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CORRESPONDENCE

Good Study Design, but Flawed Conclusion in Emergency Department Tetracaine Use

To the Editor:

Thank you to Waldman and colleagues for presenting the results of their well-constructed double-blind randomized clinical trial on the use of tetracaine versus saline for the treatment of simple corneal abrasions at a single-center New Zealand emergency department (ED).[1] We applaud this non–industry-sponsored study in achieving 100% follow-up of all 116 enrolled ED patients.

One of the main purposes of the study was to establish the safety of using short-term tetracaine in patients who present to an ED with simple corneal abrasions. We strongly disagree with the stated conclusion that topical tetracaine is safe for the treatment of corneal abrasions, especially in an ED setting where patients may be misdiagnosed and/or may not follow up with an eye care professional.

In a U.S. ED, patients are triaged using the Emergency Severity Index (ESI); ESI level 1 is a patient in cardiac arrest and ESI level 5 is a suture removal. Most eye complaints are triaged as ESI levels 4 or 5. Many board-certified emergency physicians are well trained in examining the acute red eye. Unfortunately, as the nationwide ED census continues to climb, less acute patients are often examined by practitioners who may not be as experienced or trained in the subtleties of the slit-lamp examination. Patients with corneal ulcers, lacerations, and other threatening eye conditions may be misdiagnosed as having simple corneal abrasions and with the use of topical tetracaine will delay follow-up with eye care professionals. This delay can result in consequences that threaten patients' vision. For example, in this well-supervised study, one patient with a partial-thickness corneal laceration was originally misdiagnosed as having a simple abrasion. Fortunately, it appears that there was no adverse consequence to the misdiagnosis.

After their ED visits, many patients do not follow up with their established providers.[2] How can we assume that our patients will only use the topical anesthetic for 24 to 48 hours and will subsequently be evaluated by eye care providers? Even Waldman et al. reported that they had a difficult time enrolling enough subjects in their study due to the necessity for 48-hour follow-up.

Additionally, we do not feel that the results in this study justify the stated conclusion that tetracaine is effective. The paper shows near-identical pain scores over the first 48 hours on the visual analog pain scale.[1] This result suggests that tetracaine is in fact *not* effective at reducing pain and that oral acetaminophen, which all patients received, was sufficient. It appears that the results at most justify the use of oral analgesic alone and definitely not the concomitant use of topical tetracaine.

In conclusion, we respectfully disagree with the authors' conclusions. Given the inherent pitfalls of treating suspected corneal abrasions in the absence of reliable ophthalmologic follow-up, and the fact that oral analgesics are well proven to be both safe and effective, we do not feel that topical tetracaine is appropriate in this setting. As noted in the original article, used inappropriately, a topical anesthetic in the hands of some of our patients can result in epithelial toxicity, poor healing, and visual loss.[3–5] The burden of safe and appropriate initial treatment lies on the ED provider. Shouldn't we "first do no harm"?

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