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Original Research

Evaluation of complications associated with anaesthesia for ocular surgery: An observational study

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ABSTRACT:
Background: The present study was conducted for evaluating the complications associated with anaesthesia for ocular surgery.**Materials & methods:**A total of 100 subjects who underwent ocular surgeries. Information obtained included patient details, surgical procedure, anaesthetic agents administered and intraoperative problems. Information about recovery was also recorded. Subjects with history of any systemic illness, any known drug allergy were excluded from the present study. Heart rate and blood pressure were recorded separately both intraoperatively and postoperatively to evaluate the incidence of complications.**Results:**A total of 100 patients were analyzed. Mean age of the patients was 31.2 years. Hypotension, hypertension, tachycardia and bradycardia were seen in 23 percent, 20 percent, 12 percent and 8 percent of the patients respectively. Non-significant results were obtained while evaluating the correlation of complications with type of anesthetic agent, age and gender.**Conclusion:**Blood pressure related adverse effects are most commonly associated complications associated with anaesthesia for ocular surgery.
Key words: Anesthesia, Ocular, Surgery

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INTRODUCTION

The world has witnessed a significant evolution in surgical technique of cataract extraction in last few decades. After Ridley introduced the intraocular lens, the challenge was to reduce the size of incision. It was fulfilled by Kelman with the introduction of phacoemulsification and by Mazzocco with the introduction of foldable intraocular lens. Of course, advances in phaco machines, phacotips, ophthalmic viscosurgical devices (OVD), etc. also have played a major role to reach today's faster, more controlled, and less traumatic cataract surgery.[1-4]Most eye operations can be performed under local anesthesia, which can be either topical or orbital regional anesthesia. In recent years, the topical anesthesia has become a common modality of anesthesia for cataract surgery. However orbital regional anesthesia is preferred by many ophthalmologists for cataract, as well as other forms of ophthalmic surgery. According to recent studies, many patients prefer orbital regional anesthesia.[4-6]Hence; the present study was conducted for evaluating the complications associated with anaesthesia for ocular surgery

MATERIALS & METHODS

The present study was conducted for evaluating the complications associated with anaesthesia for ocular surgery. A total of 100 subjects who underwent ocular surgeries.Information obtained included patient details, surgical procedure, anaesthetic agents administered and intraoperative problems. Information about recovery was also recorded. Subjects with history of any systemic illness, any known drug allergy were excluded from the present study. Heart rate and blood pressure were recorded separately both intraoperatively and postoperatively to evaluate the incidence of complications. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software.

RESULTS

A total of 100 patients were analyzed. Mean age of the patients was 31.2 years. Among them, 65 were males while the remaining were females. Most common anesthetic agent was halothane and isoflurane found to be present in 65 percent and 25 percent of the patients respectively. Mean duration of anesthesia was 83.5 minutes. Hypotension, hypertension, tachycardia and bradycardia were seen in 23 percent, 20 percent, 12 percent and 8 percent of the patients respectively. Non-significant results were obtained while evaluating the correlation of complications with type of anesthetic agent, age and gender.

Table 1: Distribution of anaesthetic agents used for maintenance anesthesia

Anesthetic agent used	Number	Percentage
Halothane	65	65
Isoflurane	25	25
Anaesthesia started with halothane and later changed to isoflurane	10	10
Total	100	100

Table 2: Mean duration of anesthesia

Variable	Mean	SD
Duration of anesthesia (mins)	83.5	12.8

Table 3: Complications

Complications	Number	Percentage
Hypotension	23	23
Hypertension	20	20
Tachycardia	12	12
Bradycardia	8	8

DISCUSSION

Eye surgeries had been performed with little or no anaesthesia for almost 1000 years. The “Year 1884” was a watershed year for ophthalmic anaesthesia; it was in this year that Carl Koller discovered cocaine hydrochloride as a topical anaesthetic agent for performing eye surgery and Herman Knapp used cocaine for retrobulbar injection and performed enucleation. It should, however, be taken into account that topical anaesthesia does have its own limitations. It should be relevant to note here that ophthalmic anaesthesiologists are increasingly involved in performing regional orbital blocks which were performed only by surgeons in the past.[6- 9]Hence; the present study was conducted for evaluating the complications associated with anaesthesia for ocular surgery.

A total of 100 patients were analyzed. Mean age of the patients was 31.2 years. Among them, 65 were males while the remaining were females. Most common anesthetic agent was halothane and isoflurane found to be present in 65 percent and 25 percent of the patients respectively. Mean duration of anesthesia was 83.5 minutes. Hypotension, hypertension, tachycardia and bradycardia were seen in 23 percent, 20 percent, 12 percent and 8 percent of the patients respectively.Lee LA et al evaluated claimed with eye or peripheral nerve blocks performed perioperatively from 1980 through 2000. Anesthesiologists who provided both the eye block and sedation for eye surgery (n = 59) had more injuries associated with block placement (P < .001), a higher proportion of claims with permanent injury (P < .05), and a higher proportion of claims with plaintiff payment (P < .05), compared with anesthesiologists who provided sedation only (n = 38). Peripheral nerve blocks (n = 159) were primarily associated with temporary injuries (56%). Local anesthetic toxicity was associated with 7 of 19 claims with death or brain damage. Performance of eye blocks by anesthesiologists significantly alters their liability profile, primarily related to permanent eye damage from block needle trauma.[10]

In the present study, non-significant results were obtained while evaluating the correlation of complications with type of anesthetic agent, age and gender.Analysis of any effect of retrobulbar block during ocular surgery on heart rate variability and oculocardiac reflex was done in a previous study conducted by Oel C et al.Eye enucleation was performed under general anesthesia. The horses were randomly assigned to the first or second group. The retrobulbar block was performed using 12 mL of mepivacaine hydrochloride 2%. All horses without a retrobulbar block showed a significant decrease in the heart rate during traction on the globe and pressure on the orbital fat pad for homoestasis. Simultaneously, high-frequency power, as an indicator of vagal stimulation, increased significantly. High-frequency and low-frequency power in the retrobulbar block group increased in five horses, and heart rate decreased in only one horse. Both were not significant within the group, but there was a significant difference between both groups relating to the incidence of heart rate decrease occurring at globe traction.Heart rate variability is a sensitive, non-invasive parameter to obtain sympathovagal stimulations during general anesthesia.[11]

CONCLUSION

Blood pressure related adverse effects are most commonly associated complications associated with anaesthesia for ocular surgery.

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