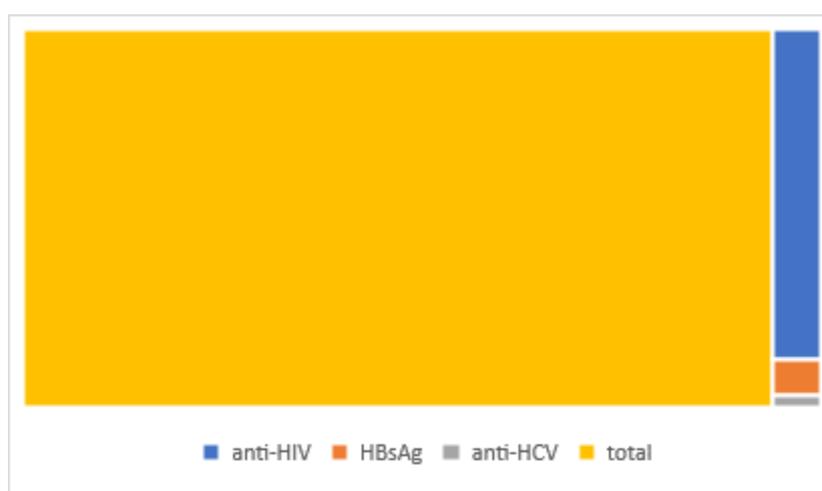
The case details, including age, gender and type of surgery, were obtained from the records. Serological test results were noted as positive and negative.

## III. Results:

A total of 479 cataract surgeries were done in the Department of Ophthalmology, during the year 2021. The age group ranged from 62 to 78 yrs (median age 70 yrs). A young male of 28yrs , HIV positive was the youngest patient. Out of 479 cases,279 were males and 200 females (M:F ratio- 1.3:1).

**Table 1:** shows distribution of gender and frequency of Human immunodeficiency virus antibody(anti-HIV), Hepatitis surface Antigen(HBsAg) and Hepatitis C antibody (anti-HCV), in patients who underwent cataract surgery.

Gender	Female	200	41.75%
	Male	279	58.24%
Anti-HIV	Negative	452	94.36%
	Positive	27	5.6%
HBs Ag	Negative	476	99.37%
	Positive	03	0.6%
Anti-HCV	Negative	478	99.79%
	Positive	01	0.2%



**Fig 1:** Tree map showing the frequency distribution of anti -HIV, HBsAg, anti-HCV infections, in patients who underwent cataract surgery.

Out of 479 cases, HIV infection was recorded in 27 patients (5.6%). HBs Ag was positive in 3 patients (0.6%) and Anti -HCV was positive in 1 patient (0.2%).

## IV. Discussion:

In the present study, the total prevalence of virus infection (HIV, HBV and HCV) , among patients undergoing cataract surgery was 6.47%.

In a similar study by Mehemet et al, from Turkey, the prevalence of virus infection, among patients undergoing cataract surgery was 5.1% (4).

Similar study from India, has reported 4% prevalence. (5)

In the present study, anti-HIV, HBs Ag and anti-HCV positivity were found to be 5.6%, 0.6% and 0.2% respectively.

In a similar study (4), HBsAg, anti-HCV and anti-HIV positivity were found to be 3.8%, 1.3% and 0%, respectively.

In an another study, it was found that 0.09% of patients undergoing cataract surgery were seropositive for HIV , 1.8% HBV and 4% HCV. (6).

Patients undergoing cataract surgery are asymptomatic healthy individuals. The present study highlights about the prevalence of silent carriers of these viral infections, among elderly population.

The most common source of spread of these infections is through the use of unsterilized syringes or instruments especially dental instruments, unchecked transfusion vertical transfer from mother to child and sexually transmitted.

#### **V. Conclusions:**

The study concludes that, there is a significant prevalence of viral infections, in the form of asymptomatic carriers. Health care workers are at high risk of contracting these infections, while providing care. It is recommended that all health care workers are properly immunized against HBsAg infection and anti-HCV infection and all the cases, who require intervention should be screened for all the three viral infection, before the procedure, so that appropriate precautionary measures are taken.

In our department, routine screening is done to identify the anti-HIV, HBs Ag and anti-HCV Antibodies and the positive cases are posted in the last, to prevent the transmission.

However, as cases in window period cannot be detected by rapid card tests, universal precautions should be practiced for all the cases.

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