Journal Watch

Vision science highlights from the world’s leading journals of medicine and science

DLK comparable to PKP

Deep lamellar keratoplasty (DLKP) provides comparable outcomes to penetrating in patients with lattice corneal dystrophy (LCD) and macular corneal dystrophy (MCD), a Japanese study suggests. The researchers reviewed the clinical records of 84 eyes with LCD or MCD who underwent either DLKP or PKP. Rates of postoperative visual improvement and endothelial cell loss were similar in both groups. Patients with MCD that underwent DLKP showed progressive decrease in endothelial density, but not patients with LCD. Complications in the DLKP group occurred intraoperatively or in the early phase, while complications in the PKP group such as endothelial rejection and secondary glaucoma occurred later. The researchers conclude that PKP is no longer the automatic choice for the surgical treatment for LCD and MCD, but caution that patients with MCD may not be as good candidates for DLKP.


Antioxidants block RP

US investigators report blocking the advance of retinal degeneration in mice with a form of retinitis pigmentosa (RP) after treating them with vitamin E, alpha-lipoic acid and other antioxidants. RP mice treated with the antioxidants showed significant cone survival following treatment. The work supports the idea of a link between oxygen and photo-receptor damage, and suggests the potential value of antioxidant treatment in patients with RP. The finding also suggests new avenues of research in the treatment of AMD and maculopathies.


Why is the cornea avascular?

An unexpectedly large amount of the protein VEGFR-3 (vascular endothelial growth factor receptor-3) on the top epithelial layer of normal healthy corneas helps explain the lack of blood vessels in the cornea, say Harvard researchers. The report states that VEGFR-3 halts angiogenesis by acting as a “sink” to bind or neutralise the growth factors sent by the body to stimulate the growth of blood vessels. The researchers believe that drugs designed to manipulate the levels of this protein could heal corneas that have undergone severe trauma or help shrink tumours fed by rapidly growing abnormal blood vessels.


New tool for dry eye diagnosis

Fluorophotometry could provide a valuable quantitative and objective tool for the diagnosis of dry eye disease. A fluorophotometer can detect changes in the corneal epithelium by quantitatively measuring barrier function or permeability. The researchers conducted a study in 16 patients with dry eye to investigate the use of corneal fluorescein penetration measured by the fluorophotometer as a diagnostic tool. The patients demonstrated an increased corneal permeability and a slower rate of elimination to topically administered fluorescein. The researchers believe fluoro-photometry could serve as an objective non-invasive tool for end-point analysis in clinical trials of new treatments for dry eye disease.


Recalling the Hydrowview recall

Cataract surgeons reported an increased number of cases of opacification in patients implanted with the Hydrowview H60M IOL (Bausch and Lomb) in 2000 and 2001. Investigations traced the problem to a silicone gasket used in packaging and the lens was eventually recalled. British researcher Chinnasamy Balasubramaniam MD reviewed the experience of 1330 eyes of 1265 patients who had cataract surgery with Hydrowview IOI implantation between September 2000 and April 2001. Overall, 14.5% of the eyes had evidence of IOI opacification. Four per cent had visually significant opacification requiring IOI exchange. The prevalence of IOI opacification ranged from 1.1% in patients who had surgery in September 2000 to 36.3% in the December 2000 group. Symptoms associated with IOI opacification included decreased vision (57%), glare (32%), and mistiness of vision (27%). Diabetic and glaucomatous eyes were more likely to develop opacification. This is the first large sample recall of patients implanted with the Hydrowview H60M IOL. C. Balasubramaniam et al., JCRS, “Opacification of the Hydrowview H60M intraocular lens: Total patient recall”, Vol. 32, Issue 6, 944-948 (June 2006).

A new look at the ICL

The ICL (Staar), now known as the Visian, is a new option for treating phakic IOL candidates such as high myopes. Researchers evaluated age-related position shifts of the crystalline lens and the phakic lens using a new, commercially available, anterior segment partial coherence interferometer, the AC Master (Carl Zeiss Meditec), during accommodation in myopic eyes. Some 53 eyes of 29 consecutive patients were measured after myopic ICL implantation before and during subjective accommodation to a stimulus of 3.0 D. The study found that older patients had a tendency toward smaller vaults on disaccommodation between the ICL and the crystalline lens compared to younger individuals. In younger patients, there was a decrease of the vault on accommodation, whereas it increased in older persons. During accommodation, the more the anterior lens surface shifted forward, the more the ICL bulged. The researchers note that even though the crystalline lens stiffened, and therefore accommodation deteriorated with age, there was still a movement of the ICL, pointing to the role of the ciliary muscle movement in accommodation.