



EFFECT OF ADDING ULTRA-LOW-DOSE NALOXONE TO FENTANYL AND LIDOCAINE COMBINATION FOR PERIBULBAR ANESTHESIA

Anesthesiology

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ABSTRACT

Successful peribulbar block with adding adjuvants like fentanyl and naloxone in ultra-low dose will provide a safe, quality of anaesthesia intraoperatively and good and prolonged postoperative analgesia. We conducted a randomized double blinded study to evaluate the quality of the block and the duration of postoperative analgesia when ultra-low-dose of naloxone added to fentanyl and lidocaine for peribulbar anaesthesia. There was no significant difference between the two study groups regarding the total injected volume, onset, and best akinesia score. Adding low dose naloxone with fentanyl significantly prolong post op analgesic duration without altering onset, quality and duration of block without any significant side effect.

KEYWORDS

Naloxane, peribulbar anaesthesia, fentanyl, lidocaine

INTRODUCTION

Pain is an unpleasant sensory and emotional response to tissue damage. Every patient has the right to get rid of pain. It is the duty of every anaesthetist to provide adequate pain relief. Pain relief is provided by various methods like oral and parenteral drugs, regional blocks and non-pharmacological methods. Peripheral and regional blocks provide longer, definite and more localized pain relief than oral and parenteral opioids and NSAIDs.

Peribulbar anaesthesia is done for procedures involving cornea of the eyes, anterior chamber and lens (cataract). Peribulbar block involves injections above and below the orbit with local anaesthetics deposited in the Orbicularis oculi muscle. This technique blocks the ciliary nerve, cranial nerves III and VI but not optic nerve II. Technically easier, less damage to optic nerve but less dense block.

Adjuvants are added to improve the quality of anaesthesia and also to improve the duration of postoperative analgesia. Here we added fentanyl a known adjuvant, also we are adding naloxone. Naloxone actually an antidote to opioids (especially fentanyl) in ultra-low dose has additive effect thereby prolong the post-operative analgesia.

Successful peribulbar block with adding adjuvants like fentanyl and naloxone in ultra-low dose will provide a safe, quality of anaesthesia intraoperatively and good and prolonged postoperative analgesia.

Aim

To evaluate the quality of the block and the duration of postoperative analgesia when ultra-low-dose of naloxone added to fentanyl and lidocaine for peribulbar anaesthesia.

Methodology

Study Design: Randomised double blinded

Patient Population:

A sample of 60 patients were recruited with the following inclusion and exclusion criteria:

Inclusion criteria:

- Age 20 to 60 years
- ASA I & II
- Scheduled for open cataract surgeries
- Both sexes

Exclusion criteria:

- ASA 3 and 4
- Patient refusal and uncooperative pt.
- Infection at site of injection
- Coagulopathy
- Cardiac/respiratory/neurological disease
- Allergy to local anesthetic

Study Procedure:

After getting ethical committee approval, pre-op assessment of the

patient was done. If willing for the study they were asked to sign a written informed consent form. The patient was secured with 18g venflon and i.v fluids were started. The patient was premedicated with inj. Ranitidine 50 mg and inj. Metoclopramide 10 mg. ECG leads, pulse oximetry and NIBP were attached. The patient was explained about the anaesthesia procedure. Under aseptic precaution peribulbar block was performed in supine position.

Patients were randomized into 2 groups (30 patients each).

- Group I: patients received 50 mic fentanyl and 2% lidocaine 5ml with hyaluronidase 25 IU/ml.
- Group II: patients received 100 ng naloxone, 50 mic fentanyl and 2% lidocaine 5ml with hyaluronidase 25 IU/ml.

After administration of trial drugs, the following parameters were monitored

- Onset of akinesia was noted and akinesia score was noted every 2 min till the best akinesia score.
- Time of first request for analgesia.
- Pain was assessed during and after surgery at 30, 60, 90 min, 2, 3, 4, 6 and 8 h postoperatively, using numeric rating scale (0-no pain, 1-3 mild, 4-6 moderate, 7-10 severe)

Data and Statistical Analysis:

The information collected regarding all the selected cases were recorded in a study proforma. Data analysis was done with the help of computer by using SPSS 16 software. Using this software mean, standard deviation and 'p' value were calculated through Chi-square test and P value of < 0.05 was taken as significant.

RESULT

Table 1 shows the characteristics of study participants. There was no significant difference between the two study groups regarding the total injected volume, onset, and best akinesia score. The time to first rescue analgesic was significantly longer in group II (7.61+2.17) than group I (4.73+1.52)

Table 1: Characteristics of study participants

Characteristics	Group I	Group II	P value
Age (yrs.)	55.367+2.65	55.03+1.96	0.277
Height (cm)	155.33+7.9	157.26+9.46	0.19
Weight (kg)	55.8+8.454	57.75+11.02	0.25
Duration of surgery (min)	36.267+5.14	39.1+4.27	0.26
Total injected volume (ml)	5	5	
Onset (min)	8.76+1.38	9.2+1.12	0.06
Best akinesia score	16.63+2.34	17.6+2.28	0.25
Time to first rescue analgesic (h)	4.73+1.52	7.61+2.17	0.001

DISCUSSION

Naloxone has selective antagonistic effects on nociceptive dorsal root

ganglion. At low dose this will prolong Ca^{2+} dependent component of action potential. Naloxone has more action on mu receptor. Only at 1-4mic/kg dose will inhibit analgesic effect.

CONCLUSION

Adding low dose naloxone with fentanyl significantly prolong post op analgesic duration without altering onset , quality and duration of block without any significant side effect.

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