European Journal of Ophthalmology / Vol. 17 no. 6, 2007 / pp. 976-978

SHORT COMMUNICATION

Peribulbar tramadol, clonidine, and ropivacaine in blind and seeing painful eyes

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PURPOSE. *To report on the treatment of painful eyes by peribulbar injection of tramadol, clonidine, and ropivacaine.*
METHODS. *The authors treated a 72-year-old woman with chronic prephthisical pain in the left eye secondary to graft rejection after penetrating keratoplasty and an 81-year-old woman with severe ocular pain in her left eye for neovascular glaucoma secondary to an ischemic central vein occlusion. They were treated with a medial canthus injection of tramadol (100 mg/2 mL ampules), clonidine (0.15 mg/1 mL ampules), and 1% ropivacaine.*
RESULTS. *Both injections were very well tolerated and neither transient nor lasting complications were reported. Complete pain relief was obtained in both patients within 1 day and was maintained throughout the follow-up (11 months and 7 months).*
CONCLUSIONS. *Peribulbar tramadol, clonidine, and ropivacaine injection may represent a safe and effective treatment modality in the management of chronic ocular pain. (Eur J Ophthalmol 2007; 17: 976-8)*

KEY WORDS. *Chronic ocular pain, Peribulbar, Tramadol, Clonidine, Ropivacaine*

Accepted: July 18, 2007

INTRODUCTION

Managing chronically painful eyes may represent a difficult task. Although enucleation is often the ultimate treatment, many patients are reluctant to undergo this procedure and an alternative means of management should be available. Relief from pain for several weeks or longer in these patients can be achieved by the use of retrobulbar alcohol (1), chlorpromazine (2, 3), or phenol (4) injections, or by the use of intravitreal triamcinolone acetonide (5).
We evaluated an alternative treatment with the association of three different analgesic and anesthetic agents. Peribulbar injection of tramadol, clonidine, and ropivacaine for the treatment of painful eyes was performed in two patients after they had signed an informed consent. The study and data accumulation conformed to all the country's laws, and the study was in adherence to the tenets of the Declaration of Helsinki. IRB/Ethics Committee decided approval was not required for this study.

Case reports

Patient 1

A 72-year-old woman presented with a history of chronic prephthisical painful left eye secondary to graft rejection after penetrating keratoplasty. Best-corrected visual acuity was hand motion and slit-lamp examination revealed a band keratopathy with a central corneal erosion. She underwent amniotic membrane transplantation that was helpful for corneal erosion resolution but was not effective in alleviating discomfort and pain in the eye. Under topical anesthesia, the patient received a medial canthus injection of tramadol (100 mg/2 mL ampules), clonidine (0.15 mg/1 mL ampules), and 1% ropivacaine. The needle was inserted at the medial side of the caruncle, at the extreme medial side of the palpebral fissure, and directed at a 5° angle away from the sagittal plane toward the medial orbital wall. The deep peribulbar injection was performed

1120-6721/976-03$15.00/0

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using a 25-gauge 16-mm needle and the injectate comprised a mixture of 33.3 mg of tramadol, 0.05 mg of clonidine, and 35 mg of ropivacaine. The final volume of peribulbar injectate was 4.5 mL.

Patient 2

An 81-year-old woman had severe ocular pain in her left eye due to neovascular glaucoma secondary to an ischemic central vein occlusion. The eye was blind and presented rubeosis of the iris stroma and the angle with an intraocular pressure of 50 mm Hg. She underwent transscleral cryotherapy of the ischemic peripheral retina and cyclophotocoagulation under peribulbar anesthesia. Although over the next 3 months the intraocular pressure was controlled and regression of the anterior segment neovascularization was noticed, the patient continued to complain of ocular pain. Under topical anesthesia, a medial canthus injection of tramadol, clonidine, and 1% ropivacaine was performed using the same method and the same mixture of injectate described for Patient 1.

RESULTS

Both injections were very well tolerated and neither transient nor lasting complications were reported. Complete pain relief was obtained in both patients within a few days after injection until the time of last follow-up (11 months for Patient 1 and 7 months for Patient 2). Systolic and diastolic blood pressure (BP) measurements were collected before and after the procedures. No significant differences were noticed. BP values were slightly decreased and remained stable during the following days.

DISCUSSION

Tramadol, a synthetic analogue of codeine, derives its analgesic activity from opioid receptor activation and from altering of the norepinephrine and serotonin transmission in the central nervous system. Clonidine, an alpha 2-adrenergic drug, is effective in relieving hypersensitivity in neuritis as well as in peripheral nerve injury, suggesting that it may be effective to treat patients with chronic pain conditions due to nerve injury (6). The antinociceptive effect is associated with a reduction in proinflammatory agents. Moreover, perineural clonidine induces an anti-inflammatory immune response through an apoptotic mechanism (7). Ropivacaine is a long-acting local anesthetic agent, eliciting nerve block via reversible inhibition of sodium ion influx in nerve fibers.

Retrobulbar alcohol, phenol, or chlorpromazine injections have proved effective in alleviating ocular discomfort and pain. However, both the retrobulbar maneuver and the use of the cited drugs may cause a series of considerable transient complications such as sharp pain in the orbit and a dull occipital headache (1), chemosis of the conjunctiva (1, 2), proptosis of the globe (1), a partial paralysis of one or more of the extraocular muscles (1, 4), ptosis (1, 2, 4), neuroparalytic keratitis (1, 4), lid swelling (2, 3), hyphema (3), increased intraocular pressure (3), and nausea and vomiting with a brief loss of consciousness (3). More serious permanent complications are central retinal artery occlusion (1), optic nerve damage (1), permanent external ophthalmoplegia (1, 4), phthisis (2), and decreased vision (3). Retrobulbar injection is also associated with a higher incidence of globe perforation as compared to peribulbar injection.

The relief of ocular pain experienced by our patients may be due to a combination of the above mentioned mechanisms: a prompt peripheral action modulated by a local anesthetic effect of ropivacaine, the anti-inflammatory activity of clonidine, and the analgesic action of tramadol; or a central action secondary to the perineural transportation of clonidine and tramadol that acts on the second order sensory neuron and blocks the nociceptive transmission.

To our knowledge, this is the first report on the use of peribulbar tramadol, clonidine, and ropivacaine in painful eyes. The robust and sustained relief of ocular pain experienced by our patients together with the well tolerated procedure without complications suggest the potential use of this treatment modality in the management of chronic ocular pain.

Funding/support: none. Financial disclosures: None.

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