# Comparative study between patient satisfaction and outcome after phacoemulsification under topical anaesthesia and manual small incision cataract surgery under peribulbar block

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Abstract Background: Nowadays cataract surgery has become refractive surgery as patients demand better and earlier visual rehabilitation. Due to speed and ease of administration, rapid visual recovery postoperatively and the lack of block-related complications the topical anaesthesia has steadily gained popularity. Aim: To compare between patient satisfaction and outcome after phacoemulsification under topical anaesthesia and manual small incision cataract surgery under peribulbar block. Material and Methods: A total of 100 patients were divided into two equal groups as Group A: 50 patients operated by manual small incision cataract surgery under peribulbar block and Group B: 50 patients operated by phacoemulsification under topical anesthesia. They were evaluated postoperatively for pain perception, satisfaction, visual acuity and complications. Results: While administration of peribulbar block 38%, 46% and 16% patients were experienced mild, moderate, severe pain respectively. No patient developed pain during administration of topical anaesthesia. No patient was feel pressure or discomfort during administration of topical anaesthesia while 30% patients were feel pressure or discomfort during administration. Conclusion: Topical anaesthesia is safe and effective alternative for the peribulbar block for reducing the risk associated with peribulbar block provided the patient is very co-operative. Keywords: Cataract, phacoemulsification, topical anaesthesia, peribulbar block, patient satisfaction, outcome

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# **INTRODUCTION**

The main cause of avoidable blindness is cataract.<sup>1</sup> Over the past several decade cataract surgery has transitioned from intracapsular cataract extraction to conventional extracapsular cataract to small incision cataract surgery to phacoemulsification and therefore patient's expectation significantly raised. Patients increasingly expect spectacle independence following cataract extraction due to short operating times, use of topical anaesthesia and a sutureless procedure. Nowadays cataract surgery has become refractive surgery as patients demand better and earlier visual rehabilitation. Also anaesthesia techniques has been advanced and incisional size of cataract extraction has reduced.<sup>2</sup> Regional anaesthesia like peribulbar and retrobulbar techniques are associated with a risk such as retrobulbar hemorrhage, globe perforation, damage to optic nerve, and ocular muscle injury. Rarely, they can be life-threatening. Due to speed and ease of administration, rapid visual recovery postoperatively and the lack of block-related complications the topical anaesthesia has

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steadily gained popularity. It is believed that patients feel less discomfort and pain.<sup>3</sup> In healthcare, patient satisfaction is an important component and quality indicator as it reflects the degree of fulfilling a patient's expectations.<sup>3</sup> The purpose of this study was to comparative study between patient satisfaction and outcome after phacoemulsification under topical anaesthesia and manual small incision cataract surgery under peribulbar block.

# **MATERIAL AND METHODS**

This prospective observational study included patients admitted to Department of Ophthalmology in Tertiary Care Hospital, Maharashtra for cataract surgery who agreed to the informed consent.

# Sample size

**Group A:** 50 patients operated by Manual Small Incision Cataract Surgery under Peribulbar block.

**Group B:** 50 patients operated by Phacoemulsification under topical anesthesia.

# Inclusion criteria

- Patients with immature and nuclear sclerosis grade 1, 2 and grade 3 cataracts who presented to the OPD of Department of Ophthalmology Tertiary care center Cataract surgery. Both male and female patients are included.
- Age between 40 years to 75 yrs.
- With uncomplicated senile cataracts
- Without a history of previous ocular comorbidities, injury or surgery.
- Patients willing to participate and willing to give informed consent

#### **Exclusion** criteria

- Age < 40 years or > 75 years
- Mature and Hypermature cataract
- Sensitivity to Lignocaine
- History of convulsions, epilepsy
- Inability to give informed consent
- Previous intra ocular injury, inflammation or surgery
- Pupil < 5 mm diameter
- Inability to understand verbal analogue pain scale *Methodology*

A total 100 cases were taken for the study in which 50 patients were assigned for Manual Small Incision Cataract Surgery under Peribulbar Block and 50 cases were assigned for Phacoemulsification under Topical Anesthesia. All patients undergoing surgery fulfilling the inclusion criteria were eligible for the study. Approval from Institutional Ethics Committee was taken before starting study. Informed written consent of all patients included in the study was taken after explaining the

procedure and purpose of the study to the patients. All the patients were admitted the day prior to the surgery. All these patients underwent, the following pre-operative evaluation and complete eye examination: Detailed history of diminution of vision and full history of any previous ocular disease or surgery, Visual acuity, IOP measurement, lamp bimicroscopy. direct and slit indirect ophthalmoscopy, keratometery, A scan to calculate IOL power, lacrimal sac syringing. All routine investigations like Random Blood Sugar, Blood Pressure, Urine Sugar Level, Complete Blood Count, Hemoglobin, ECG, ELISA, HBsAg were done.

#### **Preoperative preparation**

Xylocaine sensitivity was done in all patients. All patients received Tab. Ciprofloxacin 500 mg twice day started one day prior to surger, one Tab. Dimaox 250 mg was given night before surgery and followed by two Tab. Dimaox 250 mg were given prior to surgery. Topical ciprofloxacin eye drop (0.3%) one drop four times a day, one day prior to surgery. Tropicamide 0.8 % + Phenylephrine 5% eye drop was instilled for mydriasis every 15 min starting two hour prior to surgery. Flurbiprofen 0.3 mg eye drop was instilled for mydriasis and to minimize postoperative cystoid macular edema. Tablet Diazepam 5 mg or similar antianxiety medication were considered for anxious patients.

# Group A: Manual Small Incision Cataract Surgery under Peribulbar block

Preparation of anaesthetic mixture: Lignocaine 2% with adrenaline 1 in 2, 00,000 (30ml) solution was used. Hyaluronidase 1500 IU was reconstituted with 3ml of anaesthetic solution. 1 ml of solution was added to 30 ml vial of the anaesthetic solution resulting in 15 IU of hyaluronidase / ml anaesthetic mixture.

Technique of peribulbar block:

- Group A patient received one injection each containing 5 ml containing 2% lignocaine with adrenaline 1 in 2, 00,000 with hyaluronidase 15 IU/ml (3.5 ml) and 0.5% bupivacaine hydrochloride (1.5ml).
- At the junction of medial 2/3rd and lateral 1/3rd of inferior orbital margin with patient looking in primary position 3 ml of injection was given with 24 G needle, needle directed parallel to orbital floor, just prior to injecting the solution aspiration was done to rule out entry of needle in any blood vessel. Digital pressure was applied.
- Remaining 2 ml of injection was injected at superonasal quadrant near the supraorbital notch with needle directed along the orbital roof. Digital pressure was applied for 10 minutes.

Akinesia was assessed after 10 minutes which is maximum fixation time for the local anaesthetic solution. If there was no movement of eyeball or slight flicker then block was considered as acceptable. Prior to surgery effectiveness of block assessed by checking eye movements in four directions of gaze.

# Group B: Phacoemulsification under topical anaesthesia

Proparacaine Hydrochloride 0.5%, instilled 6 times (approximately 40  $\mu$ l per dose) starting 30 minutes before surgery. Five minutes before surgery topical anaesthetic was instilled on the cornea. Pain during surgery was controlled with additional 2 doses of topical anaesthetic if required. Patients were instructed to keep their eyes closed after instillation of topical anaesthetic. The patients were in the supine position on the operating table with their eyes open and requested to look in microscope light and to minimize movement of eyeball.

#### Surgical technique in group a patient Manual small incision cataract surgery

Under all aseptic precautions painting with povidone iodine and draping was done. Wire speculum was applied. With a superior rectus forceps, superior rectus tendon is grasped at about 7mm from 12o'clock limbus and a 5-0 silk suture is passed. The suture is clamped to the towel with towel clip. A fornix-based conjunctival flap taken, a peritomy with blunt scissors to separate the conjunctiva and tenon from its insertion into the peripheral cornea, followed by a blunt dissection toward the fornix for 5 to 7 mm. Wet or Hot cautery used. External incision 5 to 6 mm was taken 2mm behind the limbus by Bard-Parker knife with number 15 blade. Sclerocorneal tunnel was made with the crescent knife and either side of the tunnel, scleral pockets are created. At 9 o'clock side port made. The lens capsule is stained with trypan blue. Then the trypan blue is washed out of the eye using balanced salt solution. A continuous curvilinear capsulorrhexis of size 5.5 to 6.5 mm is made using a cystotome. AC entry was done with 3.2 keratome. To separate the cortex from the capsule hydrodissection was performed. Nucleus Delivery into the AC with the help of dialer. Nucleus delivered by viscoelastic expression method. The residual cortex is aspirated using a Simcoe cannula. The anterior chamber is washed with balanced salt solution and viscoelastic is injected into the anterior chamber. A posterior chamber intraocular lens is implanted in the bag through the tunnel and dialed in. Viscoelastic is aspirated and washed out with a Simcoe cannula. Anterior chamber formed with air. The side port is sealed by hydrating the stroma. The tunnel is then checked for integrity. Subconjunctival inj Genta given and eye padding done with antibiotic eye drop. **Phacoemulsification** 

Surgical Technique: Under all aseptic precautions painting with povidone iodine and draping was done. Speculum was applied. A 2.8mm sized clear corneal incision port with 2.8mm keratome. Two side ports were created of size 1 mm each with MVR blade. Anterior capsule was stained with trypan blue dye; dye was washed out with ringer lactate. Viscoelastic was inserted in the anterior chamber. Anterior capsulotomy was done with continuous curvilinear capsulorrhexis method with a cystitome. To separate the cortex from the capsule hydrodissection was performed. Nucleus was rotated in its place. Phaco tip was inserted through main port. Phacoemulsification of nucleus done by using technique according to type of nucleus. Remaining cortex was aspirated with bimanual irrigation-aspiration cannula. Foldable posterior chamber intraocular lens was implanted and dialed in place. Viscoelastic was aspirated with simco cannula. Anterior chamber formed with ringer lactate and side port openings sealed by stromal hydration. Antibiotic eye drop and ointment were instilled and dark goggle applied.

#### **Post-operative management**

Group A: On the 1<sup>st</sup> postoperative day eye pad was removed and eye was cleaned. Topical antibiotic steroid eye drop was started every 2 hourly and tapered for next 6 weeks and NSAID eye drop was started 2 times per day for 6 weeks.

Group B: Immediate post op topical steroid drops were started every1 hrly and tapered next 6 weeks and NSAID eye drop was started 2 times per day for 6 weeks.

# **Post-operative evaluation:**

- 1. Pain perception: Pain perception was assessed while administration of anesthesia, during surgical procedure and 24 hours after surgery. Pain was graded by subjective grading verbal pain scale
- 2. Feeling of discomfort and pressure: Any feeling of discomfort and pressure was assessed in terms of Yes or No question.
- 3. Visual Acuity: Visual acuity was assessed on post-operative day-1, post-operative day 7 and on post-operative day 40 using Snellen's chart. Visual acuity noted at day 1 and 7. On post-operative day 40, uncorrected visual acuity, visual improvement with pin hole were noted and best possible subjective refractive correction was given.
- 4. Complications: Local and systemic complications were noted.

### Statistical analysis

Data was collected by using a structure proforma. Data entered in MS excel sheet. Qualitative data was expressed in terms of proportions. Quantitative data was expressed in terms of Mean and Standard deviation. Association between two qualitative variables was found out by using Fischer's exact test. A p value of <0.05 was considered as statistically significant whereas a p value <0.001 was considered as highly significant. Statistical analysis was done by using IBM SPSS Version 22 for Windows.

# RESULTS

In our study, 29 (58%) in Group A and 27 (54%) in Group B patients were belonged to age group 60-69 years. In Group A 9 (18%) and 10 (20%) in Group B belonged to age group 50-59 years. In Group A 9 (18%) and 5 (10%) in Group B belonged to age group 70-79 years. Mean age in group A was 62.14 and in Group B was 59.74 which was

not significant (P<0.147). In Group A, 18 (36%) were male and 32 (64%) were female patients. In Group B, 21 (42%) were male and 29 (58%) were female patients which was not significant (P< 0.539). Out of total 100 patients, 39 were male and 61 were female patients. In Group A, 27 (54 %) were RE and 23 (46%) were LE of patients. In Group-B 31 (62%) were RE and19 (38%) were LE of patients which was not significant (P< 0.418). Out of total 100 patients 58 were RE and 42 were LE. In Group A, 39 (78%), 10 (20%), 1 (2%) patients had preoperative vision FC 0.5M to FC3M, FC4M to 6/60, more than 6/60 respectively. In Group B, 39 (78%), 10 (20%), 1 (2%) patients had preoperative vision FC0.5M to FC3M, FC4M to 6/60, more than 6/60 respectively. There was not significant difference between two groups.

Table 1: Distribution of type of cataract								
Time of actions of	Group	A	Group	Total				
Type of cataract	No. of cases	Percent	No. of cases	Percent				
NSII	3	6	2	4	5			
NSII+CC	15	30	11	22	26			
NSII+EPSC	4	8	2	4	6			
NSII+CPSC	35	70	32	64	67			
NSII+PSC	32	64	28	56	60			
NSII+CDPSC	1	2	4	8	5			
NSII+PPC	4	8	4	8	8			
PPC	2	4	4	8	6			

In group A, most of the 35 (70%) patients had nuclear sclerosis grade II+central posterior subcapsular cataract followed by 32 (64%) of nuclear sclerosis grade II+ posterior subcapsular cataract. In group B, 32 (64%) patients had nuclear sclerosis grade II+central posterior subcapsular cataract followed by 28 (56%) had nuclear sclerosis grade II+posterior subcapsular cataract. Out of 100 patients, 89 patients had mixed variety of cataract.

Table 2: Pain during administration of anaesthesia							
Doin during administration	Group A		Group B		Total		
of anaesthesia(pain score)	No. of cases	Percent	No. of cases	Percent			
No pain (0)	0	0	50	100	50		
Mild pain (1)	19	38	0	0	19		
Moderate pain (2)	23	46	0	0	23		
Severe pain (3)	8	16	0	0	8		
Total	50	100	50	100	100		
Chi square test p< 0.001, highly significant							

In Group-A 19 (38%) patients had mild pain, 23 (46%) patients had Moderate pain, 8 (16%) patients had severe pain while giving anesthesia. In Group-B No patient experienced pain during administration of anesthesia which was Highly Significant, P < 0.001.

Feeling of pressure and	Group A		Gro	Total	
discomfort while giving	No of	Percent	No of	Percent	
anaesthesia	cases		cases		
Yes	15	30	0	0	15
No	35	70	50	100	85
Total	50	100	50	100	100

In Group A, 15 (30%) patients had pressure and discomfort while giving anesthesia. In Group B, no patient had pressure and discomfort while giving anesthesia which was Highly Significant, P< 0.001. In Group A 47 (94%) patients had Lid

Akinesia and 48 (96%) had Globe Akinesia but both lacked in Group B which was Highly Significant, P< 0.001. During giving Anaesthesia, 9(18%), 20 (40%) patients in Group A and none patients in Group B had Subconjunctival Hemorrhage, Chemosis respectively. In Group A, 1(2%) patient and none patients in Group B had brainstem anaesthesia. In Group A, none and in Group B 4(8%) had burning sensation. This all complications occurred during anaesthesia given in both group are highly significant (P< 0.001).

Tal	ble 4: Anaes	thesia relate	d complications			
Anaesthesia related complications	Group-A		Group-B		Total	
	No. of	Percent	No. of cases	Percent		
	cases					
Chemosis	20	40	0	0	20	
Subconjunctival hemorrhage	9	18	0	0	9	
Burning sensation	0	0	4	8	4	
Brainstem anaesthesia	1	2	0	0	1	
Nil	22	44	46	92	68	
Chi Square test P< 0.001, Highly Significant						

In Group A, 25 (50%) and in Group B, 23(46%) patients had no pain, 19 (38%) patients in Group A and 15 (30%) patients experienced mild pain, 6(12%) patients in Group A and 12(24%) patients in Group B experienced moderate pain during surgical procedure which was statistically not significant (P< 0.279).

Table 5: Pain during surgical procedure								
Pain during surgical procedure	Group	-A	Group	Total				
	No. of cases	Percent	No. of cases	Percent				
No Pain (0)	25	50	23	46	48			
Mild Pain (1)	19	38	15	30	34			
Moderate pain (2)	6	12	12	24	18			
Total	50	100	50	100	100			
Chi Courses test D ( 0.270 Net Cissifies at								

Chi Square test P< 0.279, Not Significant

In Group A, none of the patient had intraoperative complications while in Group B 3 (6 %) had posterior capsular rent and 1 (2%) patient had iris prolapse which was not significant (P< 0.279). In Group A, 40 (80%) patients and in Group B, 38 (76%) patients had no pain after 24-hour surgery while in Group A 10 (20%) patients and in Group B 12 (24%) patients had mild pain after 24 hour surgery which was not significant (P< 0.629).

	Table 6: Pos	toperative co	mplications				
	Group A		Gro	Chi square			
Postoperative complications	No. of	Percent	No. of	Percent	test		
	cases		cases				
Subconjunctival hemorrhage	8	67	0	0	0.003, HS		
Iritis	2	17	4	8	0.4, NS		
Striate karatopathy	2	17	9	92	0.02, S		
Total	12	100	13	100			
HS=highly sig. S=significant, NS=not sig							

In Group A, 8 ( $\overline{67\%}$ ) patients and In Group B, none patient had Subconjunctival Hemorrhage Which was Highly significant (P=0.003). In Group A, 2 (17%) patients and in Group B, 9 (92%) patients had Striate keratopathy which is significant (P=0.02). In Group A, 2 (17%) patients and in Group B 4(8%) patient had Iritis Which was not significant (P=0.4). In Group A 10 (20%) and in Group B 2 (4%) patients had 6/60 vision. In Group A 9 (18%) and in Group B 5 (10%) patients had 6/24-6/36 vision. In Group A 11 (22%) and in Group B 18(36%) patients had 6/6 to 6/9 vision. In Group A 20 (40%) and in Group B 25(50%) patients had 6/12 vision. So, there is significant (P<0.03) difference between Unaided visual acuity at 6 weeks in both group.In Group A, 20 (40%) and in Group B, 25 (50%) patients had 6/9 vision. In Group A, 5 (10%) and in Group B, 4 (8%) patients had 6/12 vision. In Group A, 5 (10%) and in Group B, 4 (8%) patients had 6/12 vision. In Group A, 5 (10%) and in Group B, 4 (8%) patients had 6/12 vision. So, there is not significant (P<0.528) difference between best corrected visual acuity at 6 week in both group.

 Table 7: Best corrected visual acuity at 6 week

 Best corrected visual acuity at 6 week

Visual aquity	Group	Α	Group	Total		
visual acuity	No. of cases	Percent	No. of cases	Percent		
6/6	20	40	25	50	45	
6/9	25	50	20	40	45	
6/12	5	10	4	8	9	
6/18	0	0	1	2	1	
Total	50	100	50	100	100	
Chi square test p<0.528, not significant						

# DISCUSSION

In our study, according to morphology, 89% patient had mixed variety of cataract, 5 % patient had nuclear sclerosis grade II, 6% had posterior polar cataract. In Group A, 47(94%) patients had Lid Akinesia and 48 (96%) had Globe Akinesia but both lacked in Group B. Badar-ud-din Athar Naeem et al. p value of less than 0.005 which is statistically significant.<sup>4</sup> In one study, the result showed that globe akinesia was seen in 86.2% and lid akinesia in 76.4% in peribulbar group.<sup>5</sup> As compared to other studies our study showed higher rate of akinesia in peribulbar group due to use of additional anaesthetic injection if required. Absence of akinesia can be helpful to the surgeon by asking the patient to look in a particular direction to expose a desired area, optimizing red reflex and wound access. It is helpful to the patient postoperatively as it does not cause diplopia and there is early visual recovery. Patients were asked to grade pain during administration of anesthesia, during surgical procedure and 24 hours after surgery on verbal pain scale as most of the patients in this study conducted in rural hospital were illiterate and due to low vision were unable to understand visual analogue pain scale. In Group-A 19 (38%) patients had mild pain, 23 (46%) patients had Moderate pain, 8 (16%) patients had severe pain while giving anesthesia. In Group-B, no patient experienced pain during administration of anesthesia. According to Joseph et al. study there was statistically significant difference between two groups with p value  $<0.05.^{6}$  Study done by Dole *et al.*, none of the patients in the topical anaesthesia group complained of pain during administration of anaesthesia and 89% experienced pain during needle insertion in the PA group.<sup>7</sup> Lowest patient satisfaction was reported from patients operated under peribulbar anaesthesia as compared to operated under topical anaesthesia (p>0.05). This could be due to initial pain free stage of anesthesia of topical anaesthesia as compared to painful injection phase of peribulbar anaesthesia.8 None of the patient in Group-B had feeling of pressure and discomfort while giving anaesthesia but 15 (30%) in Group A. According to Ahmad et al. and Zulfiqar-ud-Din et al. study, feeling of pain, pressure and discomfort scores during administration of topical anesthesia were all significantly lower compared to peribulbar anesthesia.<sup>3,10</sup> The advantage of topical anesthesia are no risks of the needle techniques, the

analgesia is immediate, no rise in intraocular pressure, no need for globe compression and no preoperative sedation.<sup>10</sup> In our study Group-A 25(50%) and in Group-B, 23(46%) patients had no pain, 19(38%) patients in Group-A and 15(30%) patients experienced mild pain, 6(12%) patients in Group-A and 12(24%) patients in Group-B experienced moderate pain during surgical procedure which was statistically not significant (P< 0.279). The results are similar to our study reported in a study done by Pablo et al., Joseph B et al. and Sauder et al. and Ahmad et al. but in contrast other studies have reported more intra operative pain in patients receiving topical anaesthesia compared to peribulbar anaesthesia.<sup>3,6,11</sup> Other studies have documented that patients under topical anesthesia alone were more likely to experience discomfort during manipulation of iris and zonular stretching.<sup>9,12</sup> A study done Ahmad, et al. by intraoperative pain score, discomfort and pressure were significantly higher in the topical anesthesia group compared to peribulbar anesthesia.<sup>3</sup> In our study, during administration of anaesthesia, 9 (18%), 20 (40%) patients in Group-A and patients in Group-B had Subconjunctival none Hemorrhage, Chemosis respectively. In Group A, 1(2%) patients and none patients in Group B had brainstem anaesthesia. In Group A none and in Group B 4 (8%) had burning sensation. Peribulbar block is associated with frequent chemosis and subconjunctival hemorrhage than retrobulbar block and it is due to anterior spread of the local anaesthetic agent and the damage of minor blood vessels with needle tip, respectively.<sup>13</sup> Similar to our study Bhat et al. study, chemosis and subconjunctival hemorrhage was not seen in any patient a in topical anaesthesia group which is highly significant.<sup>14</sup> In present study, 4(8%) patients experienced burning sensation while instilling topical anaesthesia. In other study, 2% in the topical anesthesia group felt burning sensation. Chemosis and subconjunctival hemorrhage were the complications in peribulbar block group compared to topical anaesthesia group in the study for combined phaco trabecuectomy surgeries and simple cataract surgery.<sup>10,15</sup>

The advantages of topical anesthesia are its ease of application, minimal to absent discomfort on administration, rapid onset of anesthesia, rapid visual recovery and more important reduction of risks associated with retrobulbar or peribulbar injection. There is instant visual rehabilitation and the technique also economical, avoids undesirable cosmetic adverse effect.<sup>16</sup> In our study, one patient had brainstem anaesthesia. The rate of major complications under peribulbar anaesthesia was reported to be 0.006% in patients undergoing ophthalmic surgery.<sup>17</sup> In one series, there was only one case of central nervous system (CNS) spread in 6,800 (0.015%) extraconal (true peribulbar) blocks.<sup>18</sup> In Group A, none of the patient had intraoperative complications while in Group B 3 (6%) had posterior capsular rent and 1 (2%) patient had iris prolapse. Similarly, study done by Joseph B et al., the intra operative complications were not significant in present study.<sup>6</sup> A major advantage of topical anaesthesia is painless phase during the anesthesia phase but a big drawback of anxious phase during the entire surgical procedure. Patient's anxiety leads to eye squeezing and raised intraocular pressure leading to forward moving of posterior capsule.<sup>8</sup> According to Ye et al. in a meta-analysis study that there was no significant difference between MSICS and PHACO in posterior capsule rupture.<sup>19,20</sup> According to Mehta et al. study there is lesser intraoperative complications with PA as compared to TA (p-value>0.05).8 In a Stupp et al. study they noted that the rate of intraoperative complications was minimal in both groups, however, older age of the patient posed a higher risk of complications in the TA group.<sup>21</sup> In Group A 40 (80%) patients and in Group B 38 (76%) patients had no pain after 24 hr surgery while in Group A 10 (20%) patients and in Group B 12 (24%) patients had mild pain after 24 hr surgery. According to Smitha et al. study there was no difference in pain scale between the two groups after surgery due to the fact that pain scale is very subjective causing this difference.<sup>22</sup> In Group A, 8 (67%) patients and in Group B none patient had Subconjunctival Hemorrhage which was Highly significant (P=0.003). In Group A, 2 (17%) patients and in Group B, 9 (92%) patient had Striate keratopathy which was significant (P=0.02). In Group A 2 (17%) patients and in Group B 4(8%) patient had Iritis which was not significant (P=0.4). A Study by Joseph B et al., post operatively sub conjunctival haemorrhage and chemosis was significantly more in peribulbar block group compared to topical anaesthesia group (p value<0.05).<sup>6</sup> Ramalakshmi et al. studied phacoemulsification group produced fewer complications than the MSICS group.<sup>23</sup> In our study, there is significant (P<0.03) difference between unaided visual acuity at 6 weeks in both group. There is not significant (P < 0.528) difference between best corrected visual acuity at 6 weeks in both group. As 6/18 is considered to be normal vision by the WHO for most tasks we consider Normal vision (6/18)post-operatively (UCVA and BCVA) for comparison between 2 group.<sup>23</sup> In our study, uncorrected visual acuity of 6/18 or better was achieved in 62% of eyes in Group A and 86% of eyes in Group B which was significant while

best corrected visual acuity above 6/18 is same in both group which was not significant by 6 weeks postoperatively. Similar our study, the same result was obtained by Riaz et al. in their review study conducted on 17 participants and concluded that removing cataract by means of PHACO may result in better UCVA in compared with MSICS, but similar BCVA.<sup>19</sup> According to Venkatesh et al. study, UCVA of 6/18 or better was achieved in 87.6% of eyes in the PHACO group and 82% of eyes in the MSICS group by 6 weeks postoperatively. The corresponding BCVA of 6/18 or better was achieved in 99% from the PHACO group and 98.2% from the MSICS group by 6 weeks postoperatively.<sup>19, 24</sup> Study done by Gogate et al. compared MSICS with PHACO and reported that UCVA of 6/18 or better was achieved in 81.08% of eyes in the PHACO group, versus 71.1% of eyes in the MSICS group at 6 weeks postoperatively. The BCVA was 6/18 or better in 98.4% of eyes in both groups at 6 weeks postoperatively.19,25

#### CONCLUSION

In our study we conclude that, topical anesthesia was more comfortable to the patient at the time of administration as compared to peribulbar block. Anaesthesia related complications though more in peribulbar block but pain score at time of surgery and after 24 hours did not vary significantly between two group. Under topical anaesthesia patients are anxious which leads to eye squeezing and even total absence of akinesia leading to intraoperative complication. Patient satisfaction is more in topical anaesthesia compare to peribulbar anaesthesia during the administration of anaesthesia. Patient underwent phacoemulsification under topical anaesthesia had good uncorrected visual acuity at post operatively 6 weeks. There was no difference between best corrected visual acuity in both group postoperatively 6 weeks. Thus, topical anaesthesia is safe and effective alternative for the peribulbar block for reducing the risk associated with peribulbar block provided the patient is very co-operative.

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