

## NALBUPHINE VERSUS PROPOFOL : AS AN ADJUNCT TO LOCOREGIONAL ANAESTHESIA FOR CATRACT SURGERY IN ELDERLY PATIENTS

M. MUBEEN, SHAUKAT MAHMOOD, M. A. BAIG AND M. A. BURKI  
*Department of Anaesthesia, CMH, Lahore*

*This study was carried out at ophthalmology Dept Military Hospital, Rawalpindi from Jan 2004 to May 2004. This comparative experimental type of study was done to compare nalbuphine with propofol in order to find out suitable I/V supplementation to locoregional block for cataract surgery. Nalbuphine or propofol in subhypnotic dosage to facilitate local periorbicular block were given to 140 elderly patients at convenience sampling divided into two groups for cataract surgery. Effects of both drugs were compared clinically. Any complications observed during peri & postoperative period were noted. Propofol was found better than nalbuphine in terms of patient comfort, anxiety alleviation, acceptance of Local injection and analgesia during injection (P<0.05). Very low incidence of postoperative nausea was an additional advantage. It was therefore concluded that propofol could be used in subhypnotic dosage in conjunction with Locoregional block during cataract surgery.*

Conscious sedation is a valuable adjunct during cataract surgery under Locoregional Anaesthesia. It is required to allay initial anxiety and make patient mentally acceptable for local injection. When injecting local anaesthetics, a deep transient sedation is desired but afterwards the patient is required to be clear headed, oriented, co-operative and in full verbal contact with surgeon during entire surgical procedure so as to avoid inadvertent movements. This conscious sedation is specific anaesthesia service involving vital signs monitoring in connection with Locoregional Anaesthesia is called “monitored anaesthesia care” (MAC) (I). and the goal of conscious sedation during cataract surgery is to enhance patient comfort, preservation of protective airway reflexes, avoidance of painful stimuli, maintenance of haemodynamic stability, prevention of respiratory depression and unwanted movements during surgical procedure. Cataract surgery is performed under Locoregional block in more than 90% cases and is invariably supplemented by a variety of intravenous drugs. Most commonly used drugs for such purpose are midazolam, fentanyl, ketamine, propofol either used alone or in combination.

Nalbuphine (because of non-avail of fentanyl) and midazolam are main drugs being used at ophthalmology centre Military Hospital Rawalpindi (MHR) at the moment.

The purpose of this study was to find out suitable intravenous supplementation during periorbicular block for cataract surgery in elderly patients with minimal unwanted effects.

### MATERIAL AND METHODS

This study was carried out at ophthalmology centre MHR from Jan 2004 to May 2004. 140 cases of ASA I/II conveniently selected, due for cataract surgery of one eye, range of age group was between 60 and 70 yrs. Mean age was 66.5 years. Patients were randomly divided into two equal groups receiving drugs as per table 1. Patient Data Collection Performa was filled in every case, which included points as per table 2 and results compiled.

**Table 1:** Study groups.

Group A	Propofol 10 mg	Repeated when required
Group B	Nalbuphine 2 mg	*

Data was entered in SPSS ver-10 for computer analysis and Chi-squared test was applied to calculate P value.

### RESULTS

Propofol was found more acceptable (88.57 %) than nalbuphine (62.85 %) (P<0.05) in our results regarding personal judgement of patient (table 3). Additional dose has to be given during Locoregional block as per table 4 in patients who felt uncomfortable despite first dose. Percentage of such cases was significantly higher (37.14%) in-group B receiving nalbuphine (P<0.05). Twelve cases of this group had to be given dormicum in addition.

**Table 2:** Parameters noted during study.

1.	Personal judgment patient	Pleasant	Acceptable	Uncomfortable
2.	Analgesia at time of Locoregional Block	No pain	Mild pain	Moderate / severe pain
3.	Additional sedation	Non	Repeat dose	Addition of midazolam 0.5 mg
4.	Pre and peri operative monitoring	Pulse	BP	SpO2
5.	Orientation	Fully oriented	Partially oriented	Disoriented
6.	Post op nausea / vomiting	None	Nausea	Vomiting

**Table 3:** Comparison of personal judgement between two groups.

Personal Judgement		
Group	Acceptable	Uncomfortable
A	62 (88.57%)	8 (11.43%)
B	44 (62.85%)	26 (37.14%)

**Table 4:** Comparison of Additional Sedation.

Additional Sedation			
Group	None	Additional Dose	Dormicum .25 mg
A	62 (88.57%)	8 (11.43%)	--
B	44 (62.85%)	26 (27.14%)	12

**Table 5:** Comparison of analgesia during locoregional block.

Analgesia During Locoregional Block		
Group	No Pain Total Cases (Percentage)	Mild Pain Total Cases (Percentage)
A	63 (90%)	7 (10%)
B	41 (58.57%)	29 (41.43%)

**Table 6:** Peri - operative monitoring.

Peri - Operative Monitoring			
Group	Mean BP	Pulse	SPO2
A	↓ Average 7mmHg 58 ↑ Average 4mm Hg 12	↓ Average 5 beats/minute ↑ Average 3 beats/minute	↓ 66 Average 6
B	↓ Average 5mm Hg 43 ↑ Average 10mm Hg 27	↓ Average 4 beats/minute 59 ↑ Average 5 beats/minute 13	↓ 21 Average 4

The 90% of them group A patients receiving propofol, have achieved good transient analgesia

at time of Locoregional block in contrast to 60% patients of group B receiving nalbuphine (table 5). This difference was statistically significant ( $P < 0.05$ ). Patients of both groups remained fully oriented and haemodynamically both groups remained stable showing slight variation in BP and pulse, which was insignificant ( $P > 0.05$ ). Transient slight fall in SpO<sub>2</sub> was noted in majority of group A cases (94.28%) receiving propofol which was easily corrected by giving oxygen via catheter placed closer to patients nostrils during operative procedure.

Incidence of postoperative nausea and vomiting was significantly higher ( $P < 0.05$ ) in-group B (20%) receiving nalbuphine especially with repeated dosage, while it was not recorded in any patient of group A receiving propofol (table 7).

**Table 7:** Comparison of post operative nausea/vomiting.

Post operative Nausea / Vomiting		
Group	None	Nausea / Vomiting
A	70	Nil (0%)
B	56	14 (20%)

Off and flickering movements of orbicularis oculi were noted in two cases of group A receiving propofol.

## DISCUSSION

Elderly patients undergoing cataract surgery under Locoregional Block require some form of sedation and analgesia at the time of injection. Various drugs have been used for this purpose. Midazolam 0.05 mg/kg is most popular among benzodiazepines as rapid acting drug with short elimination life. It produces more anxiolysis, sedation with amnesia than diazepam<sup>2</sup> and has predictable recovery. It has high incidence of postoperative nausea and vomiting. It requires careful titration to avoid respiratory depression and over sedation. Effects are prolonged & intensified in elderly patients with Diazepam so it is not popular now a days for this purpose.

Opioid analgesics usually do not produce reliable sedation in absence of respiratory depression, so generally combined with benzodiazepines but provide analgesia during nerve block without compromising haemodynamic stability.<sup>10</sup> Ketamine has also been used in subanaesthetic dosage but is not so popular because patient become disoriented & non communicative during surgery.

Propofol used in subhypnotic dosage causes brief, easily controllable sedation with clear-headed quick recovery<sup>3</sup>. In one study propofol demonstrated smaller amnesic effects than midazolam and has quicker recovery<sup>7,1</sup>. It is particularly beneficial for ophthalmic procedures because of its ability to decrease intraocular pressure & low incidence of post operative nausea and vomiting<sup>8</sup>. In subhypnotic dosage it has very little effects on cardiovascular and respiratory variables. It has very low incidence of undesirable side effects<sup>4,5</sup>. All these effects were also found in our study, making it suitable adjunct for Locoregional Block, but flickering movements of orbicularis oculi in two of our patients receiving propofol needs more elaboration. Surprisingly propofol produced very effective transient analgesia sufficient to cover short period of local injection, it coincides with other study<sup>12</sup> but dose used was quite high 1–1.5 mg/kg. Transient fall in SpO<sub>2</sub> is easily countered with supplemental oxygen via nasal cannulae (4L/min).

Slight fall in BP in majority of patients in our study had no significant detrimental effect in haemodynamic stability. In one study recommended dose of propofol was 0.2–0.5 mg/kg, which is closer to dosage used in our study<sup>6</sup>.

Nalbuphine was less acceptable, required additional dosage and supplementation of dormicum in certain cases, and there was high incidence of postoperative nausea and vomiting. Almost similar results were observed in a study<sup>9</sup> comparing propofol with midazolam and fentanyl. Propofol can also be used by patient controlled sedation, which is also safe and preferred method according to one study<sup>11</sup>.

In conclusion propofol used in subhypnotic dosage is superior to Nalbuphine as supplement to Locoregional Block for cataract surgery with regard to patient acceptance. Comfort, pain control during performance of block accompanied with

quick and clear headed recovery and fully cooperative patient during surgical procedure. Its very low incidence of postoperative nausea and vomiting makes it more suitable drug for this purpose.

#### REFERENCES

1. Steven MH, White PF. Monitored anaesthesia care. In Miller RE, ed. *Anaesthesia* 4th edition. New York: Churchill Livingstone, 1994; 1465-1480.
2. White PF, Vasconez LO, Mathes SA, Way WL, Wender LA. Comparison of Midazolam and Diazepam for sedation. *Plastic reconstruct surg* 1988; 81: 703–10.
3. Machenzi N, Grant IS. Propofol for intravenous sedation. *Anaesthesia* 1987; 42: 3–6.
4. Smith I, White PF, Nathanson M, Gouldson R. Propofol: an update on its clinical uses. *Anaesthesiology* 1994; 81: 1005–43.
5. Rosa G, Couti G, Orsi P. Effects of low dose propofol on central respiratory drive, gas exchanges and respiratory pattern. *Acta Anaesth Scand* 1992; 36: 128–36.
6. Smith I, Monk TG, White PF et al. Propofol infusion during regional anaesthesia: sedative, amnesic and anxiolytic properties. *Anesth Analg* 1994; 79: 313–9.
7. White PF, Negus JB. Sedative infusions during local and regional anaesthesia: a comparison of Midazolam and propofol. *J Clin Anaesth* 1991; 3: 32–9.
8. Holas A, Faulborn J. Propofol Vs Diazepam for sedation of patients undergoing ophthalmic surgery in regional anaesthesia. *Anaesthetists* 1993; 42: 766–722.
9. Kost M, Emerson D. Propofol – Fentanyl versus Midazolam fentanyl: a comparative study of local sedation techniques for cataract surgery. *CRNA* 1992 Feb; 3 (1): 7–15.
10. Holas A, Krafft P, Marcovic M, Quehenberger F. Ramifentanyl, propofol or both for conscious sedation under regional anaesthesia. *Eur J of Anaesth* 1999; 16: in Press.
11. Herrick IA, Gelb AW, Nicholas B, Kirkby J. Patient controlled propofol sedation for elderly patients: safety and patient attitude forward control can *J anaesth* 1996 Oct; 43 (10).
12. Ramirez – Sanchez A, Palacio MA, Gracia – Sanchez MH, Imaz Torres MS, Goldo JR, Morales Masc. Propofol and retrobulbar anaesthesia for cataract extraction *Rev Esp Anestesiol Reanim* 1993 Sep – Oct; 40 (5): 307–9.