

Corneal transplant technique shows promise in children

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For infants and children with blinding diseases of the cornea, a sophisticated new corneal transplantation technique offers the hope of improving vision while overcoming the technical difficulty and low success rate of traditional penetrating keratoplasty (PK) in children, according to reports in the current issue of the *Journal of AAPOS* (American Association for Pediatric Ophthalmology and Strabismus).

The issue includes two case reports on the successful use of "Descemet stripping automated endothelial keratoplasty" (DSAEK) in children with corneal disease. If the promising results are borne out by further research, DSAEK could provide an alternative to traditional corneal transplantation—a notoriously difficult procedure in children, failing more often than it succeeds.

Dr. Bennie H. Jeng and colleagues of The Cleveland Clinic Cole Eye Institute performed DSAEK in a 21-month-old boy, while Dr. Mark M. Fernandez and colleagues of Duke University Eye Center report the results of DSAEK in a 9-year-old boy. Both children had irreversible damage to the corneal endothelium—a specialized, single-cell layer at the rear (posterior) of the cornea—after complications of cataract surgery.

In DSAEK, the diseased endothelium is removed and replaced by a "button" of healthy endothelium from a cornea donor. After careful handling and meticulous placement, the button is held in place for the first 24 hours by nothing more than a bubble of air—during this time,

the patient must lie flat to keep the air bubble and transplant in place.

In adults, DSAEK is currently "in vogue" as an alternative to traditional penetrating keratoplasty, according to a commentary by Dr. Kathryn Colby of Massachusetts Eye and Ear Infirmary, Harvard Medical School. DSAEK offers several advantages over PK. One key advantage is much more rapid recovery of vision—within 6 to 12 weeks after DSAEK, compared to 6 to 12 months with traditional PK surgery.

Shorter recovery time is especially important in young children with developing vision, who are at risk of further, potentially severe vision loss (amblyopia). Both children in the case reports had good results, showing improved vision within a few months after DSAEK.

Because it is less invasive, DSAEK also has a lower risk of certain complications compared to PK. Postoperative management is simplified because no sutures are placed in the cornea.

Many questions remain regarding the use of DSAEK in children. Since most children who need corneal transplants have other abnormalities as well, DSAEK would be an option in only about 20 percent of cases. The need to have the patient lie flat for 24 hours after surgery poses challenges in young children, and concerns about potential complications and long-term results have to be addressed. Other treatment options are emerging as well, including the use of an artificial cornea or "keratoprosthesis."

Meanwhile, DSAEK offers an exciting new treatment possibility at least for some children with corneal disease. "We now have an expanded repertoire of better surgical options for children needing PK," Dr. Colby concludes. "The future is bright for those who undertake these challenging, but potentially life-changing, surgeries."

Source: Elsevier

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