



W Bruce Jackson

LASEK and Epi-LASIK both deemed safe and effective

Dermot McGrath
in Stockholm

A HEAD-TO-HEAD study of LASEK and Epi-LASIK epithelial removal techniques found that both approaches offer similar quality of vision after one year and provide a safe and effective means to treat low to moderate myopia and astigmatism, according to W Bruce Jackson MD.

“We concluded that the microkeratome or alcohol assisted epithelial removal techniques are both safe, with excellent visual and refractive results,” said Dr Jackson, professor and chair University of Ottawa Eye Institute, Canada.

Addressing delegates attending the XXV Congress of the ESCRS, Dr Jackson noted the resurgence of interest in surface ablation procedures in recent years as new techniques have emerged.

“When LASEK was introduced it was thought to lead to faster visual recovery than PRK, with less postoperative pain and haze. Then new microkeratomes were introduced which allowed us to avoid the use of alcohol and led to faster epithelial removal, smoother flap edges and an intact basement membrane with attached epithelial cells. We wanted to assess both techniques and establish if there was an advantage using one approach over another,” he said.

Dr Jackson's study included 229 eyes that underwent wavefront-guided LASEK using the Visx STAR S4 excimer laser and 163 eyes that underwent Epi-LASIK using the

Gebauer EpiVision system. The mean manifest spherical equivalent in the LASEK group was -3.98 D (range -1.0 D to -7.0 D) and -4.07 D (range -1.0 D to -7.0 D) in the Epi-LASIK group. All patients had the epithelial flap replaced at the end of surgery and were followed for up to one year.

Dr Jackson noted that mitomycin-C (0.02 per cent) was used for 15 seconds for ablations more than 80 µm in depth or for cylinder corrections greater than 2.0 D.

Although there was some small variation in spherical equivalent and predictability between the two approaches at various time points, Dr Jackson said that the overall data showed no clear advantage for one technique over another.

“We concluded that Epi-LASIK and LASEK are both safe and effective surface ablation techniques. We experienced no serious complications for either group. There was a very slight trend towards better visual acuity results with the LASEK patients, but there was no real difference in terms of postoperative pain and healing time. The patients' vision typically takes about six months to stabilise,” he said.

Dr Jackson added that he would advise LASIK surgeons interested in performing surface ablations to begin with Epi-LASIK. “It is a technique that will seem more familiar to them and entails less of a learning curve. LASEK remains useful for older patients where you might not want to use a microkeratome, where there is underlying retinal pathology or where you might want

to create a large flap.”

Dr Jackson and his co-researchers also investigated the role played by the flap in the visual outcomes of LASEK and Epi-LASIK procedures.

“We wanted to establish if removing the flap makes any difference to the outcomes and we certainly found that the epithelial healing with the flap removed is faster than with the flap left in place,” he said.

Patients were sub-divided into four groups: Epi-LASIK with flap on and flap off, and alcohol-assisted epithelial removal with flap on and flap off.

Looking at the data for patients who attained 20/15 uncorrected visual acuity, Dr Jackson noted that those in the alcohol-assisted removal group with flap removed had the poorest visual quality at each of the respective time points. However, there was no statistically significant difference between the Epi-LASIK groups, with or without flap, at the 20/15 level.

Best-corrected visual acuity and predictability was also similar in all techniques, and there were no significant problems with haze, noted Dr Jackson.

“Haze was not a factor at all time points and for all the different techniques. This is probably partly due to using cold BSS and mitomycin-C for the higher refractive treatments and the quality of the laser ablations today,” he said.

Dr Jackson noted that the study had shown very similar visual and refractive outcomes for Epi-LASIK using a

microkeratome with or without a flap. “At the moment, our preference is to perform Epi-LASIK with the flap off, except in those patients who are older or those with any retinal pathology, in which case we will use the alcohol-assisted approach to remove the epithelium. If you do put the flap on, it is interesting that the trend for slightly better vision favours the alcohol creation of the flap, rather than Epi-LASIK. If we remove the flap, then the microkeratome seems to have a slight advantage over the alcohol-assisted removal. We also found that epithelial healing and speed of visual recovery were improved with the flap removed. However, we could find no real difference in pain or haze and we did not have any serious complications with either method,” he concluded.

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