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A STUDY OF PHACOEMULSIFICATION WITH INTRAOCULAR LENS IMPLANTATION UNDER TOPICAL ANESTHESIA WITH AND WITHOUT INTRACAMERAL ANESTHESIA

Ophthalmology

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ABSTRACT

Background: Ophthalmic surgeries have been conducted using a wide range of anesthesia techiques. The type of anesthesia depends on a large number of factors like patients co-operation, experience of the surgeons and the type of the surgeries performed. Some techniques are known to have more side effects than the other. This study is done to check Phacoemulsification with Intraocular Lens Implantation under Topical Anesthesia with and without Intra-cameral anesthesia

Methods: The surgeries conducted included phacoemulsification with foldable intraocular lens (IOL) implantation under topical anesthesia using preservative-free 2% lidocaine drops, with and without intracameral anesthetic supplementation.

Results: Totally, 60 eyes of 60 patients were enrolled in this series. The subjects were divided into two groups and group 1 was given Intra Cameral Anesthesia and Group 2 was not.

Conclusions: Topical anesthesia with preservative-free 2% lidocaine drops is an effective and safe modality for clear corneal phacoemulsification with IOL implantation.

KEYWORDS

topical anesthesia, phacoemulsification, specular microscope.

Introduction:

Ophthalmic surgeries have been conducted using a wide range of anesthesia techniques. The type of anesthesia depends on a large number of factors like patients co-operation, experience of the surgeons and the type of the surgeries performed. Some techniques are known to have more side effects than the other. This study is done to check Phacoemulsification with Intraocular Lens Implantation under Topical Anesthesia with and without Intracameral anesthesia. Complications of retrobulbar and peribulbar anesthesia for cataract surgery have been reported, such as inadvertent globe perforation, retinal vein occlusion, and brain stem anesthesia.[1-6] Postoperative ptosis is an unexpected cosmetic effect as well. To avoid the above complications, the trend is to adopt topical anesthesia with preservative-free lidocaine drops combined with intracameral lidocaine for small-incision phacoemulsification and implantation of a foldable intraocular lens (IOL).[7-13]

Nevertheless, there is little literature related to induced endothelium loss with topical anesthesia without intracameral anesthesia.[14-16] Since the efficacy and safety of this modality are concerns for most clinicians, the object of this investigation was to evaluate pain and endothelial cell loss during phacoemulsification with IOL implantation under topical anesthesia with preservative-free 2% lidocaine drops with and without Intracameral anesthesia.

Aims and Objectives:

To Study of Phacoemulsification with Intraocular Lens Implantation under Topical Anesthesia with and without Intracameral anesthesia:

METHODS

This study was done in Kanachur Institute of Medical Sciences, Deralakatte, Mangalore. This study was done from April 2016 to March 2017.

The study was done using two groups. The total number of subjects included was 60.

30 were included in Group 1. These patients were given Intra-Cameral Injections with Topical Anesthesia.

30 were included in Group 2. These patients were not given Intra-Cameral Injections with Topical Anesthesia.

Inclusion Criteria:

1. The patients were aged >50 years. This was done to reduce the age related bias.

Exclusion Criteria:

1. Patients who were diagnosed to have other ophthalmic conditions.
2. Systemic Infections or Diseases.

Mean PHACO time, The questionnaire, a 10-point visual analog pain scale, standardized by Stevens in 1992,[17] was given in the recovery room. The degree of discomfort during surgery was rated from 0 (no pain) to 10 (worst pain),

RESULTS

Table 1: Age Distribution:

Group 1	Standard Deviation	Group 2	Standard Deviation
61.27 Years	7.85 years	67.36 Years	5.38 Years

Table 2: Gender Distribution:

Group 1	Group 2
M:F = 18: 12	M:F = 23: 07

Table 3: Mean PHACO time

Group 1	Group 2
96.9 ± 34.3	102.8 ± 33.1

Table 4: Score of pain (on a 10-point VAS)

Group 1	Group 2
1.2 ± 1.1	2.4 ± 0.6

Table 5: Test for Significance:

X-Value	P-Value	Significance
0.625	0.0632	Not Significant

Table 6: Pre and Post Operative Endothelium Count

Group 1	Group 2
Pre-op endothelium count (cells/mm2) 2072.6±104	Pre-op endothelium count (cells/mm2) 2054.6±102
Post-op endothelium count (cells/mm2) 1887.2±262	Post-op endothelium count (cells/mm2) 1927.4±196

Table 7: Test for Significance:

X-Value	P-Value	Significance
0.723	0.003	Significant

Table 8: Percentage of Best Corrected Visual Acuity after 3 Months (20/40)

Group 1	Group 2
73.33%	80%

DISCUSSION

Although peribulbar and retrobulbar anesthesia is sufficient for nerve blockage during cataract surgery, complications related to the anesthesia can be sight-threatening or even life-threatening.[1-6] These complications can be prevented by the use of topical anesthesia with or without intracameral anesthesia, and the trend is to adopt this technique as a standard procedure.[7-13] First of all, to investigate any discomfort associated with the surgery, we evaluated the degree of pain

using the 10-point visual analog pain scale. Most patients felt mild or no pain during the procedure, and the mean score of pain was 1.2± 1.1, although 17.2% needed supplemental instillation of 2% lidocaine drops. Mild endothelial cell loss revealed the safety of phacoemulsification with IOL implantation under topical anesthesia in both the methods. According to the prior literature related to induced endothelial cell loss in phacoemulsification,[19-21] the effect was similar to that of topical anesthesia combined with either intracameral or peribulbar anesthesia. Additionally in a prior animal study related to the effect on the endothelium, scanning electron microscopy of the eyes intracamerally injected with a high concentration of 2% lidocaine revealed morphological changes including irregular hexagonal endothelial cells and significant loss of microvilli.(18) In this series, no additional complications related merely to the topical anesthesia, without the combined intracameral injection, were identified. Owing to the extra time needed for further manipulation, this modality of anesthesia for phacoemulsification to prevent inadvertent complications might not be suitable for patients with small pupils, or those who are anxious. Apart from this, topical anesthesia is effective and safe for cataract surgery.

Conclusion:

Topical anesthesia is effective and safe for cataract surgery.

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