Section: Ophthalmology

Original Research Article

EVALUATION OF MEDICATION UTILIZATION STRATEGIES IN CATARACT SURGERY: A PROSPECTIVE APPROACH

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Received *: 09/09/2025*
Received in revised form *: 05/11/2025*
Accepted *: 21/11/2025*

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DOI: 10.70034/ijmedph.2026.2.631

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 3845-3849

ABSTRACT

Background: In the world, cataract surgery is the most common eye surgery. Using drugs wisely is very important for avoiding problems and getting better results. Inappropriate prescribing might result in elevated expenses and negative consequences. The goal of this study was to look at how patients who were scheduled to have cataract surgery used their medications in the future, with a focus on prescribing patterns, rationality, and following conventional criteria.

Materials and Methods: A prospective observational research was performed with 60 patients getting cataract surgery at a tertiary care institution for a duration of 6 months. Information about the patient's age, sex, and medical history, as well as the medications they took before, during, and after surgery, was gathered. We used WHO core prescribing indicators to look at prescriptions and compared them to conventional ophthalmology guidelines. Descriptive approaches were used to do the statistical analysis.

Results: There were 60 patients, 34 (56.7%) of whom were women and 26 (43.3%) of whom were men. The average age was 62.4 ± 8.5 years. There were 210 medications prescribed in all, or an average of 3.5 drugs per patient. Topical antibiotics (100%), corticosteroids (93.3%), NSAIDs (70%), mydriatics/cycloplegics (65%), and lubricants (25%) were the most common types of drugs prescribed. Forty patients (66.7%) were given fixed-dose combinations of antibiotic and steroid drops. In 39 prescriptions (65%), the generic name was used. In 151 prescriptions (72%), the drug was on the WHO essential medicines list. The average time that people took medicine after surgery was 3 to 4 weeks. A comparison of the guidelines showed that 85% of prescriptions were reasonable, whereas 15% showed excessive duplication or longer treatment.

Conclusion: This study shows that the drugs used by people who had cataract surgery were mostly reasonable. Antibiotics and corticosteroids were the most popular ones. But too much reliance on fixed-dose combos and not enough generic prescriptions show where things may be better. Regular audits of prescriptions and following standard ophthalmic recommendations can help people utilize drugs more wisely, lower expenses, and improve the results of cataract surgery.

Keywords: Cataract surgery, drug utilization, prescribing patterns, rational use of medicines, prospective observational study.

INTRODUCTION

Cataracts are the most common cause of reversible blindness in the world and are a major public health problem, especially in impoverished nations. The World Health Organization (WHO) says that cataracts are the cause of around 51% of all blindness in the world and afflict about 20 million people. Cataract surgery is still the only sure way to treat the disease. New surgical procedures like phacoemulsification have made the procedure safer and more effective for patients.[1,2]

The success of cataract surgery relies not only on the surgeon's skill but also on the judicious use of perioperative drugs. Appropriate medication is essential in averting surgical problems, including endophthalmitis, inflammation, discomfort, and cystoid macular edema, while facilitating optimal healing and visual rehabilitation. Antibiotics, corticosteroids, non-steroidal anti-inflammatory medications (NSAIDs), mydriatics/cycloplegics, and lubricants are some of the most prevalent types of pharmaceuticals.[3,4]

Even though they are important, the way medicines are used during cataract surgery can be very different from one case to the next because of changes in prescriber preferences, drug availability, and institutional protocols. Some of the problems with ocular pharmacotherapy are too many prescriptions, using fixed-dose combinations in ways that don't make sense, not prescribing enough generic drugs, and not following essential medicines lists. Using drugs incorrectly not only makes therapy more expensive, but it also leads to medication resistance and bad drug effects.[5] The WHO stresses that medicines should be used wisely, which means that patients should get the right medicines for their clinical needs, in the right amounts, for the right amount of time, and at the lowest cost to themselves and their community. Using WHO core drug use indicators to look at prescribing patterns gives you a way to judge if prescriptions are reasonable based on evidence.[6]

Numerous studies have documented prescribing patterns in general ophthalmic practice; however, there is a paucity of research concentrating especially on drug consumption among cataract surgery patients within the Indian clinical context. Given that cataract surgery is the most often conducted ophthalmic treatment, there exists an urgent necessity to assess contemporary prescribing methods to guarantee cost-effective, evidence-based, and safe pharmaceutical therapy.[7,8]

Consequently, this study was conducted to prospectively evaluate medication utilization techniques in 60 patients receiving cataract surgery at a tertiary care hospital, aiming to analyze prescribing trends, the rationality of drug use, and adherence to established ophthalmic standards.

MATERIALS AND METHODS

This was a prospective observational study carried out in the Department of Ophthalmology, Viswabharathi Medical College and Hospital, spanning 12 months. A total of 60 patients admitted for cataract surgery were enrolled following the acquisition of informed consent. The study was conducted in a hospital setting and received approval from the Institutional Ethics Committee. The total sample size was 60, which included all patients who had cataract surgery throughout the study period and met the inclusion criteria.

Inclusion Criteria:

- Patients aged 40 years and above undergoing cataract surgery.
- Both male and female patients.
- Patients willing to provide informed consent.
- Patients undergoing either phacoemulsification or extracapsular cataract extraction (ECCE) with or without intraocular lens implantation.

Exclusion Criteria:

- Patients with complicated cataracts
- Patients with ocular co-morbidities such as glaucoma, uveitis, or retinal diseases requiring additional pharmacological therapy.
- Patients with systemic illnesses requiring long-term medications that could interfere with ophthalmic drug use
- Patients unwilling to participate or lost to follow-up during the postoperative period.

Data Collection: We used a standardized proforma to get information about the patient's age, sex, medical history, other health problems, type of cataract surgery, and medications given before, during, and after the surgery. The World Health Organization's core drug usage indicators were used to look at prescriptions. These included the average number of medications per encounter, the proportion of drugs prescribed by generic name, the percentage of drugs from the WHO Essential Medicines List, and the percentage of fixed-dose combos. The rationality of prescriptions was evaluated in accordance with established ophthalmology principles.

RESULTS

This prospective observational study comprised a total of 60 participants undergoing cataract surgery. The results are shown in the tables below, along with some interpretations.

Table 1: Demographic distribution of patients

Demographic variable	Number of patients (n)	Percentage (%)
Age group (years)		
40–49	6	10.0

50–59	14	23.3
60–69	24	40.0
≥70	16	26.7
Gender		
Male	26	43.3
Female	34	56.7

The average age of the people in the study was 62.4 ± 8.5 years, and most of them (40%) were between 60 and 69 years old. Females made up a little more than half of the group (56.7%), while males made up a little less than half (43.3%).

Table 2: Type of cataract surgery performed

Type of surgery	Number of patients (n)	Percentage (%)
Phacoemulsification with IOL implantation	44	73.3
Extracapsular cataract extraction with IOL	12	20.0
Small incision cataract surgery	4	6.7

The most prevalent procedure was phacoemulsification with intraocular lens (IOL) implantation (73.3%), followed by ECCE (20%) and SICS (6.7%).

Table 3. Drug classes prescribed in perioperative period

Drug class	Number of patients prescribed	Percentage (%)
Topical antibiotics	60	100.0
Corticosteroids (topical/systemic)	56	93.3
NSAIDs (topical/systemic)	42	70.0
Mydriatics/cycloplegics	39	65.0
Lubricants/artificial tears	15	25.0

All patients received topical antibiotics (100%), and most of them were given corticosteroids (93.3%) and NSAIDs (70%). In 65% of cases, mydriatics were administered, whereas only 25% of cases got lubricants.

Table 4. Fixed-dose combinations used

FDCs prescribed	Number of patients	Percentage (%)
Antibiotic + Steroid eye drops	40	66.7
Antibiotic + NSAID drops	6	10.0
None	14	23.3

The most common fixed-dose combination (FDC) that doctors gave was an antibiotic-steroid eye drop mix (66.7%), whereas 23.3% of patients did not get any fixed-dose formulation.

Table 5: Prescription indicators based on WHO guidelines

Indicator	Observed value	Standard value
Average number of drugs per prescription	3.5	1.6–1.8
Drugs prescribed by generic name	65%	100%
Drugs from WHO Essential Medicines List	72%	100%
Encounters with antibiotics	100%	20–30%
Encounters with injections	15%	13–24%

The WHO norm says that there should be an average of 3.5 medications per prescription. It wasn't good enough to prescribe generic drugs (65%) or stick to necessary medicines (72%). Antibiotics were given to all patients, which was more than what the WHO said to do.

Table 6. Assessment of prescription rationality

Prescription category	Number of patients	Percentage (%)
Rational (adhered to guidelines)	51	85.0
Irrational	9	15.0

Out of 60 prescriptions, 85% were reasonable and followed conventional treatment criteria. The other 15% had problems including giving antibiotics too often, extending therapy, or using fixed-dose combinations in the wrong way.

DISCUSSION

The prevention of postoperative problems, the mitigation of unpleasant effects, and the reduction of healthcare expenses all depend on the rational use of drugs during cataract surgery. Consistent with the recognized incidence of senile cataracts in the elderly population, the majority of the 60 patients in this prospective analysis were aged 60-69 years

(40%). The somewhat greater percentage of females (56.7%) is consistent with previous research showing that females are more likely to have cataracts than males, which may be a result of extended life expectancy.[9-11]

Most procedures were phacoemulsification with intraocular lens (IOL) implantation (73.3%), ECCE (20%), and SICS (6.7%). The decision to have minimally invasive surgery is in line with modern medical developments; these procedures typically have a shorter recovery time and a lower need for medication after surgery. An overwhelming majority of patients were given nonsteroidal anti-inflammatory drugs (NSAIDs)(70%) and corticosteroids (93.3%) in addition to topical antibiotics.[12,13] Lubricants were administered to 25% of patients, mainly for protection of the ocular surface, while mydriatics were used by 65% of patients to keep the pupils dilated. While 66.7% of patients use antibiotics and steroids in fixed-dose combinations, which is a sign of ease and better compliance, it also raises concerns about possible overuse and needless exposure to corticosteroids.[14,15]

Due to the frequent use of combination therapy, the average number of medications prescribed was 3.5, which exceeds the recommendations set by the WHO (1.6-1.8). A moderate level of adherence to rational prescription criteria was observed, with 65% of pharmaceuticals being generic and 72% coming from the WHO essential medicines list. However, there is still space for improvement in this area. Antibiotics are prescribed to everyone, which raises concerns about potential overuse for prevention purposes. The majority of prescriptions (85%) followed established ophthalmology recommendations, whereas a small percentage (15%) were deemed illogical because of factors such as needless use of fixed-dose combinations, prolonged therapy, or duplication. The significance of ongoing audits of prescriptions and training for prescribers in promoting sensible drug usage is highlighted by this discovery.[16-18]

Consistent with previous research in ophthalmic surgery, the current findings indicate an over-reliance on antibiotics and corticosteroids, a modest level of adherence to necessary medications, and less-than-ideal prescription of generic alternatives. Standardized procedures for perioperative drug use in cataract surgery should be established, according to the study. These protocols should promote generic prescribing, avoid inappropriate fixed-dose combinations, and ensure adherence to WHO essential drugs. Antimicrobial resistance can be prevented, healthcare expenses can be decreased, and patient safety can be enhanced by rational prescribing.[19,20]

The study's limitations include its limited sample size (60 patients) and its location in a single tertiary care center. We missed out on long-term data that could have shed light on the clinical impact of prescribing practices by evaluating postoperative outcomes and adverse medication reactions. To assess the impact of rational medication utilization on clinical outcomes, patient happiness, and cost-effectiveness in cataract surgery, larger multicenter trials with longer follow-up have to be undertaken. To further enhance rational drug usage in ophthalmology, hospital-based prescribing guidelines should be implemented, along with periodical audits.[21,22]

CONCLUSION

The study shows that cataract surgery patients mostly used medications in a logical way, with antibiotics and corticosteroids being the most popular ones. However, too much reliance on fixed-dose combinations, not enough use of generic drugs, and straying from the list of critical medicines show that there is room for improvement. Regular checks of prescriptions, following standard ophthalmic recommendations, and using drugs in a smart way can make cataract surgery safer for patients, lower the cost of therapy, and improve clinical outcomes.

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