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LASEK REFRACTIVE SURGERY AFTER CORNEAL TRANSPLANTATION WITH AND WITHOUT INTRAOPERATIVE MITOMYCIN-C

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INTRODUCTION

Refractive error after corneal transplantation (PK) can limit visual rehabilitation [1, 2]. Excimer laser techniques, specifically photorefractive keratectomy (PRK), laser in situ keratomileusis (LASIK) and laser assisted subepithelial keratectomy (LASEK), have proven effective in correcting post-keratoplasty astigmatism [3]. LASEK has demonstrated faster rehabilitation and less pain compared to PRK, and no stromal flap complications as compared to LASIK, and is often the treatment of choice post-PK [4, 5]. Laser procedures often result in corneal opacity, or 'haze', which can compromise corneal transparency and surface regularity [6]. Recently, the anti-proliferative drug mitomycin-C has been used intraoperatively to prevent haze formation. To date, there are no studies assessing the effectiveness of MMC in refractive surgery-induced haze post-PK.The purpose of this study was to investigate visual outcomes and haze formation following LASEK surgery with and without the intraoperative use of MMC in PK patients.

METHODS

This retrospective analysis reviewed the outcomes of patients who had PK and subsequent excimer laser refractive procedure in a nonhospital surgical facility with follow-up in a private practice in Calgary, Alberta. This study comprised 95 eyes of 84 patients. The mean patient age at treatment was 56 years. There were 50 patients (58 eyes) who received LASEK without MMC (NOMMC) and 34 patients (37 eyes) who received LASEK with MMC (MMC).

RESULTS

At last follow-up (average 11.48 months post-op), the mean spherical equivalence (SE) decreased from -2.84 D ± 3.98 to -0.41 D ± 3.41 in the NOMMC group and -2.19 D ± 4.85 to -0.40 D ± 1.88 in the MMC group**.** Preoperative uncorrected distance visual acuity (UDVA) was 1.56 ± 0.57 (n = 57) and 1.27 ± 0.55 (n = 28), respectively and postoperative UDVA, 0.91 ± 0.58 (n = 57) and 0.81 ± 0.53 (n = 33). SE and UDVA improved significantly for both groups, $p < .01$. There was no significant difference in SE or UDVA between groups at last follow-up, $p > .05$. 15 patients in the NOMMC group and no patients in the MMC group required post-operative treatment for haze. 23 and 4 required laser enhancement treatment, respectively. As seen in Figure 1, there was a significant difference between post-operative haze (0 to 3 scale) at last follow-up in the NOMMC group (M = 0.64, SD = 0.86), and in the MMC group (M = 0.03, SD = 0.12), $p < .01$.

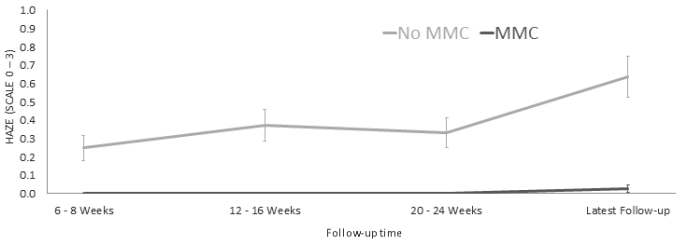

Figure 1. Post-operative haze at different times of follow-up.

DISCUSSION AND CONCLUSIONS

The significant difference in SE and UDVA pre- to post-operatively for both groups suggests that LASEK with or without mitomycin-C is a viable and successful treatment solution to myopia and astigmatism post-PK. The significant difference in post-operative haze at last follow-up between the two groups suggests that LASEK with MMC post-PK may effectively reduce the incidence of haze as compared to LASEK without. Larger, prospective randomized trials are needed to further assess the efficiency of MMC in reducing laser induced haze following corneal transplantation.

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