



Medications Used Before and After Cataract Surgery in A Tertiary Care Hospital

Authors

Dr Atul S Raut M.S. (Ophthalmology)¹,

Dr Jagjeewan B.Deshmukh M.D. (Pharmacology)²

¹Associate Professor, Dept. of Ophthalmology, Dr.S.C.G.M.C.Vishnupuri Nanded

²Associate Professor, Dept. of Pharmacology, Dr. S.C.G.M.C. Vishnupuri Nanded

Abstract

Introduction: *Cataract is the most common ocular disease, which is characterized by opacification of lens resulting in gradual progressive diminution of vision. Drug utilization research contributes to the rational drug use by describing the pattern of drug use and interventions.*

Aim and Objectives: *1. To know the drug utilization pattern in patients undergoing cataract surgery preoperatively and postoperatively. 2. To study rational use of drugs.*

Material & Methods: *The study was conducted by the department of pharmacology of a tertiary care hospital, Nanded retrospectively in Ophthalmology ward. case record papers of the cataract patients admitted for the surgery during 6 months period were screened. Data from the case record papers were collected and analyzed for details of the surgery, utilization pattern of drugs prescribed like type of drug, dosage form, dose, route of administration, frequency of administration and duration of therapy.*

Observations: *Total 424 cases of cataract were operated. Different group of drugs were prescribed preoperatively, intraoperatively, postoperatively. Most frequently prescribed topical antibiotic preoperatively was Norfloxacin (86.79%) and postoperatively was ofloxacin (76.88%).*

Other drugs prescribed were flurbiprofen, tropicamide- phenylephrin combination eye drops, Ofloxacin and dexamethasone combinations, rantac, timolol, Acetazolamide.

Conclusion: *Overall rational prescription was found in maximum places. Data of this study can help the ophthalmologist to make appropriate revision in there prescribing practice.*

Introduction

Cataract is the most common ocular disease, which is characterized by opacification of lens resulting gradual progressive diminution of vision. Most commonly seen in elderly. Drug utilization study was defined by WHO in 1977 as the marketing, distribution, prescription, and use of drugs with special emphasis on the medical, social and economic consequences⁽¹⁾. It is necessary to evaluate the pattern of drug utilization from time

to time to increase therapeutic efficacy and to decrease adverse effects, inappropriate use of drugs and unnecessary use of drugs and unnecessary expenses^(2,3). Drug utilization research contributes to the rational drug use by describing the pattern of drug use and interventions.

There are many studies available with drug utilization pattern of different diseases, among these some were conducted for ocular conditions

but most of them are OPD based studies.⁽⁴⁻⁹⁾ . Data regarding studies conducted in inpatient department of ophthalmology is not available. So the present was undertaken to know the drug utilization pattern among the patients admitted to ophthalmology ward for the cataract surgery in a tertiary care hospital.

Aim & Objectives

1. To know the drug utilization pattern in patients undergoing cataract surgery preoperatively and postoperatively.
1. To study rational use of drugs.

Material & Methods

The study was conducted by the department of pharmacology of a tertiary care hospital, Nanded. Institutional ethics committee permission was taken for the conduction of study.

It was a retrospective study, in which case record papers of the cataract patients admitted in ophthalmology wards for the surgery during June 2014 to Dec 2014 were screened. Screening was done over the period of 3 months.

Data from the case record papers were collected and entered in preformed case record form(CRF). Patients demographic profile, details of the surgery performed like type of surgery, utilization pattern of drugs prescribed like type of drug, dosage form, dose, route of administration, frequency of administration and duration of therapy were entered in case record form. Whole data was analyzed for percentage of different drugs prescribed preoperatively, for intra operative period, and postoperative period. Rationality in respect of drugs prescribed was also evaluated.

Observations

During the study total number of cases screened of cataract surgery during 6 month period were found to be 424, out of which 99.37% patients were above 40 years of age and 0.63% were children below 8 years.

Type of surgery performed was extra capsular excision (ECCE) with implantation of intraocular lens. Drugs prescribed preoperatively, peroperative and postoperatively as shown in table 1-3. Most frequently prescribed topical antibiotic preoperatively was Norfloxacin (86.79%) (table 1) and postoperatively was ofloxacin (76.88%) (table3). Ofloxacin and ciprofloxacin were combined with steroids in 0.94% preoperatively and 99.29% postoperatively. Oral antibiotics were prescribed in both preoperative and postoperative period. Flurbiprofen eye drops were prescribed to 100 % patients during preoperative period. Oral ibuprofen prescribed to 94.09% cases postoperatively along with oral antacids in 91.74% cases and rantac tablet in 65.09% patients. mydriatic and cycloplegic agent was tropicamide which is combined with phenylephrin in 89.85% cases preoperatively, cyclopentolate in 349(82.21 %) elderly patients and atropine ointment 2 (0.47%) in children postoperatively. Tropicamide-phenylephrin combination was prescribed in 54 (12.73%) postoperative patients while tropicamide alone given in 19(4.48%) cases. In patients with raised IOP during preoperative period drugs prescribed were manitol, acetazolamide tablets and timolol eye drop and postoperatively given drugs are acetazolamide and timolol. Drugs prescribed during the surgery (table 2) were local anaesthetics in 99.53% patients as peribulbar injections, general anaesthetic by inhalational route by in 0.47% patients. Gentamicin and dexamethasone injections were given by subconjunctival route in 100% patients during the cataract surgery.

Hypertensive patients undergoing cataract surgery were total 28. In that those having blood pressure >160/100 mmhg were given different antihypertensives like ACE inhibitors, beta blockers, Calcium channel blockers, AT1 antagonist (Table 4). 10 patients were having diabetes, among them 4 were given drugs like Insulin, Sulfonylureas, Biguanides (table 5).

Table1: Drugs Prescribed Preoperatively for Cataract Surgery Cases(n=424)

Drugs	No of Cases(%)	Combined with and No of cases	Route and Dosage Form	Frequency and Duration
Norfloxacin	368(86.79)	-	Eye drop	
Ofloxacin	40(9.43)	Dexamethasone- 1 Prednisolone - 1	Eye drop	
Moxifloxacin	9(2.12%)	-	Eye drop	
Ciprofloxacin	7(1.65%)	Dexamethasone-2	Eye drop	
		Total- 0.94%		
Gatifloxacin	6(1.41)	-	Tablet 400mg	Single dose 2 hours before surgery
Moxifloxacin	3(0.71)	-	Tablet 400mg	
Ciprofloxacin	2(0.47)	-	Tablet 750mg	
Flurbiprofen	424(100)	-	Eye drop	
Tropicamide	381(89.85)	Phenylephrin-381	Eye drop	1 drop at 15 minutes interval on day of surgery
Tropicamide	34(8.01)	-	Eye drop	
Atropine	9(2.12)	-	ointment	Thrice daily X 3days
Manitol	1(0.23)	-	infusion	300 ml in 30 minutes
Acetazolamide	2(0.47)	-	Tablet 250 mg	1 tablet 3 times x 1 day
Timolol	2(0.47)	-	Eye drop	1 drop 2 times x 1 day

Table 2: Drugs Prescribed Peroperatively for Cataract Surgery Cases(n=424)

Drugs	No of Cases(%)	Combined with and No of cases	Route and Dosage Form	Frequency and Duration
Local anaesthetic	422(99.53)	-	Peribulbar injection	Once
General anaesthetic	2(0.47)	-	inhalation	
Gentamicin	424(100)	-	Subconjunctival injection	Once at the end of operation
Dexamethasone	424(100)	-		

Table 3: Drugs Prescribed Postoperatively for Cataract Surgery Cases(n=424)

Drugs	No of Cases (%)	Combined with and No of cases	Route and Dosage Form	Frequency and Duration
Ofloxacin	326(76.88)	Dexamethasone-73 Prednisolone- 253	Eye drops	1 drop 6 times x 7 days
Ciprofloxacin	95(22.40)	Dexamethasone -95 Total-421(99.29%)		
Norfloxacin	2(0.47)	-		
Moxifloxacin	1(0.23)	-		1 drop 1 hourly
Gatifloxacin	1(0.23)	-	Tablet 400mg	Twice daily x 4 days
Ciprofloxacin	13(3.06)	-	Tablet 400mg	Twice daily x 4 days
cefelexin	2(0.47)	-	syrup	1 teaspoonful twice daily x 5 days
Ibuprofen	398(93.86) 1 (0.23)	-	Tablet 400mg syrup	Twice daily x 5 days or sos 1 teaspoonful twice daily x 5 days
Antacid	389(91.74)	-	Tablet 400mg	Twice daily x 5days
Rantac	276(65.09)	-	Tablet 150mg	Twice daily x 5days
cyclopentolate	349(82.21)	-	Eye drops	1 drop at HS x 7 days
Tropicamide	54(12.73)	Phenylephrin-54		1 drop at HS x 7 days
Tropicamide	19(4.48)	-		1 drop at HS x 7 days
Atropine	2(0.47)	-	ointment	Twice daily x 7 days
Acetazolamide	9(2.12)	-	Tablet 250 mg	1 tablet 3 times x 3 days
Timolol	5(1.18)	-	Eye drop	1 drop 2 times x 3 days
Prednisolone	10(2.35)	-	Tablet 50 mg	Once daily x 10 days
Diazepam	11(2.59)	-	Tablet 5 mg	1 tablet at HS x 3 days
Alprazolam	1(0.23)	-	Tablet 0.5 mg	1 tablet at HS x 3 days

Table 4 : Antihypertensive Drugs Prescribed for Cataract surgery cases(n= 424)

Blood pressure	No of cases	Drugs prescribed
Borderline high	10	No drugs
>140/90 mmhg		Salt restriction
>160/100 mmhg	18	ACE inhibitors
		Calcium channel blockers
		Beta blockers
		AT1 antagonist statins
total	28(6.6%)	

Table 5: Antidiabetic Drugs Prescribed for Cataract surgery cases(n= 424)

Postprandial blood suger	No of cases	Drugs prescribed
>140 mg/dl	4	Insulin Sulfonylureas Biguanides
120-140mg/dl		No drug
Controlled borderline index	6	Diabetic diet
Total		10(2.35%)

Discussion

Drug utilization research is powerful exploratory tool for prescription audit and evaluation of rational utilization of drug. Periodical auditing of prescriptions is necessary to achieve the goal of rational prescription as stated by WHO, so this study was done among patients undergoing cataract surgery.

Usual prescription pattern was one antibiotic, one antiinflammatory agent and one mydriatic-cycloplegic. In that mostly topical ophthalmic preparations were prescribed. Antibiotics which were prescribed were different types of fluoroquinolones, to prevent development of endophthalmitis. Fluoroquinolones are very effective against the causative organism of endophthalmitis⁽¹⁰⁾. Norfloxacin is potent and cheapest antibiotic eye drop and it was the most frequently prescribed antibiotic preoperatively. Ofloxacin was most frequently prescribed during postoperative period. Moxifloxacin is more potent newer fourth generation fluoroquinolone but because of its high cost it is rarely prescribed. Oral antibiotics were prescribed both preoperatively and postoperatively in few cases only.

Advantage of systemic antibiotic therapy remains controversial⁽¹¹⁾. Flurbiprofen was used as anti-inflammatory analgesic agent and prevent development of cystoids macular oedema^(12,13).

Topical corticosteroids are the best anti-inflammatory agents for ocular surgeries so it is routinely prescribed by ophthalmologist during both preoperative and postoperative period. Postoperatively in most of the cases antibiotic-corticosteroid combinations were given to prevent inflammation.

Tropicamide-phenylephrin combination eye drop was given preoperatively and postoperatively for inducing mydriasis in elderly while atropine ointment was given children for the same purpose. Acetazolamide, timolol and manitol were given preoperatively to decreased IOP in patients of raised IOP. Maximum drugs were prescribed in generic names only few were by brand names. Overall in most the cases the drugs were prescribed appropriate to their clinical needs, in rational combinations, in proper dosage forms and at proper frequency of administrations.

Conclusion

In our study overall rational prescription was found in maximum places. Data of this study can help the ophthalmologist to make appropriate revision in there prescribing practice. Prescribers can be trained in rational prescription to improve their prescription writing by conducting different Continueing Medical education programmes.

References

1. World Health organization- Introduction to Drug Utilization Research. Geneva: WHO, 2003:6-48
2. K. Krishnaswamy, KB Dinesh, G Radhaiah- A drug survey-precept and practices. Eur J Clin pharmacology 1985; 29: 363-70.
3. CJ Hawkey, S Hodgson, A Norman, TK Daneshmend, ST Garner – Effect of reactive pharmacy intervention on quality of

- hospital prescribing. *BMJ* 1990; 300: 986-90.
4. Biswas NR, Jindal S, Siddiquel MM, Maini R- Patterns of prescription and drug use in ophthalmology in tertiary hospital in Delhi. *Br J Clin Pharmacol* 2001; 51: 267-9.
 5. Sutharson L, Hariharan RS, Vamsadhara C- Drug utilization study in diabetology outpatient setting of a tertiary hospital. *Indian J pharmacol* 2003; 35: 237-40.
 6. Mohanty M, Mohapatra S- Drug utilization pattern of topical ocular antimicrobials in a tertiary care hospital. *Indian J Pharmacol* 2003; 35: 399.
 7. Neharu M, Kohali K, Kapoor B, Sadhotra P, Chopra V, Sharma R- Drug utilization study in outpatient Ophthalmology Department of government college of Jammu. *JK Science* 2005; 7: 149-51.
 8. Masud MAA, Ashrafuzzaman S, Iqbal MJ- pattern of use of analgesics in a surgical unit. *Bangladesh J Pharmacol* 2009;4: 21-3.
 9. Stein JD, Sloan FA, Lee PP- Rates of Glaucoma medication utilization among older adults with suspected glaucoma 1992-2002. *Am J Ophthalmol* 2007; 143: 870-2.
 10. Jensen MK, Fiscella RG, Moshirfar M, Mooney B- third and fourth generation fluoroquinolones : retrospective comparison of endophthalmitis after cataract surgery performed over 10 years. *J Cataract Refract surg* 2008; 34: 1460-7.
 11. Endophthalmitis Vitrectomy study (EVS) Group- A randomized trial of immediate vitrectomy and of intravenous antibiotics for the treatment of post-operative bacterial endophthalmitis: results of the endophthalmitis vitrectomy study. *Arch Ophthalmol* 1995; 113: 1479-96.
 12. Choudhary KP, Sofal BK- Pre-operative topical flurbiprofen- Na⁺ in extracapsular lens extraction role in maintaining intra operative papillary dilation. *Indian J Ophthalmol*-1992; 40: 109-14.
 13. Ginsburg AP, Cheetham JK, Degryse RE, Ableson- M- Effects of flurbiprofen and endomithacin on acute cystoid macular oedema after cataract surgery: functional vision and contrast sensitivity. *J Cataract Refract Surg* 1995; 21: 82-92.