



World Ophthalmology Congress 2010 ICC Berlin, Germany

New method in corneal transplant surgery: faster healing, fewer complications

Berlin, May 2010 – Diseases of the cornea are one of the most common causes of blindness. If the cornea has become cloudy, very often only an operation can help. A new surgery procedure now enables doctors to graft only an extremely thin layer instead of the entire thickness of the cornea. The eye recovers from this procedure considerably faster than from the conventional method. Moreover, astigmatism and other complications are much rarer. Progress made in the field of corneal transplant surgery is a key topic at the World Ophthalmology Congress (WOC® 2010), which takes place in Berlin in June.

Developed by US ophthalmologists, the surgery procedure DSAEK (Descemet's Stripping Automated Endothelial Keratoplasty) is increasingly being employed in German eye clinics too. "We transplant a layer of the cornea measuring only 100 to 200 micrometers in thickness, which consists of parts of the stromal layer and the endothelium. It is a thin layer of cells, which is inserted onto the back surface of the cornea separating the cornea from the fluid in the anterior chamber of the eye," explains Professor Dr. med. Friedrich E. Kruse, Chairman of the Department of Ophthalmology, Friedrich-Alexander University of Erlangen- Nuremberg, Germany. The endothelial cell layer is harvested by means of an automated precision knife, the microkeratome, from the donor cornea. After the operating surgeon has removed the diseased endothelial layer from the recipient cornea, the fine lamella from the donor is inserted into the eye chamber through a small incision made next to the cornea. The surgeon places the lamella on the inner side of the cornea.

This new procedure is suitable for those patients who suffer from corneal clouding caused by diseased endothelium. That is the case for some 40%. "The proportion of endothelium in the cornea is minimal. It is not therefore necessary to replace the entire cornea," says Kruse.

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To ensure that the new endothelial layer sticks to the cornea, the surgeon injects an air bubble into the eye chamber after transplantation. To keep this in position, patients must remain lying on their backs in bed for two days. "In total, the recovery phase, however, is notably shorter than that after a conventional corneal transplant," Kruse explains in the run-up to WOC® 2010. "It mostly takes 18 months before patients are able to see again properly. With DSAEK, however, it generally takes only several weeks to a few months."

DMEK (Descemet's Membrane Endothelial Keratoplasty) is a further development of DSAEK. Here, the surgeon only grafts the Descemet's membrane and the endothelium, i.e. a ten micrometer thick layer. Results of the first 100 patients who underwent surgery with this procedure show that visual acuity is noticeably better than after DSAEK. However, this technique is more complicated, according to Kruse.

After a conventional transplant, there are often irregularities in the curvature of the cornea. "This astigmatism leads to patients having to wear eyeglasses or contact lenses. With DSAEK or DMEK we have been able to minimize this problem markedly," reports Kruse. He and his colleagues will be discussing the current results of both operative procedures at WOC® 2010.

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Germany plays host in 2010 to the largest international ophthalmologic congress with the World Ophthalmology Congress (WOC® 2010). In addition to the International Congress of Ophthalmology (ICO), the Annual Congress of the German Society of Ophthalmology (DOG) and the German Academy of Ophthalmology (AAD) will take place under the umbrella of WOC® 2010. From 3 to 6 June, 2010, AAD courses will be held in German. The international program in English will follow from 5 to 9 June. The organizers expect over 8,000 attendees from some 120 countries.