Original Article

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PATIENT SATISFACTION FOLLOWING CATARACT SURGERY UNDER LOCO-REGIONAL ANAESTHESIA; A COMPARISON OF CONSCIOUS SEDATION USING PROPOFOL INFUSION VERSUS LOCO-REGIONAL ANAESTHESIA ALONE

Naveed Masood, Muhammad Asif Saleem, Rehan Masroor, Sami Uddin

Combined Military Hospital Lahore, Combined Military Hospital Multan, United Nation Mission Libaria, United Nation Mission Sudan

ABSTRACT

Objective: To compare loco-regional anaesthesia alone and its combination with conscious sedation using intravenous propofol infusion, in terms of patient satisfaction following cataract surgery.

Design: Randomized controlled trial

Setting: Conducted in operation theatre complex of Combined Military Hospital Multan during April 2006 to April 2007.

Patients and Methods: One hundred outpatients (n=100), who met inclusion criteria and were scheduled for cataract surgery under loco-regional anaesthesia [Retrobulbar block along with topical anaesthesia], were randomly allocated to group "A" and "B" of 50 patients each. In group A (n=50), patients were also provided conscious sedation using intravenous propofol infusion titrated to the desired effect. While group B (n=50) patients were not provided any sedation in addition to loco-regional anaesthesia. Patient satisfaction of both the groups was assessed by filling a questionnaire, using scoring system modified from Iowa Satisfaction with Anaesthesia Scale (ISAS) at the time of discharge from the hospital.

Results: Mean ISAS score of patients in Group A (n=50) was found significantly higher (23.26 ± 9.52) than mean ISAS score of patients of group B (18.56 ± 11.20). Comparison depicted statistically significant difference as the p value was 0.026 (< 0.05).

Conclusion: Conscious sedation with Propofol infusion provided higher patient satisfaction after cataract surgery under loco-regional anaesthesia when compared to surgery under loco-regional anaesthesia alone, as measured by ISAS score. Propofol infusion is recommended to be a novel technique for conscious sedation in outpatient cataract surgery because of propofol's excellent pharmacokinetic profile.

Keywords: Cataract, Conscious sedation, Orbital anaesthesia, Patient satisfaction, Propofol.

INTRODUCTION

Eighty percent of blindness in the world is either preventable or curable. Blindness not only causes human suffering but it is also economically devastating. Cataract is the main cause of low vision and blindness in the world.[1] The number of elderly patients together with their early referral to ophthalmologists is increasing the demand of cataract operations using day care facilities[2]. Surgery may be carried out by using general, regional/topical anaesthesia, or by a combination of both the methods. Advances in cataract surgery have allowed virtually all surgery to be conducted in outpatient setting using loco-regional anaesthesia [retrobulbar nerve block along with topical anaesthesia]. Use of loco-regional anaesthesia not only provides satisfactory operative conditions but also advantages in terms of health economics[3]. Since the anaesthetics virtually eliminate pain during surgery, the most unpleasant memory of the operation in many eye patients is the pain associated with needle insertion or discomfort during injection of the loco-regional anaesthetic solution just before the surgery. Other disadvantage of loco-regional anaesthesia alone is varying degree of patient discomfort, apprehension and anxiety, due to which patient may become restless when immobility is essential[4].

A still patient is an absolute necessity in eye surgery where a microscope is used and sharp instruments are placed within the eyes;

Correspondence: Major Muhammad Asif Saleem, Graded Anaesthetist Pak Army Code 36
Email: drasif153@yahoo.com
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even small sudden movements at a critical moment can injure the eye and have potentially disastrous consequences[5]. The patient therefore should be either awake and oriented, or completely anaesthetized. Moreover it is important to be able to communicate with the patient[6]. Recently published literature shows that most patients experience a variety of visual sensations during cataract surgery under loco-regional or topical anaesthesia. Visual sensations include perception of movements, flashes, colours, changes in brightness, sight of surgical instruments, surgeon's hands or fingers, or even the surgeon. These findings are clinically significant because patients undergoing cataract surgery under either loco-regional or topical anaesthesia may be frightened by their intra-operative visual experiences[6]. Fear and anxiety may cause some patients to become uncooperative during cataract surgery and may even induce a sympathetic stress response which might result in hypertension, tachycardia (with possible myocardial ischemia in susceptible patients), hyperventilation or an acute panic attack[7]. Besides increasing the risk of intra operative complications; a frightening visual experience may decrease patient satisfaction with anaesthesia care[4]. This problem has been addressed by our selected technique of conscious sedation in combination with loco-regional block which is expected to be associated with higher level of patient satisfaction because of amelioration of the patient's discomfort during surgery.

In out patient procedure, short acting agents are preferred over long acting agents[8]. Surgical manipulation of eyes is usually associated with nausea, so a drug with antiemetic properties is desirable. Propofol, by continuous infusion, provides a readily titrable level of sedation and rapid recovery once infusion is terminated along with its unique antipruritic and antiemetic properties that make it a novel drug for outpatient anaesthesia[9].

Measuring the level of patient satisfaction with anaesthesia care can be achieved with a variety of tools such as postoperative visits and patient questionnaires. Among the available instruments[10] "Iowa Satisfaction with Anaesthesia Scale" (ISAS) was selected and customised for our study. The ISAS has been found to be a feasible, reliable, and valid tool to measure patient satisfaction after cataract surgery under topical anaesthesia and monitored sedation[11].

The aim of this study was to evaluate whether conscious sedation using propofol infusion in patients undergoing cataract surgery under loco-regional block can confer additional benefit in terms of high ISAS score, demonstrating superior quality care.

PATIENTS AND METHODS

This randomized controlled trial was carried out at operation theatre complex of Combined Military Hospital Multan, from April 2006 to April 2007. After approval from Hospital Ethics Committee, one hundred (n=100) ASA I and II male patients aged between 50 to 80 years with minimum educational standard of intermediate and above, undergoing cataract surgery under loco-regional anaesthesia, were selected by non-probability purposive sampling. Morbidly obese, psychiatric, deaf, claustrophobic patients, those with predicted difficult airway and who gave history of allergy to propofol or its constituents were excluded. They were briefed about purpose of research work to which they were going to be subjected, their written informed consent was obtained. Selected patients were assigned randomly by drawing lots either to Group A (n=50) or B (n=50) and they were kept blinded to the intervention.

In Group A (n=50), patients received sedation with intravenous Propofol using intravenous infusion device followed by loco-regional anaesthesia. 20-40 mg Bolus dose of propofol (depending upon patient's weight) was followed by an intravenous infusion of 25-100 μg/kg/min titrated to the desired depth of sedation. Patients were kept in continuous verbal contact and cut off points for sedation were the slurring of speech or snoring. In patients of Group B surgical procedure was

carried out under loco-regional block alone along with monitored care.

At the time of discharge, patients of both the groups were requested to fill a questionnaire modified from ISAS. A junior anaesthesia resident, also blinded to the intervention, helped them in filling the questionnaire. To positive questions patient's agreement implied satisfaction while for negative questions opposite was true. A totally satisfied patient scored +3 on all of 12 questions asked in the proforma, so highest ISAS score was + 36 for such patients. Mean ISAS score for group A was compared with that of group B. Higher Mean ISAS scores of a group represented higher patient satisfaction with anaesthesia care and vice versa. After interview and completion of questionnaire patients were discharged from postanaesthesia care unit and there was no further follow up.

Statistical Analysis:

Data was analysed by Statistical Package for Social Sciences (SPSS) version 17.0. Descriptive statistics i.e. means, and standard deviations (SD) were computed for difference of ISAS score between two groups and then independent sample t- test was applied to compare means and obtain 95% confidence interval. *P*-value of <0.05 was considered significant.

RESULTS

Demographic characteristics of patients in each group are summarized and compared in Table-1. The groups were comparable to each other in demographic characters as shown by their respective *p*-values.

Group A (n=50) patients had higher mean ISAS score of 23.26 ± 9.52 as compared to that of group B (n=50) patients, which was calculated to be 18.56 ± 11.20 (Figure). *p*-value was found to be 0.026, which clearly indicates that patients, in whom conscious sedation (group A) was given, rated the quality of care higher and were more satisfied with overall anaesthesia experience (Table-2).

However, coughing occurred in only two patients of group A that was treated with deepening level of sedation. In four patients of the same group, oxygen saturation dropped to <90% which was managed by cutting/decreasing level of sedation and insufflation of oxygen under the head and neck drapes. All patients were discharged from recovery room after attaining complete recovery.

Table-1: Comparison of demographic characteristics of both the groups.

	Group A	Group B	p - value
Number (n)	50	50	--
Age (in years)	61.10± 8.34	61.64 ± 7.29	0.731
Male/Female	50 / 0	50 / 0	--
Education: inter/graduate	30 /20	31 /19	0.838

Table-2: Comparison of Mean ISAS Scores of both the Groups, showing statistically significant p-value of 0.026 (< 0.05)

	Group A (n=50)	Group B (n=50)
Mean ISAS Scores	**23.26** ± 9.52	18.56 ± 11.20
p – value (t – test)	**0.026**	

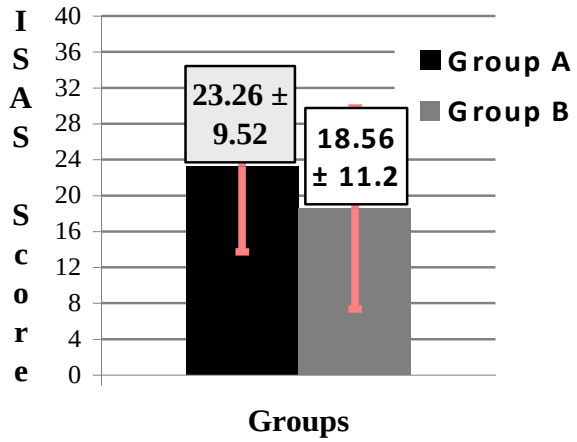

Figure: Comparison of Mean ISAS Scores (with standard deviation) of group A and B clearly showing better patient satisfaction with conscious sedation in group A patients.

DISCUSSION

Cataract surgery is usually carried out under loco-regional anaesthesia requiring administration of retrobulbar block which is a quite unpleasant and painful procedure; so in order to ensure patient comfort and safety, intravenous sedation may be required. In addition patients undergoing cataract surgery may need sedation in order to reduce anxiety, fear of pain, claustrophobia, and to ensure immobility during the procedure. Ideally sedation must be prompt in onset, ensure

amnesia, immobility, minimize cardiopulmonary depression, and ensure prompt recovery to allow conscious cooperation of the patient during surgery.[12]

We have used ISAS scoring system to assess the patient's satisfaction after customizing it for our study setting. Fung et al. also found ISAS a valid and feasible instrument to determine patient's satisfaction with anaesthesia care in patients undergoing cataract surgery under topical anaesthesia and monitored sedation using propofol infusion.[13] They approached 366 patients and the mean ISAS score was significantly lower for the patients who did not get conscious sedation with propofol infusion, hence the results of our study are comparable to findings of this study.

Dexter et al., used psychometric techniques to evaluate the ISAS reliability to measure patient satisfaction with monitored anaesthesia care. When applied on 92 patients undergoing various outpatient procedures (53% undergoing cataract care) at a tertiary care centre, they had a response rate of 82%. Patient responses to the ISAS demonstrated excellent reliability[14].

Myles et al., carried out a postoperative survey of patients on the day of surgery to assess quality assurance and to measure patient outcome[15]. Patients were to rate if they were 'satisfied', 'somewhat dissatisfied' or 'dissatisfied' with the anaesthetic service they received. The overall level of satisfaction was 96.8%. Patients dissatisfied were generally younger and there was a strong relation between patient dissatisfaction and postoperative pain, nausea, vomiting, and other complications.

Lee and Lum cautioned against the use of patient satisfaction as a good measure of postoperative outcome, because it has potential to adversely affect the compliance to the standard protocols/guidelines followed for provision of safe anaesthesia care[16]. In contrast, Donabedian argued that despite its strengths and limitations, information on patient satisfaction should be indispensable in the assessment of quality in health care[17].

In another study, Frey et al., compared sedation quality, recovery profiles and satisfaction level in patients who received propofol (group P) with those who were administered propofol - ketamine sedation (group PK) during cataract surgery under retrobulbar nerve block[18]. Patients in group 'PK' had a significantly faster onset of acceptable sedation and required significantly less supplemental sedation, all recovered well with least hangover and patient satisfaction was found better.

Similarly a survey by the Federated Ambulatory Surgery Association found higher overall complication rates after ambulatory surgery with combined loco-regional anaesthesia and intravenous sedation compared with general, regional, or local anaesthesia alone[19]. According to this survey, supplementation with potent sedative-hypnotic and analgesic drugs may result in significant depression of the central respiratory drive and/or transient upper airway obstruction with possible catastrophic event . Results of this survey seem to contradict our findings but these findings warn us about the requirements of vigilant monitoring as well as careful selection of drugs and patients for conscious sedation techniques. In another contradictory study Pac-Soo et al., evaluated a method of total patient-controlled sedation in an elderly population undergoing cataract surgery during loco-regional anaesthesia[20]. This was a single-blinded study that had concluded that intravenous sedation with loco-regional anaesthesia is not obligatory to improve patient's satisfaction. This may be due to the fact that already stressed patient was coerced into the use of a complicated piece of equipment for provision of patient controlled sedation.

Manninen et al., compared two conscious sedation techniques, midazolam versus propofol, for interventional neuroradiology by assessment of the incidence of complications and satisfaction scores and found overall satisfaction rate higher with propofol technique[21].

Cruise et al., evaluated the effect of music in elderly outpatients undergoing elective cataract surgery under retrobulbar block and monitored anaesthetic care using fentanyl and midazolam. Patient satisfaction was evaluated using a postoperative questionnaire using yes/no responses. It showed that music and relaxing suggestions were consistently superior to white noise or operating room noise in improving patient satisfaction[22]. This study offers another unique idea to further improve overall anaesthesia experience and patient satisfaction in outpatient surgery.

Limitations of our study:

Although our study population represents fairly homogeneous Pakistani population in terms of ethnic and geographic composition but due to a small sample size and nonprobablity purposive sampling technique the results of our study cannot be reliably extrapolated to whole of the population. Another flaw in this study was inclusion of an interviewer who assisted patients in filling the questionnaires provided. Without an interviewer to clarify and read questions, there would have been a substantial loss of data. An interviewer can bias ratings positively by making patients more reluctant to criticize their care. Other problem was that some patients were coming for the first time in operation theatre for cataract surgery while others were coming for second time for operation on their other eye. Preoperative apprehension levels were very different among the two, similarly their assessment towards quality care was also more critical, thus this fact may also be an obstacle in generalization of results of this study.

CONCLUSION

On the basis of our experience, it is concluded that conscious sedation by propofol infusion along with loco-regional anaesthesia, offers a useful, easily titrable and patient satisfying alternative to cataract surgery under loco-regional anaesthesia alone.

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