

Study of Visual Outcome after Cataract Surgery in HIV/ Hbsag Seropositive Patients Operated at A Tertiary Eye Care Facility

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Abstract

Background and Aim: Incidence of cataract may be increased in HIV+ patients due to chronic systemic inflammation, hyperlipidaemia, insulin resistance, kidney diseases etc. that are seen either due to the disease itself or HAART therapy. While regarding Hepatitis B, India falls in the intermediate hepatitis B virus (HBV) endemicity group, with prevalence rate of 2% to 4% in the general population. The aim of this study is to describe the epidemiology and clinical findings of cataract and the long-term outcomes of cataract surgery in HIV+ or HBsAg+ patients.

Material and Methods: Present study was performed from January 2020 until January 2023, records of all patients undergoing cataract surgery in Dept. of Ophthalmology at a tertiary medical college were analysed. The patients who were diagnosed HIV / HBsAg positive prior to surgery were segregated. Detailed pre-operative examination was done of all patients, who included corrected vision, anterior segment examination by slit lamp, fundus examination by direct/ indirect ophthalmoscope, intra-ocular pressure by applanation, etc. All the said patients underwent Small Incision Cataract Surgery (SICS) by a trained resident / consultant. Main outcome measures were: visual acuity before and after surgery, type of cataract, ocular and systemic comorbidities, intraoperative and postoperative complications, and changes in anterior and posterior chamber inflammation.

Results: There were 55 patients who underwent cataract surgery who were either HIV+/HBsAg+. Nuclear sclerosis with posterior subcapsular cataract was the most common (32.7%) cataract, while 27.3% patients presented with mature / hypermature cataract. Out of all the patients, there were 3 HIV+ patients in whom evidence of past anterior/ intermediate uveitis was noted notably old keratic precipitates on cornea, sectoral iris atrophy, and posterior synechiae.

Conclusion: Cataract surgery with IOL implantation leads to significant visual improvement in HIV+ and HBsAg+ patients. Evidence of past episode of anterior uveitis was noted in 9% of HIV+ patients, all of whom had excellent visual outcomes.

Keywords: AIDS, Cataract, HIV, Hepatitis B virus.

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Introduction

Ophthalmic surgeries are among the most widely performed surgeries worldwide. Ophthalmic surgeries range from cataract and pterygium surgeries which can be done at secondary centres with basic operative setup to glaucoma, cornea, retina, squint and orbit surgeries which are done by specialists.

The national prevalence of HIV/AIDS is about 0.26% compared with a global average of 0.2%[1], but the figure in certain high-risk groups. Over the past few decades due to the availability of efficient Anti – retro viral therapy has increased the average life expectancy of HIV+ individuals significantly. In addition to this, Government mediated programme has made this therapy accessible to all in need.[3-6] Incidence of cataract may be increased in HIV+ patients due to chronic systemic inflammation, hyperlipidaemia, insulin resistance, kidney diseases etc. that are seen either due to the disease itself or HAART therapy. In addition to that CMV retinitis is a risk factor for cataract progression.

While regarding Hepatitis B, India falls in the intermediate hepatitis B virus (HBV) endemicity group, with a prevalence rate of 2% to 4% in the general population.[2] India harbours 10% to 15% of the global pool of HBV and has 40 million HBV carriers, of whom 15% to 25% develop cirrhosis and complications leading to health care costs and premature death.

The aim of this study is to describe the epidemiology and clinical findings of cataract and the long-term outcomes of cataract surgery in HIV+ or HBsAg+ patients. In addition to this, to study co-existing ocular conditions like uveitis especially in HIV+ patients and to study whether it has any effect on the final visual outcome of surgery.

Material and Methods

Present study was performed from January 2020 until January 2023, records of all patients undergoing cataract surgery in Dept. of Ophthalmology at a tertiary medical college were analysed. The patients who were diagnosed HIV / HBsAg positive prior to surgery were segregated. Only those cases that had complete records right from the first visit up to final follow-up and post-op refraction were considered. Our aim was to study whether there was any co-existing pathology at the time of initial presentation and to study the final visual outcome in these patients.

Detailed pre-operative examination was done of all patients, who included corrected vision, anterior segment examination by slit lamp, fundus examination by direct/ indirect ophthalmoscope, intra-ocular pressure by applanation, etc. History of co-existing systemic illnesses (DM, HTN, Cardiac disease, asthma, etc.) was elicited. Routine blood investigations of all patients include RBS, CBC, renal function tests, urine (routine and microbiological) test. All the patients were sent for ICTC (Integrated Counselling and Testing Centre) where they were counselled and testing for HIV / HBsAg was done. Newly diagnosed positive cases of HIV / HBsAg were taken for surgery after physician opinion and start of necessary therapy.

All patients signed an informed consent for the surgical procedure and for the use of their data in an anonymous form for any study purpose. The study followed the tenets of the Declaration of Helsinki and no IRB approval was necessary.

In patients who had prior anterior uveitis or retinitis, cataract surgery was done only if there was significant cataract and such patients were observed for atleast three months for complete absence of ocular

inflammation. No pre-operative oral steroids were given to these patients.

Standard pre-operative precautions were taken in each of the patients. Topical 5% povidone iodine was instilled prior to surgery and painting of eye was done with 10% povidone iodine. All the said patients underwent Small Incision Cataract Surgery (SICS) by a trained resident / consultant. From the first post-operative day, topical Moxifloxacin and Dexamethasone was started 6 times a day for one week. This was gradually reduced every week and drops were totally stopped after duration of 6 weeks. Oral antibiotics (Tab. Levofloxacin) and analgesics (Tab. Diclofenac) were given for duration of 5 days post-operatively.

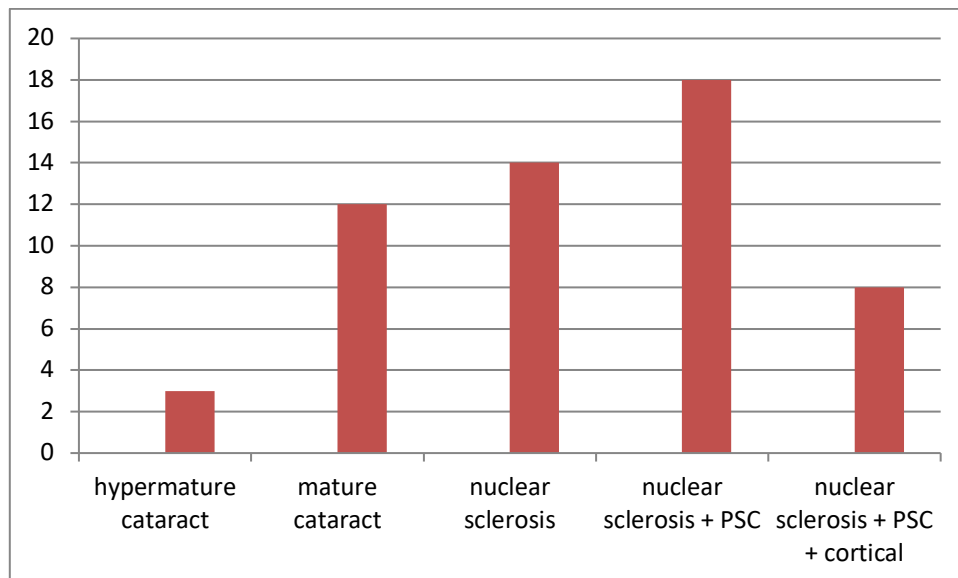
The patients were examined on the day after surgery and then at day 4, 11, 30, 45 and whenever necessary as per their

clinical findings. Measurement of anterior chamber inflammation was done during each examination according to the SUN (Standardization of Uveitis Nomenclature) criteria.[7]

Main outcome measures were: visual acuity before and after surgery, type of cataract, ocular and systemic comorbidities, intraoperative and postoperative complications, and changes in anterior and posterior chamber inflammation.[3]

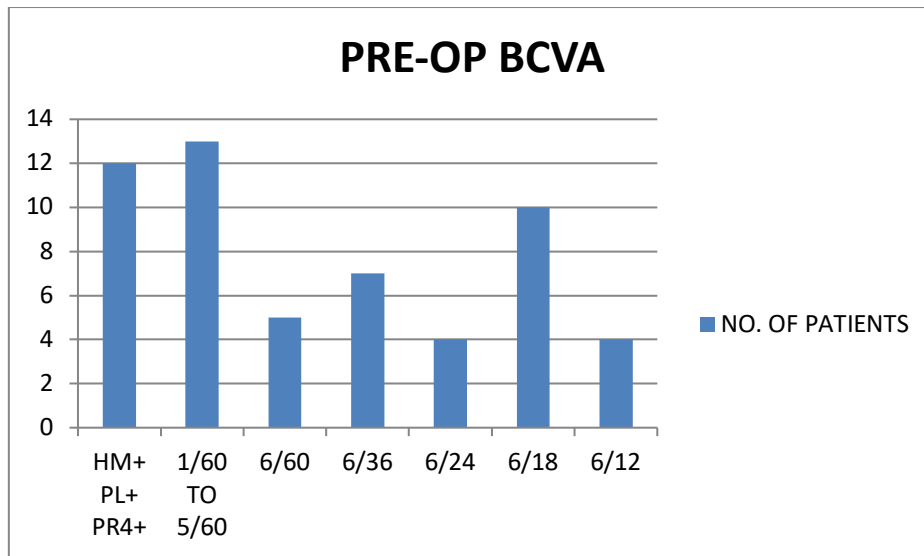
Results and Discussion

Going through the records, there were 55 patients who underwent cataract surgery who were either HIV+/HBsAg+. Of these, 41 were male and 14 were female. 34 out of the 55 were HIV+ve. 22 out of 55 were HBsAg +ve. There was a single patient who was HIV+ve and HBsAg+ve. The average age of patients was 56.5 years.

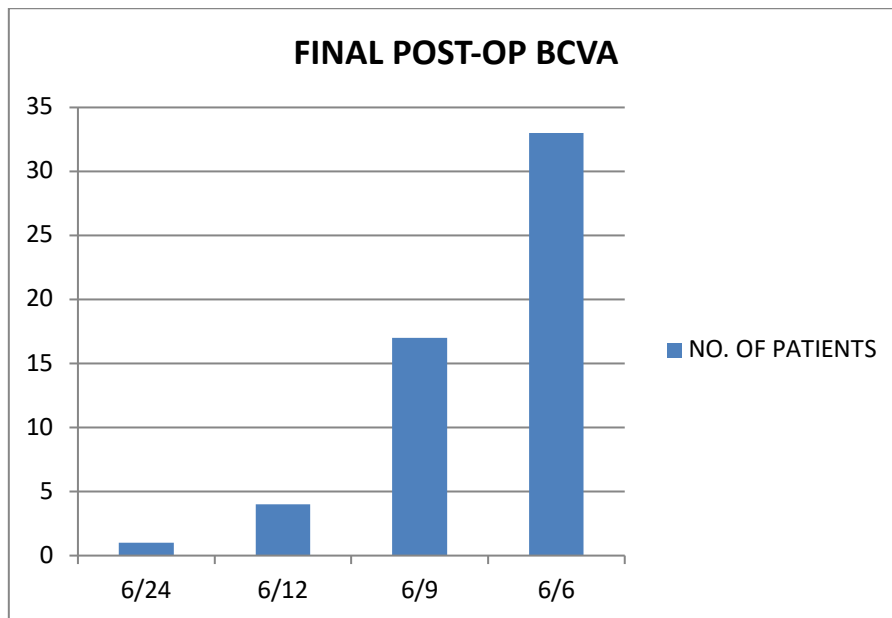


Graph 1: Distribution as per classification of cataract

Nuclear sclerosis with posterior subcapsular cataract was the most common (32.7%) cataract noted in our study. While 27.3% patients presented with mature / hypermature cataract. Similar to our study, nuclear sclerosis was the most common type of cataract noted by Accorinti et al [3] and a study conducted at Singapore [8].



Graph 2: Distribution of Pre-Op Vision



Graph 3: Distribution of final Post-Op Vision

16 patients had co-existent Hypertension whereas 4 patients had Diabetes Mellitus, was under treatment and systemic parameters were under control.

Out of all the patients, there were 3 HIV+ patients in whom evidence of past anterior/intermediate uveitis was noted notably old keratic precipitates on cornea, sectoral iris atrophy, and posterior synechiae. All the 3 patients had uneventful surgery and final best corrected visual acuity was 6/9 or better. There was no significant difference in Anterior chamber reaction or intra-ocular pressure comparing these 3 patients

to the remaining lot. There was no evidence of posterior uveitis in any of the pre-operative patients.

As per study by Accorinti et al [3] they observed evidence of past anterior uveitis in 20% of HIV+ patients, while in our study, it was 8.9%. Accorinti et al also observed past evidence of CMV retinitis in 10% of HIV+ patients, while in our study there was no such patient.

Of all the 55 patients, there was a single patient whose post-operative BCVA was 6/24, which was attributed to the presence of a central corneal nebulo-macular

opacity. All the other patients had a post-operative BCVA of 6/12 or better. Visual acuity increased in all HIV+ and HBsAg+ patients operated on for cataracts with IOL implantation following surgery ($p < 0.001$). This improvement remained stable throughout the follow-up period.

There was no significant difference comparing final visual acuity *between* HIV+ and HBsAg+ groups.

Conclusion

There was significant improvement in visual acuity post cataract surgery – both in HIV+ and HBsAg+ patients. 98.1% patients had visual acuity of 6/12 or better. Nuclear sclerosis with posterior subcapsular cataract was the most common (32.7%) cataract in our study. 27.3% patients had mature / hypermature cataract. 29% patients had co-existing hypertension while 7.2% patients had co-existing Diabetes Mellitus. There were 3 (out of 34) HIV+ patients having evidence of past episode of anterior uveitis. In all the 3 patients, cataract surgery was uneventful and final BCVA of 6/9 was achieved. There was no patient having evidence of past episode of posterior uveitis.

Thus we would like to conclude that cataract surgery with IOL implantation leads to significant visual improvement in HIV+ and HBsAg+ patients. Evidence of past episode of anterior uveitis was noted in 9% of HIV+ patients, all of whom had excellent visual outcomes.

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