Regenerative medicine speeds healing of eye tissue following surgery

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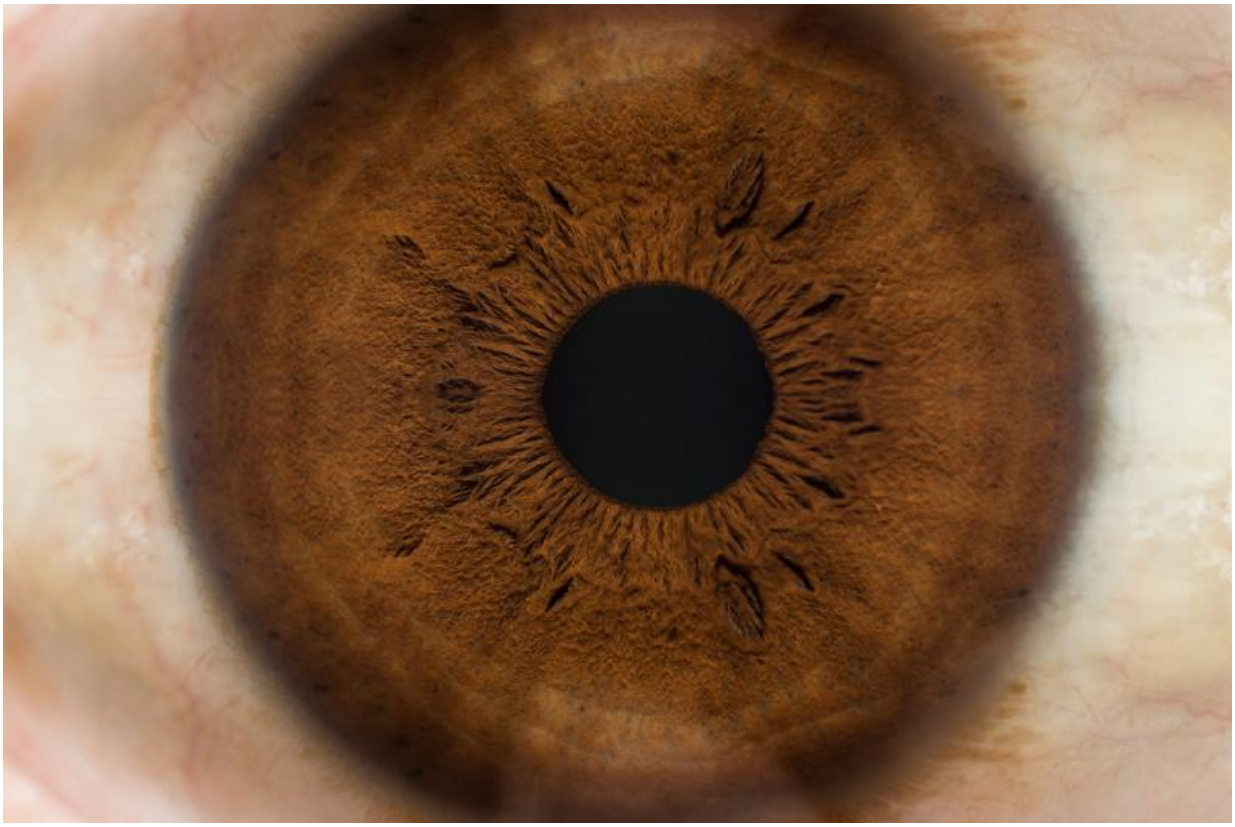

A brown eye. Credit: American Academy of Ophthalmology

A new regenerative medicine can heal the front of the eye in as little as two days after surgery by stimulating faster tissue repair, according to a new study. The drug also appears to relieve eye pain, burning, and light

sensitivity following surgery. These findings by researchers in Turkey are being presented today at AAO 2015, the 119th annual meeting of the American Academy of Ophthalmology. The results suggest that this compound could help millions of patients who undergo corneal transplants and refractive surgery each year heal faster with less discomfort.

In this study, researchers tested a regenerative agent, Cacicol, on patients who had surgery to treat keratoconus. This rare condition causes the cornea at the front of the eye to bulge and distort vision. Ophthalmologists - physicians who specialize in medical and surgical eye care - restore sight to patients with keratoconus through a surgery known as corneal cross-linking. Initial healing takes up to 5 days. A full recovery can take several weeks or even months. Cacicol20 appears to help speed the initial healing process. A shorter healing time reduces the chances of complications such as infections and corneal haze.

The researchers involved in the study tracked the recovery of 60 keratoconus patients for three days after corneal cross-linking surgery. The physicians randomly treated 30 eyes with drops containing the drug. On day two, 83 percent of eyes treated with the drug had healed significantly, compared to 13 percent of eyes not treated with the drug. Patients treated with the drug also reported less eye pain, stinging, tearing up and light sensitivity. All patients used the same standard post-operative topical antibiotic, steroid and artificial tears. Doctors also applied the same brand of bandaging contact lens on each patient afterward, a common practice following corneal cross-linking. No observed adverse effects occurred in the three days.

"Faster healing is clinically important because that helps reduce the risk of complications after surgery" said the study's principal author Koray Gumus, M.D., a visiting post-doctoral fellow at Baylor College of Medicine in Houston and associate professor of ophthalmology at

Erciyes University School of Medicine in Turkey. "We hope to confirm in additional studies that Cacicol could also aid patients who undergo many types of corneal surgery each year."

For many years, scientists have been searching for ways to accelerate the healing of wounds. Among the promising discoveries was heparan sulfate. This naturally occurring compound in the body plays a key role in tissue repair. Drugs such as Cacicol, which mimics heparan sulfate, have been shown to help heal chronic wounds in skin (for instance, those caused by diabetic ulcers). The treatments also appear to work on other types of tissue made of collagen, including the cornea.

Researchers are exploring the use of Cacicol for other eye conditions such as corneal ulcers. These open sores on the front of the eye can easily become infected. Cacicol is approved for use in Europe for that condition but has not yet been approved by the U.S. Food and Drug Administration.

A New Matrix Therapy Agent (CACICOL20) for Faster Corneal Healing Following Epi-off Crosslinking With Ultraviolet A and Riboflavin (PA067) is being presented at AAO 2015, the 119th annual meeting of the American Academy of Ophthalmology. Known as the place "Where all of Ophthalmology Meets," the Academy's annual meeting takes place Nov. 13-17 at the Sands Expo/Venetian in Las Vegas. It is the largest ophthalmology conference in the world. For more information, see AAO 2015 highlights.

Provided by American Academy of Ophthalmology