

Randomized Clinical Trial of Topical Versus Retrobulbar Anesthesia for Phacoemulsification: Comparison of Patient Satisfaction

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Purpose: Current anesthetic options for phacoemulsification typically include injection techniques, such as retro bulbar block, peribulbar block, sub-Tenon injection and topical anesthesia. Consensus does not yet exist on whether regional or topical anesthesia is the superior option, although topical anesthesia is being more commonly used.¹

Material and Methods: This was a randomized clinical trial done at eye Operation theatre at Abbasi Shaheed Hospital Karachi. In group A topical anesthesia (TA), patients received a minimum total of 5 doses of 2% topical proparacaine. For performing retrobulbar (RBA) block in group B, patients received 2 % lidocaine anesthetic solution 1-2 ml into the retrobulbar space. Phacoemulsification was performed using clear corneal phacoemulsification and implantation of IOL. We used a scoring system, the lowa satisfaction with Anesthesia scale (ISAS) a self administered written questionnaire for assessment of patient satisfaction.

Results: Mean lowa score in topical group was 2.71 while it was 2.3 in retrobulbar group. Median lowa score in topical group was 3 while it was 2.54 in retrobulbar group. The difference in mean lowa score was found to be statistically significant between two groups (p value < 0.05).

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Conclusions: Topical anesthesia (TA) is a safe, satisfactory alternative to retrobulbar (RBA) anesthesia without causing discomfort to the patients.

Each year, cataract surgery enables millions of people to improve their vision. It is one of the most frequently performed and successful operations in the world today. Although cataract surgery has been performed since ancient times, the last half-century has seen remarkable refinements of the procedure.

Despite various modifications that have been devised over the decades to reduce the potential risks of injuring intra orbital structures, the "blind" insertion of a needle into the retrobulbar space has never been completely free of several sight and life-threatening

complications which includes⁸⁻¹². Hemorrhage, Ptosis, Conjunctival or eyelid bruising, Globe penetration, Optic nerve damage, Central vein and artery occlusion, and Brain stem anesthesia and death.

The advantages of topical anesthesia include its ease of application, minimal to absent discomfort on administration, rapid onset of anesthesia and, most important, elimination of the potential risks associated with retrobulbar injections¹³⁻¹⁷. In addition to all of these advantages, the technique is economical, avoids undesirable cosmetic adverse effects, and allows instant visual rehabilitation.

MATERIAL AND METHODS

This was a randomized clinical trial done at eye operation theatre of Abbasi Shaheed Hospital Karachi. The trial was done for a period of six months having 32 patients in each group (group A topical and Group B retrobulbar). The inclusion criteria were patients with cataract presenting to the outpatient department, Aged 45-65 years, Patients of either gender, first eye operation. Mentally Handicapped patients, patients with history of raised intraocular pressure (>21mm of Hg), known case of lidocaine hypersensitivity and patient who had requested sedation for the operation were excluded.

Approval from Institutional ethical committee was taken. Written informed consent was taken from each patient after giving an information leaflet describing the study. The patients were randomly allocated to either of two groups A (topical TA) and B (retrobulbar RBA) by the principal investigator through Non probability purposive technique.

In group A (TA), patients received 2 drop (approximately 40 microlites per dose) of 2% lidocaine 3-5 times. For performing retrobulbar block in group B (RBA), 22-27 gauges, 3cm long needle was inserted at the infero lateral border of the bony orbit. Following a negative aspiration for blood, 2.5 ml of local anesthetic solution was injected and the needle was withdrawn.

Phaco was performed by a single experienced phaco surgeon who has experience of more than 10 years in phacoemulsification. He had used standardized clear corneal incision with phacoemulsification and implantation of IOL.

We used a scoring system, the lowa satisfaction with Anesthesia scale (ISAS) a written questionnaire for patient satisfaction. For each item, patient marked the answer that best showed how well the statement described his/her feeling. Each question had a marking from -3 to +3. A totally satisfied patient had a score of +3; a totally dissatisfied patient had score -3. The mean of their responses to the 11 statements gave a single number between -3 and +3, which was a quantitative measure of a patient's satisfaction with their anesthesia care.

RESULTS

IOWA satisfaction score

Data distribution for lowa score was not found to be normal. Mean lowa score in TA group A was 2.71 while it was 2.3 in RBA group B. Median lowa score in

topical group was 3 while it was 2.54 in retrobulbar group. The difference in mean lowa score was found to be statistically significant between two groups (p value < 0.05). This showed TA group patients were more satisfied than RBA group.

Table 1: Baseline characteristics

Variables	Topical (n = 32)	Retrobulbar (n = 32)
Age (mean years)	58	56
Weight (mean kg)	75.14	73.46
Gender (M:F ratio)	62:38	50:50
Hypertension n (%)	10 (31)	22 (69)
Diabetes n (%)	10 (31)	12 (37)
Smoking n (%)	7 (22)	13 (41)

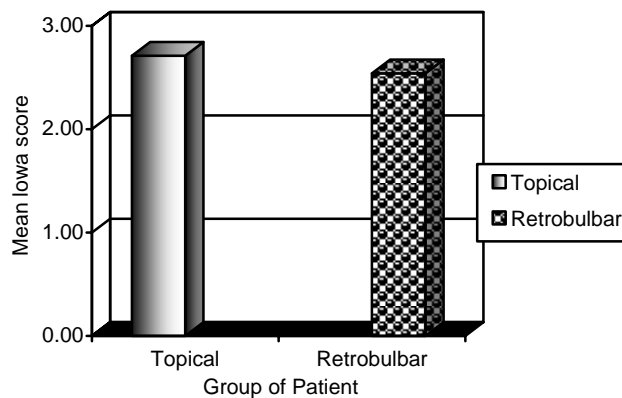


Fig. I: Mean lowa score of topical and retrobulbar groups of patients

DISCUSSION

In recent years, there has been considerable discussion in the literature about TA and RBA techniques for phacoemulsification anesthesia¹⁸. Choice of local anesthesia technique depends largely on the preferences of anesthesiologists and surgeons, but increasing attention is being paid to patient preferences, their perceptions of intraoperative pain and satisfaction¹⁹⁻²⁰.

This is perhaps the first study to investigate levels of patient satisfaction after cataract surgery using a validated reliable and internally consistent assessment tool in Pakistan.

In the present study 87 % of TA group and 69 % of RBA were relaxed during the surgery. In other comparative study done in Iran²¹, two hundred thirty five patients (83%) in the retrobulbar group and 238 (84%) in the topical group reported minimal discomfort (0 - 2) during phacoemulsification. The mean \pm SD pain score in the topical was 1.13 ± 1.36 , while in the retrobulbar is 1.14 ± 1.47 ($P = 0.92$). This showed that Patients undergoing cataract surgery with topical and retrobulbar did not vary in pain score, efficacy of anesthesia and feasibility of surgery. This suggests that cataract surgery can be performed with topical anesthesia without compromising the safety of the procedure.

There were some limitations of our study. Although we did use IOWA for patient satisfaction scoring but we did not measure any pain scale like VAS for assessment of pain intra and postoperatively. We did not follow the patient for any surgery or procedure related complications.

CONCLUSIONS

The topical anesthesia is an effective method in providing a painless surgical procedure in patients undergoing phacoemulsification. It is also safer and non invasive as compared to retrobulbar anesthesia. Also by using topical anesthesia, we can eliminate pain and fear of needle insertion for retrobulbar anaesthesia. So considering all these, topical anaesthesia for phacoemulsification is worthy of clinical use.

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