

NEWS FROM ARVO 2010

The annual meeting provides a glimpse of all aspects of ophthalmological research

by Sean Henahan in San Diego

Artificial retina Artificial retina implantable systems are making their way from the lab into the clinic. German researchers reported promising results in an initial clinical study of one such implant. Eleven patients have received the 'Retina Implant' since 2005. The researchers reported that blind patients were able to view and focus on objects as their eye and head naturally moved. The experimental device includes a 1500 pixel "camera chip" implanted under the retina. The implant works without assistance from external devices.

"Our first clinical trial provided encouraging information about the safety, visual results and placement of our microchip. The results presented today are encouraging news in the fight to restore vision to patients suffering from retinitis pigmentosa," said Prof Eberhart Zrenner MD, director and chairman of the Institute for Ophthalmic Research at the Centre for Ophthalmology of the University of Tübingen, Germany.

A new clinical trial is scheduled to begin shortly. More information is available at: www.retina-implant.de.

Couch bad for eyes The couch potato lifestyle, already a well-known risk factor for cardiovascular disease, also appears to affect the retina. Researchers examined the association of physical activity and television viewing time with retinal vascular calibre and explored the differences in white, black, Hispanic and Chinese racial/ethnic groups. They evaluated retinal vascular calibre in adults aged 45 to 84 as part of the population-based, cross-sectional Multi-Ethnic Study of Atherosclerosis study. Sure enough, those in the lowest two quartiles of intentional physical activity had a wider retinal venular calibre compared to those in the highest quartile of intentional physical activity, with exception of blacks. Similarly, those in the highest quartile of television viewing time had a wider venular calibre compared to those in the lowest quartile. Wider venular calibre has been shown to be associated with higher cardiovascular risk in previous studies.

Customised gene therapy A new gene therapy trial provides valuable insight into therapeutic strategies for treating patients with Leber Hereditary Optic Neuropathy (LHON). Previous trials have demonstrated proof of concept of this general approach. Researchers from Bascom Palmer Eye Institute screened LHON patients with acute or chronic forms of the disease. Their

subunit. It would also correct for secondary mutations with expression of the normal ND4 protein, the researchers reported.

This suggests that possible candidates for future gene therapy may include affected patients with mildly reduced retinal nerve fibre layer (RNFL) or carriers with low PERG amplitudes and normal RNFL if the PERG is a predictor of conversion to LHON in these carriers.

AMD anti-VEGF dosing The big questions now with anti-VEGF treatment of AMD involve dosing. A study presented here that compared two dosing schemes – an eight-weekly bevacizumab (Avastin) treatment and a four-weekly ranibizumab (Lucentis) strategy – showed almost equivalent benefit for patients with wet AMD. The data come from a German retrospective analysis of 272 patients with choroidal neovascularisation AMD, who received an initial treatment of either three intravitreal injections of bevacizumab 1.5mg in eight-weekly doses or ranibizumab 0.5mg in four-weekly intravitreal injections.

The poster presentation by Wolfgang F Schrader MD and colleagues at the Universitätsaugenklinik, Würzburg, Germany, noted that the effects seen in the clinic were different than that observed in clinical trials.

"In spite of a better baseline visual acuity and a better initial gain visual acuity, the visual acuity at 12 months and at the last visit was inferior to the bevacizumab data," said Dr Schrader.

Cross linking safe for endothelium Corneal collagen cross-linking is getting a lot of attention as a potential treatment for keratoconus and ectasia. A new study concludes that the experimental treatment appears to be safe for the corneal endothelium – neither diminishing cell counts or function. A study conducted at the New York University School of Medicine included 23 eyes with keratoconus and 17 eyes with corneal ectasia. A comparison of baseline and one-year postoperative cell counts showed no significant change in cell counts over time.

Coffee may prevent cataracts A report from a lab at the University of Maryland School of Medicine in Baltimore hints that caffeine may offer protection against cataract formation. Hypothesising that caffeine may inhibit the intraocular generation of reactive oxygen species in the