

Reference

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Mitomycin C in Highly Myopic Eyes

Dear Editor:

We read with interest Gambato et al’s article,¹ which states that topical intraoperative application of 0.02% mitomycin C can reduce haze formation in highly myopic eyes undergoing photorefractive keratectomy (PRK). These findings, in combination with other recently published articles, enhance the refractive community’s interest in surface ablations. Due to the increased possible side effects of mitomycin C use, we believe that future authors of similar articles must be extremely careful with experimental design, data analysis, and interpretation of findings.

In the current study, the authors did not mention anything about tear function, except that there were no tear film problems. In several articles,² and with the accumulated experience with the use of mitomycin as an adjuvant treatment in pterygium and glaucoma surgery, it seems that mitomycin used on an ablated cornea may cause reduced corneal sensitivity and alterations in conjunctival epithelium and goblet cells (during mitomycin removal with balanced salt solution irrigation), having as a result increased dryness, which could be made worse by PRK.³ Measurements of fluorescein and rose bengal staining on the cornea and conjunctiva, breakup time of tear film, the Schirmer test, and corneal sensitivity after the use of mitomycin should be included in future similar studies.

An important omission is that, even though the authors report that intraocular pressure (IOP) measurements were performed, no data were given in “Results.” An increased risk of mitomycin penetration in intraocular structures (such as the ciliary body) after topical application without filtering procedures has been demonstrated.⁴ In addition, the application of adjuvant mitomycin in post-PRK eyes, especially in thin corneas (unsuitable for LASIK) after high stromal ablations and without the barrier of epithelium and Bowman’s membrane, may increase the possibility of mitomycin C intraocular penetration. Experimental studies are needed to elucidate these possible mitomycin C side effects.

In conclusion, even though all these measurements (tear function, IOP, and intraocular mitomycin C penetration) are beyond the stated scope of this article, future similar studies must include these parameters to come to sufficient conclusions about the safety and efficacy of mitomycin C after PRK.

GEORGE D. KYMIONIS, MD, PhD
IOANNIS G. PALLIKARIS, MD, PhD
Crete, Greece

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Author reply

Dear Editor:

We read with interest Kymionis and Pallikaris’s letter, which suggests that clinicians should be extremely careful about prophylactic use of mitomycin C use during refractive surgery.

Numerous authors have reported anecdotally major and minor complications of topical use of mitomycin C for different ocular diseases and ocular surface conditions.^{1,2} Mitomycin C has been used directly over the bare sclera or limbal area,² whereas during mitomycin C application after photorefractive keratectomy (PRK), just the central avascular cornea is in direct contact with the drug. Moreover, topical use of mitomycin C in previous reports not dealing with PRK procedures was done with a different and higher mitomycin C dosage.^{3,4} More recent studies confirm that mitomycin C is apparently safe for the cornea and sclera, when used even for the treatment of pterygium or corneal intraepithelial neoplasia.^{5,6}

In our experience (not limited to the patients reported in our study), we have not observed a different rate of symptoms or signs of tear film deficiency after PRK—in patients with normal tear function at baseline—when intraoperative mitomycin C was used.⁶ Corneal reinnervation seems not to be modified by mitomycin C application, as documented by corneal confocal microscopy (Gambato et al., unpublished data).

We agree with the letter writers that long-term studies are mandatory when dealing with antimetabolite drugs. For this reason, all our patients undergoing prophylactic use of mitomycin C after PRK are being observed carefully.

CATIA GAMBATO, MD
EDOARDO MIDENA, MD
Padova, Italy

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