

PATIENT AND SURGEON SATISFACTION IN SMALL INCISION CATARACT SURGERY USING TOPICAL AND PERIBULBAR ANAESTHESIA IN A TERTIARY CARE HOSPITAL

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ABSTRACT

INTRODUCTION

Patient and surgeon satisfaction with topical versus peribulbar anaesthesia have been documented by various studies and has been a conflicting argument. In this study, we assessed in terms of patient's pain and surgeon satisfaction using these two anaesthetic techniques for better outcome of cataract surgeries.

AIM

To evaluate efficacy in terms of pain, visual outcome and surgeon satisfaction with topical anaesthesia versus peribulbar anaesthesia in Small Incision Cataract Surgery (SICS).

MATERIALS & METHODS

A prospective clinical study was conducted at Government Medical College (GMC) Jammu from November 2010 to October 2011. A total of 300 patients underwent SICS with 150 patients in each group receiving topical & peribulbar anaesthesia respectively. Patient's pain during application of anaesthesia and during surgery were assessed by visual analogue pain scale. Surgeon satisfaction in terms of intraoperative difficulty was evaluated. The student's t-test and chi square test was used to determine IOWA score in both groups. $p < 0.05$ was considered significant.

RESULTS

Feeling of pain during the administration of topical anaesthesia was significantly lower as compared to peribulbar anaesthesia ($p < 0.005$). While there is not much difference in pain during surgery in both the groups ($p = 0.026$, not significant). Regarding visual acuity, there is significant difference between the two groups on 1st postoperative day ($p = 0.005$), while there was no difference between the two groups at the 6th week ($p = 0.85$). There was no significant intraoperative difficulty encountered by the surgeon in both the groups.

CONCLUSION

Topical anaesthesia is preferable to peribulbar anaesthesia and is recommended as a safe and effective alternative to peribulbar anaesthesia for cataract surgery.

KEYWORDS

Anesthesia, Cataract surgery, Peribulbar, Visual acuity.

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INTRODUCTION: Cataract is the leading cause of treatable blindness in India. Surgery is the only recognized alternative for cataract. As an uneventful cataract surgery is the aim of every surgeon, therefore a good anaesthesia is must for every surgery.^{1,2}

An ideal anaesthetic should allow pain free surgery with no systemic or local complications. The choice of anaesthesia should be cost-effective and easy to perform at

the community level and should ensure a stress free procedure for the surgeon and the patient.^{3,4}

Previously, peribulbar anaesthesia (PA) was the most popular technique for the cataract surgery. Risks including periocular ecchymosis, globe perforation, sub-conjunctival haemorrhage, chemosis were also associated with PA. With the advancement in cataract surgery including the use of smaller incisions, the duration of surgery has also shortened resulting in the use of shorter acting anaesthetics. Topical anaesthesia has steadily gained popularity due to ease of administration, rapid visual recovery postoperatively and lack of complications associated with PA.⁵ In this study, we compare the satisfaction levels of patients as well as the surgeon regarding the surgery with TA and PA.

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AIMS AND OBJECTIVES: To evaluate efficacy of TA vs PA in terms of pain, visual outcome and surgeon satisfaction in Small Incision Cataract Surgery (SICS).

MATERIALS AND METHODS: The study was conducted between November 2010 to October 2011 in the Department of Ophthalmology, Government Medical College, Jammu. The study was approved by Hospital Ethical and Research Board. Total 300 patients were studied over a period of one year. Patients were divided into two groups, with 150 in each group. 150 patients received PA and 150 patients received TA for SICS.

Patients were included if they were aged 30 years & above with uncomplicated unilateral or bilateral cataract, patients of both sex and those available for follow up. Exclusion criteria were deafness, language barrier, uncooperative patients, inability to understand visual analogue pain scale (VAPS), reported allergy to topical anaesthesia and nystagmus. Three patients under topical anaesthesia were given peribulbar anaesthesia during the surgery due to extreme uncooperativeness and were not included in the study.

A single surgeon performed all the surgeries. Informed consent was taken from each patient that explained the surgery and the study in detail. All the patients underwent the comprehensive ophthalmic examination including review of medical history, visual acuity, slit lamp bio microscopy, intraocular pressure and fundus examination. Preoperative protocols were same for both the groups. Antibiotic drops were instilled 2 hourly a day before surgery. Mydriasis was achieved by using 1% tropicamide and 5% phenylephrine 2 hours before the surgery.

For PA, 5ml of mixture of 2% lignocaine and 0.5% bupivacaine plus hyaluronidase 150 IU/ml was given transcutaneously, at the junction of middle 2/3 and lateral 1/3 of the lower lid margin with 24 G needle directed towards the floor of the orbit.

For TA, 2% lignocaine gel was instilled in the superior and inferior fornices and on the corneal surface twice at 5 minutes' interval. TA acts by blocking the nerves that supply the superficial cornea and conjunctiva. The eye was washed by ringer lactate on the operating table before the start of the surgery. The patients were in the supine position on the operating table and requested to minimize eye movements and focus on the operating light.

After the patients received their respective anaesthesia, the parameters were noted and the patients underwent SICS with posterior chamber intraocular lens implantation.

On completion of the surgery, each patient was shown a VAPS with numeric and descriptive ratings from 0 to 1, as described by Steven.⁶ Patients were advised to rate the level of pain felt during the instillation of anaesthesia and during the surgery.

Visual Analogue Pain Scale	
Pain Level	Description
0	No pain
2	Mild discomfort
4	Moderate discomfort/ mild pain
6	Moderate pain
8	Severe pain
10	Unbearable pain

The surgeon was evaluated at the end of each surgery on parameters like patient's cooperation, difficulty due to ocular movements, anterior chamber stability and any complications or adverse events. They were given a closed-ended questionnaire and the parameters mentioned above were graded on a scale of 1-3, thus giving a cumulative range if 3-9.

Outcome measures were compared with student t-test. Bivariate analysis was performed using χ^2 test. A p value of < 0.05 was considered statistically significant. All p values were two tailed.

RESULTS:

Age (in years)	Males		Females		Total no. of cases	
	No. of cases	% age	No. of cases	% age	No. of cases	% age
31-40	10	3.33	4	1.33	14	4.66
41-50	17	5.66	10	3.33	27	9.0
51-60	47	15.66	54	18.0	101	33.66
61-70	49	16.33	38	12.66	87	29
71-80	32	10.66	28	9.33	60	20
81 & above	6	2.0	5	1.66	11	3.66
Total	161	53.66	139	46.34	300	100

Table 1: Age and sex distribution of the Cases

The mean age of patients in Group I was 62.12±6.4 years. And in Group II was 61.82±6.2 years. P value=0.72 (not significant).

Sex	Group I	Group II	Total
Males	76	85	161
Females	74	65	139
Total	150	150	300

Table 2: Sex-wise distribution of the cases

In Group I, 76 (50.66%) patients were males and 74 (49.33%) were females. In Group II, 85 (56.66%) patients were males and 65 (43.33%) were females. P value=0.28 (Not significant).

Grade of Pain	Group I		Group II		Total	
	No. of cases	% age	No. of cases	% age	No. of cases	% age
Grade 0 (0-2)	54	36	114	76	168	56
Grade 1 (3-4)	80	53.33	31	20.66	111	37
Grade 2 (5-6)	10	6.66	5	3.33	15	5
Grade 3 (7-8)	5	3.33	0	0	5	1.66
Grade 4 (9-10)	1	0.66	0	0	1	0.33
Total	150	100	150	100	300	100

Table 3: Visual analogue pain scale during anaesthesia

The mean pain during anaesthesia in Group I was 3.57 (SD±1.49) and in Group II was 2.32 (SD±1.19).

Applying χ^2 test, there is statistically significant difference between the two groups regarding pain during anaesthesia ($p < 0.005$).

Grade of Pain	Group I		Group II		Total	
	No. of cases	% age	No. of cases	% age	No. of cases	% age
Grade 0 (0-2)	122	81.33	116	77.33	238	79.33
Grade 1 (3-4)	22	14.66	25	16.66	47	15.66
Grade 2 (5-6)	6	4.0	8	5.33	14	4.66
Grade 3 (7-8)	0	0	1	0.66	1	0.33
Grade 4 (9-10)	0	0	0	0	0	0
Total	150	100	150	100	300	100

Table 4: Visual Analogue Pain Scale during Surgery

The mean pain score during surgery in Group I was 1.87 (SD±1.13) and in Group II was 2.24 (SD±1.13). $p=0.026$ (Not significant).

Visual Acuity	Group I		Group II	
	No. of cases	% age	No. of cases	% age
PL & PR+VE	48	32	52	34.66
CF close to face-5/60	74	49.33	80	53.33
6/60-6/36	28	18.66	18	12
Total	150	100	150	100

Table 5: Preoperative visual acuity

Applying χ^2 test there is no significant difference between the two groups in terms of preoperative visual acuity ($\chi^2=2.80$, $p=0.24$).

UCVA	Group I		Group II	
	No. of cases	% age	No. of cases	% age
6/60 or <	36	24	27	18
6/36-6/18	68	45.33	45	30
6/12-6/6	46	30.66	78	52
Total	150	100	150	100

Table 6: Postoperative Uncorrected Visual Acuity (UCVA) on Day 1

Applying χ^2 test, there is significant difference in UCVA on postoperative day 1 between the two groups. ($\chi^2=14.96$, $p=0.0005$).

UCVA	Group I		Group II	
	No. of cases	% age	No. of cases	% age
6/60 or <	10	6.66	8	5.33
6/36-6/18	19	12.66	16	10.66
6/12-6/6	121	80.66	126	84
Total	150	100	150	100

Table 7: Postoperative uncorrected visual acuity (UCVA) at 6th week

Applying χ^2 test, there is no significant difference between the two groups in terms of UCVA at 6th week. ($\chi^2=0.30$, $p=0.85$).

Anaesthetic-Related Difficulty	Group I		Group II	
	No. of cases	% age	No. of cases	% age
1. None to slightly difficult	134	89.33	125	83.33
2. Moderately difficult	10	6.66	15	10
3. Extremely difficult	6	4	10	6.66
Total	150	100	150	100

Table 8: Anaesthetic-related intraoperative difficulties as judged by the surgeon

Applying χ^2 test, there is no significant difference between the two groups. $P=0.08$ (Not significant).

DISCUSSION: In our study, pain during administration of PA was more than TA. In Group I, there was no pain (Grade 0) in 36 % of patients and mild pain (Grade 1) in 53% of patients. In Group II, 76% of patients had no pain while 21% of patients had mild pain. 1 patient had unbearable pain (Grade 4) during PA. The mean pain during anaesthesia in Group I was 3.57 (SD±1.49) and in Group II was 2.32 (SD±1.19). There was statistical difference between the two groups regarding pain during anaesthesia ($p<0.005$).

Jacobi PC et al⁷ (2000) in their study of 476 patients found that 17% in peribulbar group had pain ≥ 4 while only 2% in topical group had pain score ≥ 2 during administration of anaesthesia (statistically significant).

We found that 81% of patients had minimal or no pain (Grade 0) in Group I while 79% of patients had Grade 0 pain

scale in Group II during surgery. Only 1 patient had severe pain (Grade 3) in Group II during surgery. There was statistical difference between the two groups in pain during surgery ($p=0.026$). Sauder G et al⁸ (2003) in their study of 140 patients found that mean pain score during surgery was 1.36 ± 1.26 in the peribulbar group and 1.40 ± 1.17 in the topical anaesthetic group.

The mean pain score in our study were similar to the other studies except that no patient in our study required additional anaesthesia during surgery.

In our study on postoperative Day 1, about 31% patients had UCVA $>6/18$ in Group I as compared to 52% patients in Group II. On postoperative 6th week, about 80% patients in Group I and 84% patients in Group II has UCVA $>6/18$. Shammas HJ⁸ et al (1997) in their study reported that UCVA between the two groups was statistically significant ($p<0.01$) on the 1st postoperative day only. Coelho RP⁹ et al (2005) in their study reported that visual recovery is faster in the topical anaesthesia group (90% $>6/36$) than the peribulbar anaesthesia group (62% $>6/36$) on postoperative day 1 which is statistically significant ($p=0.004$).

In our study we found that anaesthesia related difficulty, rate of complications and surgeon satisfaction was not statistically significant between the two groups. Gupta SK⁴ et al (2009) in their study reported that surgeon's evaluation of the technique in terms of surgical ease and complications were favourable. Dole K¹⁰ et al (2014) in their study found that the response to questions related to surgeon's comfort while performing surgery suggested that 9.2% cases in topical anaesthesia and 4.6% cases in peribulbar anaesthesia were not satisfactory. Surgeons were not satisfied with the level of anaesthesia in topical anaesthesia group compared to the peribulbar anaesthesia group. Ahmad N¹¹ et al (2014) in their study found that surgeons faced statistically significantly less difficulty in patients who underwent a peribulbar block ($p=0.046$).

CONCLUSION: In conclusion, patients undergoing manual small incision cataract surgery with posterior chamber intraocular lens implantation with topical anaesthesia and with peribulbar anaesthesia did not vary in terms of subjective pain score and other parameters measuring intraoperative pain, efficacy of anaesthesia and feasibility of surgery. Operating conditions from the surgeon's point of view were also comparable between the two groups. Knowledge of patient preferences and satisfactions can guide the surgeon to correct approach for better outcomes.

Thus topical anaesthesia is comparable to peribulbar anaesthesia and is recommended as a safe and effective alternative to peribulbar anaesthesia for cataract surgery.

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