

exposure to chlorhexidine frequently results in allergic contact dermatitis.¹² Additionally, government warnings over the past decades have highlighted the risk of allergic reactions to chlorhexidine on mucosal surfaces or in medical devices. In a survey conducted by Rose et al.,¹³ 13 clinics reported 252 cases of perioperative anaphylaxis to chlorhexidine across various surgical procedures. Finally, octenidine might be an ideal alternative to PVI-based disinfectants and improve patient comfort.¹⁴ Matiassek et al. have shown that the use of octenidine (0.1% octenidine) for upper eyelid blepharoplasty has led to no wound infection in 699 blepharoplasties (352 patients).⁷

The choice of optimal disinfectant solutions for blepharoplasty is still to be established. The effectiveness of PVI, chlorhexidine, and octenidine has been shown in currently published studies. Topical analgesia should be considered to prevent ocular irritation, irrespective of the agent used.

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Even Patients Who Respond Poorly to the Phenylephrine Test Can Benefit From Topical Oxymetazoline for Temporary Eyelid Ptosis Management

To the Editor:

Topical oxymetazoline 0.1% was recently approved in the United States for temporary management of acquired blepharoptosis. Although studies have shown its use as an option for temporarily treating eyelid ptosis,^{1,2} no previous studies assessed the improvement in eyelid ptosis obtained with this drug compared to the response to the phenylephrine test.

The purpose of this preliminary study was to compare the marginal reflex distance 1 in patients with aponeurotic ptosis before and after the instillation of oxymetazoline 0.1% and phenylephrine 2.5% eye drops.

This study was approved by the Federal University of São Paulo Institutional Review Board and adhered to the ethical principles outlined in the Declaration of Helsinki. Written informed consents were obtained from all the participants. Patients with acquired aponeurotic ptosis were included in this study. The exclusion criteria included patients with other types of eyelid ptosis, those who had undergone prior surgical blepharoptosis correction, allergies, or known contraindications to oxymetazoline or phenylephrine, those with a shallow anterior chamber, patients requiring topical ocular medications or surgery for eye conditions, pregnant or nursing women, and individuals under 18 years of age.

Standardized photographs were obtained before and 15 minutes after the instillation of 1 drop of phenylephrine 2.5% (EyePharma, São Paulo, Brazil) and oxymetazoline 0.1% (EyePharma, São Paulo, Brazil). Evaluations with each drug were conducted at 7-day intervals. The patients received 1 medication in both eyes once and, then 7 days later, received the other medication in both eyes. The order of medication was randomized. Marginal reflex distance 1 was obtained using Image J software (National Institutes of Health, Bethesda, MD). Three measurements were obtained, and the mean of these measurements was used for analysis. Patients were also clinically evaluated for eyelid position at 120 minutes.

The response to the oxymetazoline 0.1% and phenylephrine 2.5% eye drops was classified as negative when the increase in the marginal reflex distance 1 post-eyedrop was <0.5 mm or positive when the increase was ≥0.5 mm. Statistical analysis was performed using the Wilcoxon test.

Twenty-six eyes from 13 patients (11 women and 2 men) were analyzed. The mean age of the patients was 70.0±8.2 years. At 15 minutes, a greater magnitude ($P = 0.008$) in the increase of marginal reflex distance 1 was observed after instillation of oxymetazoline 0.1% (pre, 1.56±1.18 mm; post, 2.72±1.56 mm; $P < 0.0001$) compared to phenylephrine 2.5% (pre, 1.56±1.18 mm; post, 2.35±1.45 mm; $P = 0.0003$; Fig. 1). Additionally, a better response rate to oxymetazoline 0.1% (77%) was observed compared to phenylephrine 2.5% (54%). Half of the eyes that did not respond to phenylephrine responded to oxymetazoline.

At 120 minutes, a loss of response to phenylephrine 2.5% was observed in eyes that had a positive response. In contrast, eyes that had a positive response to oxymetazoline 0.1% maintained the response after 120 minutes (Fig. 2). No adverse effects (either immediate or over the ensuing 7 days) were noted for either drug, except for mydriasis with phenylephrine.

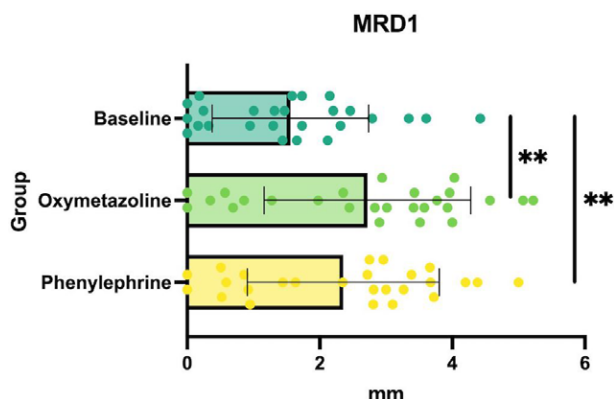


FIG. 1. Comparison between marginal reflex distance 1 measurements obtained before and 15 minutes after the instillation of oxymetazoline 0.1% and phenylephrine 2.5%. Instillation of both eye drops resulted in a significant increase in the marginal reflex distance 1, but the increase was significantly greater after oxymetazoline 0.1%.



FIG. 2. Top: Before, 15 and 120 minutes after instillation of phenylephrine 2.5%. Improvement in marginal reflex distance 1 is observed at 15 minutes, with subsequent loss of effect and presence of mydriasis after 120 minutes. Bottom: Before and 15 and 120 minutes after the instillation of oxymetazoline 0.1%. Improvement in marginal reflex distance 1 can be noted at 15 and 120 minutes.

In our study, the treatment of eyelid ptosis with topical oxymetazoline 0.1% resulted in a more pronounced improvement in eyelid droop and showed a higher response rate than obtained with phenylephrine 2.5%. This suggests that even patients with a poor response to the phenylephrine test could benefit from the use of oxymetazoline 0.1% for temporary treatment of eyelid ptosis. In addition, oculoplastic surgeons might consider keeping oxymetazoline in the office to better assess whether patients would be candidates for medical treatment or prescription of this medication for their blepharoptosis.

We did not find previous studies in the literature reporting a greater magnitude in the improvement of eyelid ptosis after the use of oxymetazoline 0.1% compared to the results predicted by the phenylephrine test. Phenylephrine is a selective alpha-1 adrenergic agonist, while oxymetazoline is a full alpha-2 agonist and a partial alpha-1 agonist, with an approximately 5-fold greater affinity for alpha-2.³ The in vivo pharmacology of oxymetazoline remains to be fully elucidated; however, it is possible that the receptor selectivity may contribute to the observed difference in effect seen in the present study. Further studies with a greater number of patients and evaluating topical oxymetazoline durability and tolerability are required.

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Enhancing Patient Education Prior to Orbital Surgery Through Virtual Reality

To the Editor:

Virtual reality (VR) technology can enhance patient communication and understanding in the preoperative setting, resulting in increased patient compliance and satisfaction.¹ VR is a computer-generated three-dimensional (3D) simulation in which users can interact in real time. As VR technology continues to advance and becomes more accessible, it is being increasingly utilized in various aspects of health care, including student education, surgical training, preoperative planning, and patient counseling.^{2–5} VR has proven to be an effective tool for perioperative patient education in many surgical and procedural specialties, such as neurosurgery, urology, surgical oncology, cardiology, and gastroenterology, compared with usual care.¹ However, evidence for VR use in preoperative patient education for oculoplastic surgery remains limited. Here, we share results from our pilot study on using VR to educate patients about their orbital conditions before surgery.

Using Food and Drug Administration-cleared and Health Insurance Portability and Accountability Act-compliant ImmersiveTouch VR-planning software (Chicago, IL, USA), personalized 3D models were created from 1 to 5 mm MRI and CT image slices. Thinner slices provided higher 3D resolution. The VR models included the bony skull, optic nerves, extraocular muscles, and patient-specific pathologies (Fig. 1). In our pilot study, 5 patients interacted with their personalized models using an Oculus VR headset (Menlo Park, CA, USA) under the guidance of an oculoplastic surgeon. Patients rated their understanding of their condition and treatment plan on a 5-point Likert scale after being counseled with their MRI and CT images and after the VR experience. Paired *t* tests were used to compare pre- and post-VR Likert scale scores.

Five female patients (mean age: 38 years, range: 24–78) with varying educational levels (60%, 3/5 having some college