

Frequency of Viral markers Positivity in Patients Undergoing Cataract Surgery: A Hospital Based Retrospective Study

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Abstract:

Background: To determine the frequency of seroprevalence of HBV, HCV, and HIV infections in patients undergoing cataract surgery, as most carriers are asymptomatic. They pose a real threat by horizontal spread to health staff, surgeons and other patients.

Materials and methods: A retrospective review of 620 patients who had undergone cataract surgery between May 2019 to November 2019 in the department of ophthalmology in a tertiary care center, Guntur, Andhra Pradesh. After taking informed consent from the patient, Blood samples were collected and tested for the presence of Hepatitis B Surface Antigen (HBsAg) and anti-HCV antibodies by Enzyme Linked Immunosorbent Assay (ELISA) method, while HIV was tested by ELISA and Western Blot as per National AIDS Control Organization (NACO), India guidelines.

Results: 620 patients were operated in the study period. The Mean age of patients was 62 years. 302 (48.71%) were males and, 318 (51.29%) females. Out of 620 patients, 60 (9.68%) patients were positive for viral serology. HBsAg was positive in 43 patients (6.94%). Out of these, 27 patients (4.35%) were male, while 16 (2.59%) were females. Anti-HCV was positive in 10 (1.61%) patients. Out of these, 7 (1.13%) were male, and 3 (0.48%) were female. HIV was positive in 7 patients (1.13%), out of these 6 (0.97%) were males, 1 (0.17%) was female.

Conclusion: Keeping in view the number of cases of seropositivity in our study and various other studies showing the presence of these viruses in aqueous and tears, we suggest that screening for viral markers should be made mandatory before cataract surgery so that early detection and treatment of patients can be done and risk of horizontal spread is minimized.

Keywords: Cataract Surgery, HIV, Hepatitis B, Hepatitis C.

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I. Introduction

According to a 2015 survey, the government of India estimates that the national adult prevalence of HIV is 0.26%¹. For HBV, the Indian subcontinent is classified as an intermediate endemic zone and has the second largest global pool of chronic HBV infection burden with a prevalence of 3-4.2%.^{2,3} The HBV infection leads to chronic carrier state in 60% of affected individuals. HCV has a low to moderate (1-1.5%) prevalence in India but India accounts for a significant share of global HCV infections due to the large population⁴. HBV, HCV and HIV are bloodborne viruses transmitted primarily through direct contact with an infected person's blood and vertical transmission from mother to baby. These seropositive patients with ophthalmic problems could present a risk of transmission to treating ophthalmologists and OT staff. Through Various factors like Operation Theatre (OT) procedures, cleaning and handling of sharp instruments during surgery and anaesthesia.^{6,7} Usually, viral serology screening is not routinely done in patients who undergo cataract surgery, as most carriers are asymptomatic^{8,9}. They pose a real threat by horizontal spread to health staff, surgeons and other patients⁵.

II. Materials And Methods

After taking informed consent from the patients, A retrospective review of 620 patients who had undergone cataract surgery between May 2019 to November 2019 in the department of ophthalmology in a tertiary care center, Guntur, Andhra Pradesh, was done for the presence of positive viral serology for HIV, HBV and HCV. Symptomatic patients with history of jaundice and Hepatitis B immunization were excluded. The mean age of patients was 62 years, 302 (48.71%) were males and, 318 (51.29%) were females.

All positive patients, who were newly diagnosed, came to know accidentally about their seropositivity. Post test counselling was given and referred them to ART center for further management. The confidentiality of the study patient's name and their results were maintained. The number of patients with positive viral serology, age, sex ratio were analyzed.

III. Results :

620 patients were operated in the study period. The mean age of patients was 62 years,302 (48.71%) were males, and 318 (51.29%) females. Out of 620 patients, 60(9.68%) patients were positive for viral serology. HBsAg was positive in 43 patients (6.94%). Out of these, 27 patients (4.35%) were male, while 16(2.59%) were females. Anti- HCV was positive in 10 (1.61%) patients. Out of these,7(1.13%) were male and 3(0.48%) were female. HIV was positive in 7 patients (1.13%), out of these 6(0.97%) were males,1(0.17%) was female ,as shown in table 1.

Out of 43 HBsAg positive patients 39 (90.70%) were between 40-60 years of age group ,4(9.30%) were between 60-70 years. Out of 10 anti-HCV positive patients,8(80%) were between 40-60 years and 2 (20%) were between 60 -70 years.all 7(100%)HIV positive patients were between 40-60 years. ,as shown in table 2. Most frequently reported Blood borne viral infection is Hepatitis B, followed by hepatitis C and HIV.

TABLE 1: FREQUENCY OF POSITIVE VIRAL MARKERS IN MALE AND FEMALE PATIENTS

VIRAL MARKERS	MALE	FEMALE	TOTAL
HBsAg	27	16	43
Anti - HCV	07	03	10
HIV	06	01	07
TOTAL	40	20	60

TABLE 2 :FREQUENCY OF POSITIVE VIRAL MARKERS IN DIFFERENT AGE GROUPS

VIRAL MARKERS	40-60	60-70	TOTAL
HBsAg	39	4	43
Anti - HCV	8	2	10
HIV	7	0	07

Figure 1: SEX DISTRIBUTION

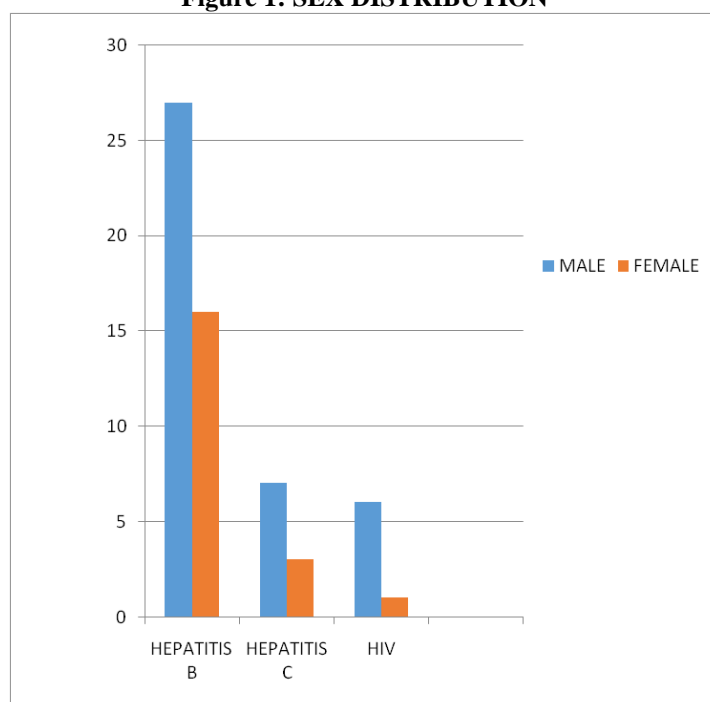


Figure 2: AGE DISTRIBUTION OF HEPATITIS B:

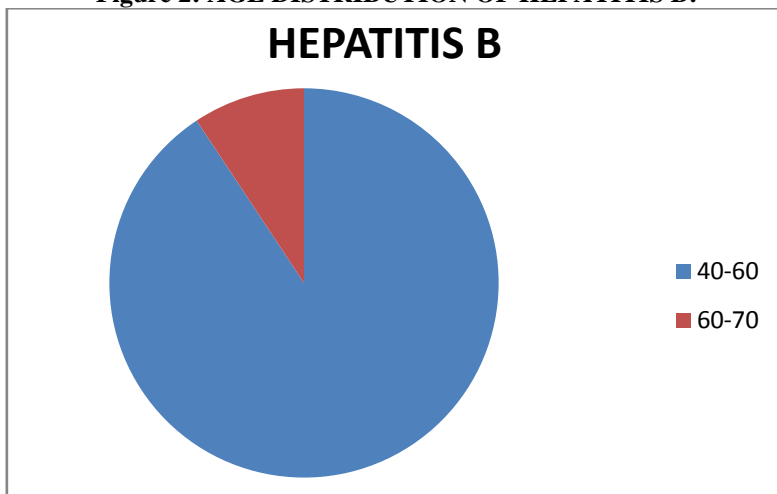


Figure 3: AGE DISTRIBUTION OF HEPATITIS C

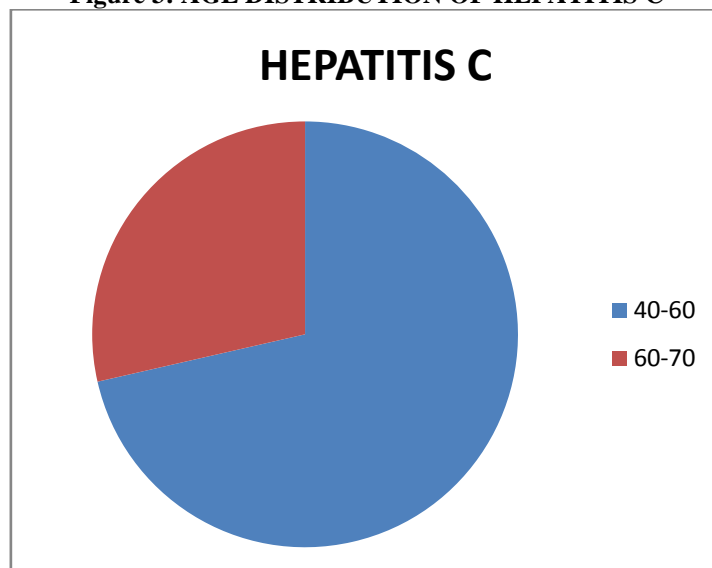
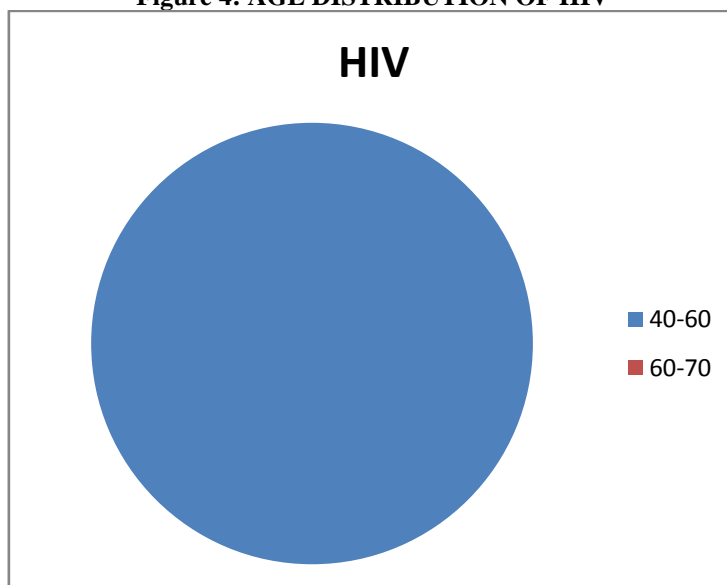


Figure 4: AGE DISTRIBUTION OF HIV



IV. Discussion:

India is facing a huge burden of HIV, HBV, and HCV infection^{10,11} Asymptomatic carriers with positive viral serology serve as reservoirs of infection within the community, and the lack of routine screening before surgery may be one of the factors responsible for increased disease transmission^{7,12}. Ophthalmologists are exposed to infectious diseases via contact with tears and aqueous humor, by accidental needle pricks during surgery and anesthesia. Several studies have reported the detection of these viral antigens in tears and aqueous of infected patients. Temel et al. and Koksai et al. noted that 70% and 85% HBsAg-seropositive patients also tested positive for HBsAg in tear and aqueous humor samples by Polymerase Chain Reaction (PCR).^{15,16}

Ching-Yao Tsai reported the case of an asymptomatic Taiwanese HBV patient in whom HBV was detected in aqueous humor using PCR¹². Kobayakawa et al. reported that 50% of anti-HCV antibody positive patients also tested positive for HCV in aqueous humor, as determined by PCR¹³. HIV viruses too have been isolated in tears, cornea, aqueous humor, conjunctiva, retinal vascular endothelium. Yang Han M et al. detected presence of HIV-1 viruses in tears of patients even under long-term Highly Active Anti-Retroviral Therapy [HAART] treatment.¹⁴ Transmission of HBV, HCV, and HIV to healthcare workers and other patients through horizontal spread at hospital is a matter of great concern. As per our knowledge, inadequate serological screening before ocular surgeries may be one of the factors responsible for

V. Conclusion:

Most frequently reported Bloodborne viral infection is Hepatitis B, followed by hepatitis C and HIV. Keeping in view the number of cases of seropositivity in our study and various other studies showing the presence of these viruses in aqueous and tears, we suggest that screening for viral markers should be made mandatory and part of routine protocol before cataract surgery, so that early detection and treatment of patients can be done and risk of spread is minimized

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