

At Issue: custom corneal ablations

Q: *At Issue* posed the following question to a panel of experts: "Have custom corneal ablations improved LASIK results?"

A: **Optimistic but marginal improvement**

Noel Alpins MD, FACS: Customized corneal ablations have recently been brought to notice with the highly publicized advent of wavefront technology. In practice most treatments using the LASIK procedure can already be "customized" or tailored to the individual patient's parameters in order to obtain enhanced outcomes. Scrutinizing recent results employing preoperative wavefront analysis shows optimistic but marginal improvement, difficult to differentiate from the normal biological spread of outcomes that occur in refractive procedures.

An important consideration preceding all refractive surgery is the question of what measurement modality to employ as a basis for treatment. The answer becomes more complicated when astigmatism is involved, with the difficulty compounded by the commonly occurring difference that exists between the eye's refractive and topographical properties. Emphasizing one aspect in excess of another introduces the potential for a suboptimal visual outcome. Improved results can predictably be obtained when both refractive and topographical parameters are integrated in the one treatment process.

Noel Alpins, MD, FACS, can be reached at 7 Chesterville Rd., Cheltenham, VIC 3192, Australia; 61) 3-9584-6122; fax: 61) 3-9585-0995; e-mail: alpins@newvisionclinics.com.au.



Vector planning customizes these two individual characteristics by apportioning how much each should influence the treatment. This technique is valuable for symmetrical treatments, currently the most commonly performed for both hyperopic and myopic astigmatism. This could readily be extended to asymmetrical treatments where naturally occurring irregularity is present.

LASIK and photorefractive keratectomy (PRK) procedures are now capable of treating irregularities in corneal shape. Such customized topographically driven ablations have demonstrated improved best-corrected visual acuity (BCVA) of patients debilitated by the symptoms associated with this uncommon form of irregular astigmatism.

Wavefront-guided refractive treatment primarily addresses the aspect of visual degradation and aberrations secondary to spherical and astigmatic error. Its potential is promising in the reduction of spherical aberration with the maintenance of a cornea closer to the ideal prolate shape. This will assist the reduction of untoward symptoms of halos and ghosting, particularly associated with night vision. The benefits in the treatment of wavefront-observed aberrations associated with astigmatism are less clear, considering the likelihood exists that excess to the minimum corneal astigmatism remains on an uneven corneal surface after treatment. **OSN**