

Sir,
Cooling tetracaine to reduce pain of instillation before surgery

Tetracaine is one of the most common agents that are used for analgesia in the eyes. However, instillation of tetracaine is accompanied by ocular pain and a burning sensation.^{1,2} It has been suggested that warming the local anesthetic agent before injection may reduce the injection pain of these drugs;¹ however, there is controversy in this regard.² Our study aimed at evaluating the effect of cold tetracaine drop on post-instillation ocular pain and burning sensation in patients undergoing phacoemulsification.

This randomized controlled trial was carried out on 60 patients aged 50–70 years who underwent phacoemulsification at Farabi hospital during 2006. Exclusion criteria were an earlier history of ophthalmic surgery and addiction to opioids. Patients were randomly allocated into two groups of cold (case) and warm (control) tetracaine eye drops. In the case group, the tetracaine drop was preserved in the refrigerator (4 °C) whereas in another group, the drops were at room temperature (25 °C). The volunteers received two drops of tetracaine before surgery at a 5 min interval. Immediately after administration of the first drop, a physician, who was blinded to the temperature of the administered drop, evaluated the patients with regard to the burning sensation using a visual analogue scale (VAS). For this purpose, a ruler scaled 0 (no pain) to 10 (the most severe pain that has ever been experienced) was used, and the patients were asked to show the severity of their pain on the ruler. Then, as premedication, 0.5–1 mg midazolam was administered to all patients and phacoemulsification was carried out.

Baseline characteristics of the patients have been shown in Table 1. The mean burning score, as measured by VAS, was significantly lower in the case group than in the control group immediately after instillation of drops (Table 1, Figure 1).

Comments

In earlier studies, it has been shown that cooling the site of the local anesthetic injection results in a reduction in post-injection pain.^{3,4} Similar to our study, Li *et al.*,⁵ showed that cooling the tetracaine eye drop results in reducing the ocular burning sensation during instillation. Although most of his cases reported less pain with cold tetracaine, 9% noted significantly more discomfort with cold tetracaine. But they enrolled only healthy

Table 1 Comparison of demographics and mean burning score between two groups.

	Cold tetracaine	Warm tetracaine	P value
Age (years)	60.9 ± 6.6	62.7 ± 5.9	0.28 ^a
Sex (male)	53.3%	56.7%	0.99 ^b
Burning score (VAS)	1.68 ± 0.88	3.55 ± 1.75	0.001 ^a

Abbreviation: VAS=visual analogue scale.

^aIndependent t-test.

^bχ²-test.

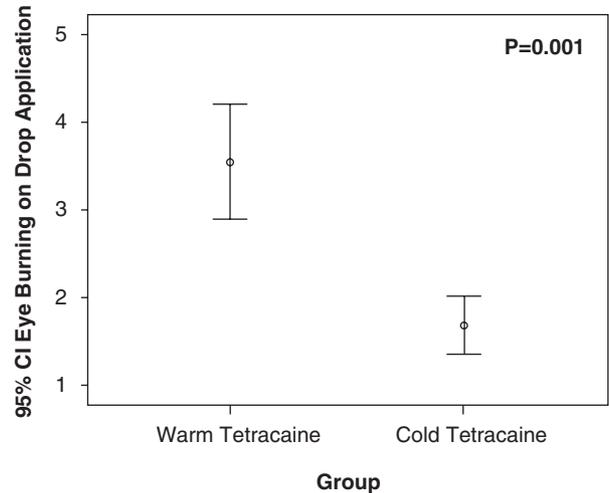


Figure 1 Burning sensation in cold and warm tetracaine ($P < 0.05$).

volunteers, and their findings might not be generalizable to the patient population.

Our results showed that cooling tetracaine reduces the pain on instillation of topical anesthesia in patients undergoing phacoemulsification.

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The study was approved by ethical committee of human research of Tehran University of Medical Sciences. All patients signed an informed consent before enrollment in the study.

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