Paediatric cataract study wins poster award

John Barry MRCOphth, UK, was the winner of this year's poster award at the 9th Winter Refractive Surgery meeting of the ESCRS. His study investigated the refractive changes in pseudophakic children who have undergone surgery for congenital cataracts. He received a plaque and a prize of €1000.

"We felt that this study addresses an important issue on which there have been very few publications and for which we have little information," said Dan Epstein MD, head of the judging panel, in presenting the ESCRS-sponsored award.

Dr Barry's study involved a retrospective audit of 14 eyes of eight children and tracked their refractive changes over a mean follow-up period of 26.5 months (range: 12-48 months). Their findings indicated that the children's eyes had a mean dioptric change of 7.0 D after four years. In addition, generally speaking, the more hyperopic the immediate postoperative refraction, the greater the myopic change over time.

"Refractive changes after surgery for congenital cataracts in children are important in visual development and choice of intraocular lens power. Theoretical estimates are useful but there is clearly a need to define actual refractive changes after paediatric cataract surgery and see if these follow the theoretical patterns," Dr Barry said.

All of the children in the study were less than one year old at the time of their surgery for congenital cataracts, which was carried out by the same surgeon between June 2000 and September 2003 at the Royal Devon and Exeter Hospital, U.K.

All eyes underwent in-the-bag implantation of an intraocular lens. The immediate postoperative refractive target was +6.0D except in cases requiring more than a +30.0 D IOL, the highest refractive power of the IOLs implanted in the study.

Dr Barry noted that most eyes had a decreasing myopic shift with time. The mean refraction was +7.0 D immediately postoperatively, +6.0 D at three months, +5.0 D at six months, and +3.6 D at one year.

In 10 eyes with 18 months' follow-up the mean refraction was +2.9 D, in six eyes with 24 months' follow-up it was +2.7 D. In two eyes with four years' follow-up the mean refraction was 2.2 D, amounting to a myopic shift of 7.4 D in those eyes.

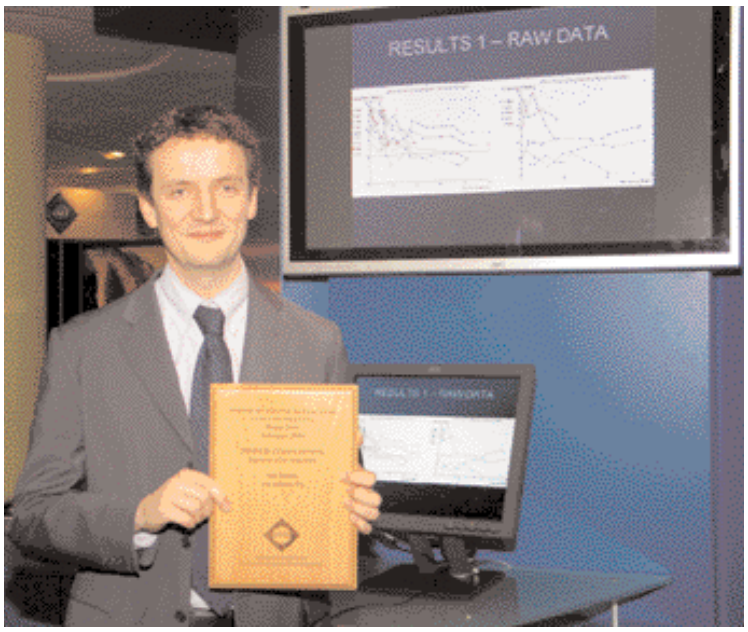
The best preoperative uncorrected visual acuity was 6/500 while worst final uncorrected visual acuity was 6/76. Visual acuity at the final visit ranged from 6/6 to 6/12 in six eyes (40%), and from 6/12 to 6/60 in seven eyes (50%). Three eyes of two patients became myopic at 24 and 36 months, their immediate postoperative refractions were +2.0 D and +4.0 D.

Fitting the eye to the lens

Dr Barry noted that in most phakic individuals there is only a slight myopic shift of about 1.0 D between birth and adulthood, despite a large change in axial length from 16.8 mm to 23.6 mm. The relatively small myopic shift results from the reduction in power of the natural lens during that time. However, the dioptric power of IOLs implanted in infants remains unchanged.

He pointed out that his study indicated that myopia can be avoided in most cataract patients by aiming for an immediate postoperative refraction of at least +4.0D. He also remarked that the trend towards greater myopic shifts in eyes with higher immediate postoperative refractions suggests that the growth of the maturing eye may be influenced by the power of the implanted lens.

"We speculate that most eyes in this series follow an emmetropisation pattern to their IOL," he said.



John Barry with award plaque in front of the electronic display of his winning poster



Marco Lombardo and Rudolf Autrata accept citations from Dan Epstein chairman of the poster judging panel

Honourable mention

Honourable mention went to two additional posters at the Rome Meeting.

They were a presentation by Marco Lombardo MD, Italy, on atomic force microscopy of corneal surfaces following excimer laser ablation, and a presentation by Rudolf Autrata MD, Czech Republic, on visual and refractive outcomes of PTK in children.

In Dr Lombardo's study, atomic force microscopy provided nanometre-resolution images of porcine corneas following a -8.0 D PRK ablation with a Technolas Keracor 217C laser. The images showed undulations and granule-like features on the ablated surface of the specimens. However, the corneas which had undergone PTK style smoothing were much smoother and less irregular than those without the smoothing procedure.

"Our investigations highlight that although the laser cut of the scanning-spot excimer laser systems is very precise in removing infinitesimally small amounts of tissue, the smoothing technique may still be useful to reduce post-ablation roughness," he said.

Dr Autrata's study concerned the longterm outcome 62 eyes of 56 children aged 0.3 to 18 years (mean: 11.4 years) who underwent combined PRK and PTK for a range of corneal pathologies.

The investigators found that after a mean follow-up of five years (range: 1-9 years) the best spectacle corrected visual acuity (BSCVA) improved in all children, and episodes of ocular pain or discomfort, lacrimation and photophobia diminished.

In addition, the mean preoperative spherical equivalent improved from–5.76 D to –1.39 D in 17 myopic eyes and from +4.47 D to +1.73 D in 12 hyperopic eyes.

"PTK may significantly improve visual acuity, heal persistent epithelial defects and eliminate ocular pain and irritation. A preoperative refractive error can be reduced by the combined procedure," Dr Autrata said.

Electronic poster displays were used for the first time at the Rome meeting. Poster abstracts for the ESCRS Congress in Lisbon can be submitted online at *www.escrs.org* from March 1, 2005.