



Original Article

Scleral Buckling Under Local Anesthesia

A Author's Affiliation

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Objective: The purpose of the study was to report the effectiveness of local anesthesia in cases of scleral buckling.

Design: The study design was a prospective clinical study.

Material and Methods: A total of 119 patients with rhegmatogenous retinal detachment were included in the study. All patients underwent peribulbar anesthesia of 5ml Bupivacaine 1%. The primary outcome measured was intraoperative patient's comfort level and was assessed by direct questioning and documenting on pain chart at different stages of surgery by pain score.

Results: 69 patients (57.9%) reported mild pain levels (1-3). 37 patients (31.09%) reported pain levels of 6 (moderate) while 13 (10.9%) patients reported severe pain. 05 (4.2%) patients needed supplemental intraoperative local anesthesia.

Conclusion: Local anesthesia with 5ml of peribulbar Bupivacaine 1% is effective in cases of scleral buckling in selected cases.



Introduction:

Scleral buckling procedure (SBP) was described by Schepens, Custodis and Arruga^{1,2,3}. General anesthesia (GA) is usually the preferred choice of most surgeons for SBP⁴. Scleral buckling (SB) which is performed for repair of rhegmatogenous retinal detachments (RRDs) is often associated with postoperative nausea/vomiting (PONV) and severe pain.⁵ The oculocardiac reflex (OCR) during these procedures may cause severe bradyarrhythmias, nodal rhythms, ectopic beats, ventricular fibrillation or asystole,⁶ probably due to traction on extraocular muscles⁷ or pressure on the globe⁸. The OCR is decreased after repetitive stimulations due to fatigue of the reflex arc at the level of the cardioinhibitory center. Repeated interruptions may be required during surgery to abort the reflex; this may prolong the operation and lead to anxiety in the surgical team. Treatment with atropine, although effective in blunting the reflex, may itself result in a variety of cardiac arrhythmias.⁹

Though it is effective, GA has its limitations and complications. Oculo-cardiac reflex causing bradyarrhythmias, longer post-operative recovery, nausea/vomiting and postoperative pain are some of the complications of general anesthesia.¹⁰

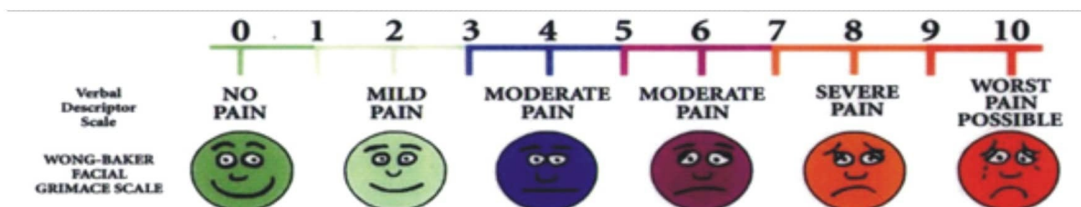
Local peribulbar anesthesia is routinely used for the anterior segment surgeries and has shown to be effective.^{11,12}

Material and Methods:

A total of 119 patients with rhegmatogenous retinal detachment were included in the study. All patients underwent peribulbar anesthesia of 5ml Bupivacaine 1%. The primary outcome measured was intraoperative patient's comfort level and was assessed by direct questioning and documenting on pain chart at different stages of surgery. Informed consent was taken. Patients 40 years and older were included in the study. Exclusion criteria included eyes with previous history of posterior segment surgeries, ocular inflammation, any allergies to lidocaine or bupivacaine or any problem with communication like deafness, language barrier or psychotic disorder.

All patients underwent complete ophthalmological examination including assessment of visual acuity, measurement of intraocular pressure by applanation tonometry, anterior segment slit lamp examination and posterior segment examination using slit lamp biomicroscope and indirect ophthalmoscopy for localization of the breaks and to assess extent of detachment.

In the operating room the peribulbar block was performed on each eye by the vitreo-retinal surgeon himself. 5ml of Bupivacaine 1% was administered using a 23 gauge sharp needle through the lower lid at the junction of medial 2/3rd and lateral 1/3rd of inferior orbital ri



Results:

The mean age of the patients undergoing scleral buckling procedure was 50 ± 5 years. 69 patients (57.9%) reported mild pain levels (1-3). 37 patients (31.09%) reported pain levels of 6 (moderate) while 13 (10.9%) patients reported severe pain. 05 (4.2%) patients needed supplemental intraoperative local anesthesia.

Patients who experienced additional pain during the procedure were given supplemental anesthesia. Supplemental anesthesia was administered either topically or into the sub-Tenon's capsule space. Supplemental anesthesia was required in 5 (4.2%) patients. None of the patient in the study required IV sedation.

Discussion:

Peribulbar block has its advantages and

disadvantages over GA. The main advantages of peribulbar block are easy to administer, cost effective as compared to GA, decreased incidence of oculocardiac reflex, rapid postoperative recovery, decreased incidence of post operative nausea/vomiting and pain that occurs usually with GA. In another study Snir et al¹³ evaluated the safety and efficacy of propofol sedation combined with subtenon anesthesia for strabismus surgery in 32 patients under general (n=16) or local (n=16) anesthesia. According to their results, the local anesthesia group had significantly shorter operative and anesthesia time, fewer episodes of OCR or arrhythmia/bradycardia requiring treatment, fewer early or late episodes of PONV, and less pain. This study showed the same results as ours in terms of OCR and PONV, however we observed no difference in terms of operation time.

Chhabra and colleagues¹⁴ studied the efficacy of



subtenon block for providing perioperative analgesia in 200 children undergoing vitreoretinal surgery. All subjects received either a subtenon block or 2 microgram/kg of intravenous fentanyl after induction of anesthesia in addition to instillation of proparacaine 0.5% drops on the conjunctiva. The incidence of OCR was significantly higher in the fentanyl group (31.6%) as compared to the subtenon block group (5.1%), but the incidence of PONV was similar. This study showed that subtenon block provides more effective analgesia than intravenous fentanyl in pediatric vitreoretinal surgery.

Gupta and colleagues¹⁵ randomly allocated 45 children with strabismus surgery to receive a peribulbar block, local lidocaine 2% combined with general anesthesia, or general anesthesia alone. Their results showed that the incidence and severity of the OCR was significantly reduced in children who received a peribulbar block. The incidence of PONV was significantly reduced in patients receiving peribulbar block or local anesthesia combined with general anesthesia as compared to general anesthesia alone. This study showed that peribulbar block is more effective than topical lidocaine 2% combined with general anesthesia in blunting the OCR but equally effective for reducing PONV; both of these methods were superior to general anesthesia alone.

In our study we did not find OCR in any patients and in most of the patients pain during surgery was mild to moderate.

Conclusion:

Local anesthesia with 5ml of peribulbar Bupivacaine 1% is effective in cases of scleral buckling in selected cases.

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