

Original Article

Adherence to All India Ophthalmic Society (AIOS) guidelines in cases of cataract surgery in a tertiary care hospital of Dehradun

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Abstract

Problem: Asepsis is a pre requisite for any intraocular procedure especially cataract surgery which is a common procedure. Although our set up has a flexible protocol for cataract surgery, we wanted to ensure our adherence to basic guidelines issued by All India Ophthalmic Society (AIOS). This study aimed to ensure our adherence and to address the recommendations. **Approach:** Comprehensive departmental protocol with incorporated AIOS guidelines were prepared in the form of a detailed questionnaire and were marked as per the execution of those points. Those points which were not brought into action, as well as those which were executed but failed to make it to the documentation, were considered missed, and not ticked. **Findings:** In the present study, there was no significant association between age and adherence to protocol (p Value=0.438) There was also no significant association between gender and adherence to guidelines of cataract surgery (p Value=0.427) **Conclusion:** There has been a good adherence to AIOS guidelines, with no case of post operative endophthalmitis (POE) during the period of study. However, the study revealed some lacunae related to infrastructure, and compliance on human level. Such issues need a strategic approach and proper planning to ensure long term results.

Key Words: Post-operative Endophthalmitis, cataract surgery,

Introduction

Postoperative endophthalmitis (POE) has been reported to be one of the most devastating complications after intraocular surgery, which is commonly associated with a poor prognosis.[1] It can occur following any penetrating ocular surgery, however, 90% of such cases have been found to occur following cataract surgery, because cataract surgery is the most frequently performed globally.[2] Despite the fear of its occurrence, reports related to postoperative endophthalmitis have been rare, even though it can cause severe visual impairment or even the loss of an eye.[3] Worldwide, the reported incidence of POE is 0.04%–4% with postcataract surgery incidence being around 0.265% (more with clear corneal incision). There appears to be dilemma regarding its prevention as different hospitals follow different guidelines and try to give their best to the patient. However, certain systemic conditions like diabetes mellitus which render the patient susceptible to it, the optimum was to avoid it is to ensure asepsis. Through this study, we make an effort to understand the compliance of eye department of a tertiary care hospital with All India Ophthalmic Society (AIOS) guidelines and the lessons learnt during its implementation.

Aim

To assess the compliance with AIOS guidelines in patients undergoing cataract surgery

Objectives

- To compare the adherence to AIOS guidelines in patients worked up for cataract surgery
- To elicit the challenges faced in adhering to guidelines

Inclusion Criteria

100 patients having cataract opting for cataract surgery

Exclusion Criteria

Any other intraocular surgery or procedure

Material and Method

This is a cross sectional, descriptive study conducted in a tertiary care hospital of Uttarakhand. 100 patients with cataract who were worked up for cataract surgery were included in the study. A detailed proforma as per the AIOS was prepared and additional parameters which were important to our hospital environment were also included in it. The proforma was attached to hospital admission files and was filled up by a single observer. The parameters were categorized as pre operative, intraoperative, and post operative. They included variables related to patient profile, demography, systemic, ocular examination, management, and also parameters reflecting hospital hygiene and care during the stay of the patient. The observer had to tick the variable denoting specific activity related to the work up of cataract in the proforma. Any variable not performed or any activity missed during the work up of cataract surgery was not marked and considered as not performed. After the completion of 100 cataract surgeries, the 100 proformas were analysed and adherence to the AIOS guidelines was compared by the department. The proforma prepared for the department was more comprehensive, and inclusive of other parameters relevant to the hospital guidelines.

Results

Table 2: Case Processing Summary [Assessment versus Gender]

Adherence to protocol was followed irrespective of gender of the patient. (pValue=0.427).

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Assesment versus*AGE	240	100.0%	0	0.0%	0	100.0%

Assessment versus GENDER Crosstabulation

	GENDER		Total
	0	1	
NUMBER OF Marking 0	1	3	4
1	106	130	236
Total	107	133	240

Chi-square Tests

	Value	Df	Asymp Sig
Pearson Chi-Square	631 ^A	1	0.427
Continuity Correction ^b	083	1	0.774
Likelihood ratio	669	1	0.413
Fisher's Exact Test			
Linear-by-Linear Association	629	1	0.428
N of Valid Cases	240		

a 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.78

b Computed Only for 2x2 table

Table 3 Pre & Intra-Operative versus Post Operative

More points were missed in following post operative protocols, in comparison to pre and intra-operative protocols. There was no gender predilection among patients where points were missed, either intra-operatively, or post operatively.

GENDER	Post Operative	Pre & Intra-Operative	
Male	1	106	P=0.427 Chi Squarevalue=0.631
Female	3	130	
Age-group			
0-20	0	2	P=0.438 Chi Square value= 2.712
20-40	0	7	
40-60	0	87	
More than 60	4	140	

Discussion

POE is a dreadful event and can get stressful both for the patient and the doctor. We learnt that guidelines could be adhered to effectively pre intra, and post operatively, but with surgery being a dynamic process, adherence at times can not be expected to be smooth and precise. In our study, there was appropriate following of the protocol with a few lacunae, but no gender or age related association was found in the cases where some points of adherence was found to be missing. Lacunae in guidelines were observed more in the post operative phase which could be due to cumbersome paperwork of discharging the patient, and involvement of newer staff and doctors at this level. With different surgical speeds and some surgeons being faster at a particular surgical method, the time allotted for a certain step could not be accurately followed. The use of 5 % povidone iodine for cleaning the operative area was uniform, but accurate duration was not measured. The change of gloves was precise after every case, but due to limited resources, the same sets of instruments were used except for disposables, which were discarded on single-use basis. AIOS recommends on avoiding chemical sterilization, but in our setting we had to use

chemical sterilization. The technique and intraoperative events could not be the same for every case, but all the surgeries were performed judiciously. Various studies including the ESCRS postoperative endophthalmitis study, and the EVS show that Gram-positive organisms account for more than 90% of pathogens in culture positive cases of POE following cataract surgery.[6-13] However, in India, Gram-negative organisms and fungi are also important causative organisms.[14-16] Thus, asepsis is a prerequisite for any intra ocular procedure, especially cataract surgery that comes with huge expectations from the patient. In the present study, we found that the departmental adherence to the AIOS guidelines was upto mark in pre operative and post operative sections. The AIOS guidelines at that point were not inclusive of viral markers as a mandatory investigation, however due to the demography of the patients, we felt the need of knowing the viral status of the patient, hence incorporated those in the departmental guidelines. Some patients could afford only 33.33% of the viral markers, so the cataract surgery was performed with proper protective measures. Screening of viral markers among patients posted for cataract surgery is different for every eye care facility. In a study from Haryana study, the hospital based overall prevalence of seropositivity for triple H viral infections among patients of senile cataract was 5.9%, and HCV was most common viral infection. The same study reported that 90% of their patients denied any awareness about seropositive status. Also, some did not reveal their status even though they were aware of it.[17] But the limitation of their study was their limited geographical area, and their results can not be generalized. When a patient is a known seropositive case, there is provision for universal precautions along with special disposable gowns with headcover and goggles, double gloves, and unique waste management. To prevent cross-infection to other patients, such patients are operated upon last in the operation theatre (OT) to minimize the cross-infection. Questions arise if such a scenario poses a risk for propagation of virus? Although the reported incidence of needle prick injury in ophthalmological practice was 0.06–0.08 per 1,000 surgeries in India[18] can it be safe to ignore? Some have advocated doing universal testing or selective testing of a particular viral marker according to the prevalence of that virus in that population for cost-effectiveness.[17] Consensus related to uniform screening or selective screening is not constant and varies as per circumstances and times in our hospital. Proper wearing of masks, both for the patients and surgeons was advocated, observed and followed. A recent case-control study showed that the use of face masks by the surgeon and the scrub nurse significantly reduced the risk of endophthalmitis ($p < 0.001$).[19] Facemasks must be worn correctly; they must cover the nose, mouth, and chin completely and must never hang around the neck. The construction of a stable incision without leakage is important in reducing the risk of intraocular infection. The clear corneal incisions commonly used for phacoemulsification are associated with a significantly increased risk of endophthalmitis, compared to scleral tunnel incisions.[20] The factors like incisions are not only dependent on the surgeon, but also the anatomy of eye, morphology of cataract, and choice of surgery. We did not explore this factor in the present study, but the incisions were sealed properly, with or without the sutures. Surgical complications, like the torn posterior capsule, can significantly increase the risk of endophthalmitis.[19,20]. Thus, more challenging and complex cases with eventful surgery appear prone to POE. The use of injectable IOLs has been linked with a reduced risk of endophthalmitis, as there is often a strong correlation with the site of incision that is the more important risk factor.[20] Although the IOL varied from rigid to foldable, as per the choice of the patient and surgery, but the surgical team was aware of such facts. As a subconjunctival antibiotic provide an additional drug reservoir for extended duration during the postoperative period and has been part of routine prophylaxis,[21] all eyes were given subconjunctival injection. In our facility, antibiotic and steroid combination was prescribed for four weeks post cataract surgery, frequency depending upon the status of the eye.

The guidelines related to intraoperative section, lay emphasis on change of gowns and instruments with every new case. Ours being a multi speciality teaching institute, the concept of our guidelines could not be applied to other specialities and surgical fields. With the huge demand for gowns, and limited instruments, we could not exactly execute as given in writing. This brought forward the need for a regular supply of new set of instruments and gowns and we took that into our account as areas needing improvisation.

Another lacunae was observed in proper documentation, as the lengthy, and repetitive paperwork was cumbersome and time-consuming. With bulk patients being operated in from free health camps, and ambulatory patients looking for rapid discharge services, such errors are to be anticipated. Being a teaching and training institute, there was a rotating staff, and students and everyone needs time for adaptation to the system. Thus, teaching the protocols, and making sure that they were adhered to has been a continuous process.

Conclusion

Asepsis is a prerequisite for any intra ocular procedure. Such analysis helps us to know the extent of implementation of protocols, and the points that need attention. It helps to keep the system in check, and allows one to reflect for the betterment.

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Table 1: Case Processing Summary [Assessment versus Age]

All patients were appropriately marked irrespective of age of the patient, with no loss of adherence to protocol, however no preference was found to be related to the age of the patient.(p=0.438)

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
NUMBER OF Markings versus AGE	240	100.0%	0	0.0%	0	100.0%

Assessment versus Age Crosstabulation

		AGE				Total
		1	2	3	4	
Assessment	0	0	0	0	4	4
	1	2	7	87	140	236
Total		2	7	87	144	240

Chi-square Tests

	Value	Df	Asymp Sig
Pearson Chi-Square	2.712	3	438
Likelihood Ratio	4.132	3	248
Linear-by-Linear Association	2.266	1	132
N of Valid Cases	240		