

Femtosecond laser finds new role for assisting cornea collagen cross-linking

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Creation of a pocket for intracorneal riboflavin instillation using the femtosecond laser (IntraLase, Advanced Medical Optics) appears to be a safe and effective method for assisting cornea collagen cross-linking, said A. John Kanellopoulos, MD, at Refractive Surgery Subspecialty Day.

The technique, which Dr. Kanellopoulos has dubbed the "i-cornea tan," involves use of the laser to cut a 7-mm pocket at 100 μm corneal depth with a side cut of just 5 degrees. Then an air cannula is introduced into the pocket to instill the riboflavin 0.1% solution prior to UVA irradiation.

Dr. Kanellopoulos, medical director, Laservision Institute, Athens, Greece, reported using this procedure in 10 keratoconic eyes. Outcomes for mean reduction in keratometry and sphere achieved were comparable to those observed in eyes treated with the standard crosslinking technique. However, the new procedure was much more comfortable and associated with more rapid visual rehabilitation, he said. Endothelial cell counts were unchanged, and Dr. Kanellopoulos pointed out that the pocket creation does not have any adverse biomechanical effect on the cornea due to the minimal side cut.

"This technique provides a method for targeted delivery of riboflavin into the cornea at the depths where it is needed for crosslinking, and has several other advantages for the patient. Our initial experience must be validated with further studies and longer follow-up," Dr. Kanellopoulos said. "However, we believe this method has the potential to become the paradigm for preventing corneal transplantation in eyes with corneal ectasia."