

# Treating Pain After Corneal Surface Ablation

Rizatriptan may aid in controlling pain mediated by the trigeminal nerve.

**BY SUPHI TANERI, MD**

**P**ain can be a major drawback of corneal surface ablation procedures like phototherapeutic keratectomy (PTK), PRK, and LASEK. Mechanical epithelial separation in epi-LASIK may be less troubling to patients, and multiple pre- and postoperative regimens combined with intraoperative cooling of the cornea have been suggested for pain control. Still, there may be unlucky patients who have a disabling pain sensation refractory to classical pain medication.

Our current postoperative protocol includes as-needed oral metamizole (Novaminsulfon; Lichtenstein Pharmazeutika, Furstenfeldbruck, Germany) for pain control as well as other oral analgesics. We have encountered patients, however, who still complain about intolerable pain on the first postoperative day.

## CASE STUDY

One such patient experienced severe pain after uneventful LASEK (performed 6 months after complicated cataract extraction and anterior chamber lens implantation) in his right eye to correct an iatrogenic hyperopic cylinder. Shortly after LASEK, this patient also developed a migraine headache and took a single tablet of rizatriptan (Maxalt; Merck & Co., Whitehouse Station, New Jersey), as prescribed by his neurologist. The next day, the patient reported that both the migraine and corneal pain ceased.

Looking at the literature,<sup>1-4</sup> we found solid evidence that rizatriptan, a medication approved specifically for migraine headaches in adults, may control pain mediated by the trigeminal nerve after corneal surface ablation. Therapeutic indications for the use of rizatriptan are currently limited to the acute treatment of the headache phase of migraine attacks with or without aura. Contraindications for the use of rizatriptan include, but are not limited to:

- Hypersensitivity to rizatriptan or any of its ingredients;

## TAKE-HOME MESSAGE

- Dr. Taneri's current postoperative protocol includes oral metamizole drops and other oral analgesics.
- Rizatriptan may be beneficial in controlling pain after surface ablation.
- Be aware of the contraindications for rizatriptan use.
- All treated patients who used rizatriptan in a pilot trial felt some relief for 6 to 24 hours after injection of the medication.

- Concurrent administration of monoamine oxidase (MAO) inhibitors or use within 2 weeks of discontinuation of MAO inhibitor therapy;
- Patients with a previous cerebrovascular accident, transient ischemic attack, or severe hepatic or renal insufficiency;
- Moderately severe to severe hypertension or untreated mild hypertension;
- Established coronary artery disease, including ischemic heart disease (angina pectoris, history of myocardial infarction, or documented silent ischemia), signs and symptoms of ischemic heart disease, or Prinzmetal's angina;
- Peripheral vascular disease; and
- Concomitant use of rizatriptan and ergotamine, ergotamine derivatives (eg, methysergide), or other 5-hydroxytryptamine receptor agonists.

## MECHANISM OF ACTION OF RIZATRIPTAN

Current theories on the etiology of migraine headache suggest that symptoms are due to local cranial vasodilation and/or the release of vasoactive and proinflammatory peptides from sensory nerve endings in an activated trigeminal

system. The therapeutic activity of rizatriptan in migraine can most likely be attributed to agonist effects at 5-hydroxytryptamine receptors on the extracerebral, intracranial blood vessels that become dilated during a migraine attack and on nerve terminals in the trigeminal system. Activation of these receptors results in cranial vessel constriction, inhibition of neuropeptide release, and reduced transmission in trigeminal pain pathways. As the pain perception at the cornea after excimer laser surface ablation is also transmitted by the trigeminal nerve and other triptans, which had successfully been used for corneal pain,<sup>1,2</sup> the application of rizatriptan seemed worth a therapeutic trial.

We began prescribing one tablet of rizatriptan (10 mg) to patients with severe pain on the first postoperative day after corneal surface ablation in addition to oral metamizole and oral NSAIDs. To date, we have studied 25 patients with severe pain on the first postoperative day in an interventional case series. All patients underwent uneventful surface ablation for the treatment and correction of recurrent erosions or superficial opacities (ie, PTK), residual ametropia after previous surface ablation (ie, PRK), or natural ametropia (LASEK). These patients were given one tablet of rizatriptan every 12 hours in our therapeutic trial.

All patients with severe ocular pain (refractory to metamizole and oral analgesics previously used by the patient for treating headaches) reported at least some benefit from a single dose of rizatriptan for 6 to 24 hours. Many had no pain sensation for several hours, although some patients complained of dizziness.

Unlike in a double-blinded study, we cannot estimate the placebo effect in our therapeutic trial. Still, we believe that rizatriptan may be beneficial in controlling pain mediated by the trigeminal nerve after corneal surface ablation or traumatic abrasion. The time of application may play a significant role, as is known from classic analgesics.

Additional prospective controlled studies are mandatory to evaluate risks, benefits, and side effects of this therapeutic agent for the management of corneal pain. Unfortunately, we do not know of any such plans. ■

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