



Corneal cross-linking with femtosecond laser gives good results, comfortable recovery

BERLIN — Femtosecond-assisted corneal cross linking allows for good results and comfortable recovery without removal of the epithelium, a surgeon said here.

Corneal cross-linking with Intralase (Advanced Medical Optics) allows adequate riboflavin absorption and UV light delivery without epithelial removal, thus avoiding pain, corneal scars, epithelial defects and keratitis, according to Elias F. Jarade, MD.

The Intralase is used to perform a "Spiral Pattern," consisting of a corneal flap with a hinge of 345° and 30° side cut angle.

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"This is more or less the inverse cut-hinge proportion of a normal LASIK flap. A 20 g intravenous catheter is introduced through the cut to inject riboflavin. This technique allows a better stromal diffusion and quicker absorption of the photosensitizing agent, without leakage and dispersion. You can use less riboflavin and less UV light. Patients experience a faster, uneventful recovery, without any pain," Dr. Jarade said at the European Society of Cataract and Refractive Surgery meeting here.

The difference in patient comfort is comparable to PRK vs. LASIK, he noted.

An additional advantage of not removing the epithelium is that corneal biomechanics are not affected, helping corneal restructuring.

PERSPECTIVE

Intrastromal delivering of riboflavin in corneal collagen cross-linking may be considered if the femtosecond laser is used. There would certainly be the advantage of reducing the pain and corneal scars related to epithelial removal.

The clinical application of this technique, however, would require the appropriate evaluation process. We have now well-established parameters for cross-linking, which were designed following the extensive experimental studies led by Theo Seiler, MD, PhD, and Eberhard Spoerl, PhD. New delivering procedures may modify these parameters and would benefit from further experimental investigations to evaluate the biomechanical effects and the potential damage to the ocular tissue. There is, in fact, a possibility that the lamellar cut of the intracorneal pocket might increase visual disturbances from high-order aberrations and affect the structural integrity, biomechanical stability and optical properties of a keratoconic cornea.

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