EURETINA Congress provides update on current and future approaches to diagnosis and treatment of retinal disease

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This year's EURETINA Congress had the largest attendance so far with more than 900 participants. The congress provided attendees with an update on current diagnostic techniques and therapies for retinal disease and a glimpse of what might become available in the future.

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The topics discussed included the treatment of macular oedema and AMD, new surgical techniques for retinal detachment, and the treatment of ocular tumours.

The congress also included two networking sessions: one on the phenotyping and genetics of retinal disorders and the other on clinical trial networking in Europe.

"In this year's meeting we have attempted to provide a comprehensive review of the current state of knowledge, diagnosis and management of vitreoretinal diseases," said EURETINA president Borja Corcostegui MD, Spain.

This year's congress was also the first EURETINA meeting to be organised by the ESCRS and the programme included a special joint EURETINA/ESCRS symposium.

"We are genuinely delighted that we have joined up with the ESCRS and the professional organisation that comes with that. It has really made our organisation come of age and it is a very important partnership for the future. The way this meeting has been so well organised indicates that it was the correct decision," said Bill Aylward FRCS FRCOphth MD, UK, co-vice-president of EURETINA.

Anti-VEGFs for macular oedema

Many presentations at the Lisbon congress concerned results obtained with anti-VEGF agents in the treatment of diabetic retinopathy.

The anti-VEGF compound pegaptanib sodium (Macugen®, OSI/Pfizer) showed promise in a phase II trial involving 172 patients with diabetic macular oedema, said Pascale Massin MD PhD, Hôpital Lariboisière, Paris.

Patients in the study received a mean of five injections of 0.3mg, 1.0mg, or 3.0mg of Macugen or sham treatment. At 36 weeks follow-up, mean visual acuity was better among all groups receiving active treatment compared to those receiving sham injections. Patients receiving the lower 0.3mg dosage obtained the best results, with 60% gaining one or two lines of visual acuity.

In addition, mean central retinal thickness decreased by about 70 microns in the 0.3mg Macugen group but increased by 40 microns in the sham group. Furthermore, photoocoagulation was necessary in only 25% of eyes in the 0.3mg Macugen group, compared to 48% in the sham group. The only serious adverse event to occur was one case of endophthalmitis.

Kreissig Lecture

Carol Shields MD is the recipient of this year's Kreissig Award, which is given for outstanding contributions in the understanding and treatment of retinal diseases. The Kreissig award was established in recognition of Ingrid Kreissig MD and the contributions she has made to the education and training of retinal specialists from around the world during her tenure as chairman of retina and vitreous surgery at the University of Tuebingen, Germany, from 1979 to 2000, and as the director of courses in the treatment of retinal detachment.

Dr Shields is co-director of the oncology services at Wills Eye Hospital and professor of ophthalmology at Thomas Jefferson University in Philadelphia, Pennsylvania, US. She has authored and co-authored several text books, hundreds of journal articles and has received numerous awards.

In her lecture she described the current state of knowledge in the diagnosis and treatment of ocular tumours such as uveal melanoma and retinoblastoma, noting their distinguishing features and epidemiology, and stressing the importance of early diagnosis and prompt treatment of the tumours.

From left: EURETINA president Borja Corcostegui MD; Carol Shields MD receiving the 2006 Kreissig award; and Ingrid Kreissig MD.
Another anti-VEGF agent, ranibizumab (Lucentis®, Genentech/N ovatis) has shown very encouraging results in a pilot study, said Anne K Sjolie MD, Odense, Denmark.

The study involved 10 patients with diabetic macular oedema who received intravitreal injections of Lucentis at one, two, four and six months. The treatment brought about a sustained 160-micron reduction in mean foveal thickness and a sustained mean gain of around 10 letters (or alternatively ETDRS 2 lines) in the pilot study of Lucentis for diabetic macular oedema, Dr Sjolie noted.

A phase III trial has now been initiated that will involve 150 patients with diabetic macular oedema and will compare Lucentis to sham treatment, she added.

Antonio C Accavale MD and Manuela Imparato MD, Milan, Italy, presented preliminary results with bevacizumab (Avastin®, Genentech). In two eyes of two diabetic retinopathy patients receiving intravitreal injections of the compound there was a regression of neovascularisation and macular oedema and an improvement of visual acuity, they said.

**Update on anti-VEGFs in AMD**

The EURETINA Congress attendees also received an update on the use of anti-VEGF agents in the treatment of AMD.

David Shima MD, Lexington, Massachusetts, US, told the congress that while the overall results of the VISIO N trial showed that Macugen was effective in preserving vision in patients with AMD, subgroup analysis showed that visual acuity improved by 15 or more letters in 20% of those with early lesions.

Jean-Marie Rakic MD, Liege, Belgium, presented the two-year results of the MARINA trial, in which patients with AMD received intravitreal injections of 0.3mg or 0.5mg of Lucentis, or sham injections.

He noted that vision remained stable during the second year of treatment in the Lucentis groups, who continued to have a 5.6-6.4 letter mean improvement in visual acuity compared to baseline. Meanwhile, the sham treatment group lost a further 4.5 letters, losing a total of 14.9 letters compared with baseline.

Jordi Mones MD, Barcelona, Spain, shared his short-term experience with Avastin in the treatment of choroidal neovascularisation secondary to AMD or myopia. He has been using the agent since December 2005 in 145 eyes of 139 patients.

At three months’ follow-up and after a mean of 1.9 injections per eye visual acuity has been maintained among most patients with CNV secondary to AMD, with 90% losing less than five letters. Moreover, among patients who failed previous therapy with Macugen or PDT, visual acuity stabilised in 75% and improved in 10%. As regards safety, there has been only a small incidence of hypertension, Dr Mones said.

**Dry AMD**

The congress also included presentations on potential new therapies for dry AMD, a condition that until recently was considered untreatable.

Stuart P Richer OD PhD, Department of Veteran’s Affairs Medical Center, North Chicago, Illinois, US presented a wealth of data demonstrating that the traditional Mediterranean and Asian diets are protective against AMD. He also noted that lutein supplements in conjunction with a healthy diet improve visual function in patients with AMD.

In the last study, which involved 90 patients with AMD, those who received 10mg lutein supplementation, with or without antioxidant supplements, had elevated MPOD (macular pigment optical density) and improvements in visual acuity, contrast sensitivity, glare recovery and even metamorphopsias and scotomas compared with those receiving placebo, Dr Richer noted.

Victor Chong MD, FRCO phth, London, UK, said that the use of diffuse laser can eliminate drusen in eyes with dry AMD, but unlike focal laser, it will not cause CNV. The diffuse laser employs a large spot encompassing the entire posterior pole, he noted. It is similar to TTT but uses less energy. Furthermore, unlike focal laser, it will not damage Bruch’s membrane, he said.

In a recently completed pilot randomised controlled trial involving 23 patients with dry AMD the technique appeared to reduce the risk of CNV and improve vision. A multicentre study involving 400 patients has begun, Dr Chong added.

**Retinal chip implants**

Results of preliminary trials with two novel retinal chip implants in patients with retinitis pigmentosa were also presented at the Lisbon congress.

Gisbert Richard MD, Hamburg-Eppendorf, Germany, presented his findings in a small series of blind patients who underwent implantation of an epiretinal chip implant. The device receives visual input from a camera chip incorporated into a pair of glasses while an external retinal encoder transmits pulse signals to the retinal implant.

Gabriel Coscas MD, Creteil, France delivered this year’s EURETINA lecture, which is the highest award of the EURETINA society and is donated by the Clare Jung-Foundation, Hamburg, Germany.

Dr Coscas is a pioneer in the treatment of retinal diseases and is the author of the textbook “Retinal Vein Occlusion”, which has become a classic reference. In addition, he has made many contributions to the prevention of blindness in developing countries and currently serves as president of the International Organisation Against Trachoma.

In his lecture, Dr Coscas described the natural history, diagnosis and management of occult CNV. He noted that choroidal neovascularisations are initially occult in 60% to 85% of eyes affected by AMD. However, their subsequent clinical pattern can vary considerably. The lesions may be quiescent, have functional symptoms with or without haemorrhages and exudates, or may coexist with other CNVs, in which case the lesions are likely to progress.

He noted that SLO-ICG-Angiography provides early and precise detection of occult CNV, while OCT will show whether the lesion is associated with a serous pigment epithelial detachment (PED).

Dr Coscas noted that for eyes with occult CNV at the margins of a PED epiphi lial detachment, most current treatments are unsatisfactory. The same holds true for eyes with CNV inside the PED, although PDT with triamcinolone has shown encouraging results, he pointed out.

For CNV inside the PED with choriotreital anastomoses, best results are achieved with early laser treatment, he said. In such cases, the fellow eye should be followed closely, as the condition is frequently bilateral. He added that recommendations for the treatment of occult CNV are likely to change as new drugs become available, particularly the new anti-VEGF agents.
Dr Richard noted that four patients in whom he has implanted the retina chip could accurately discriminate the orientation of images up to 100% of the time.

Florian Gekeler MD, University of Tübingen, Germany, presented results with a retinal prosthesis that was placed beneath the retina of four patients. Patients receiving the implants have been able to correctly distinguish between horizontal and vertical bars and describe several complex shapes and movements.

Ciliary neurotrophic implants
R Caruso MD presented results achieved with a type of artificial implantable gland produced by Neurotech. The intravitreal implant consists of immortalised and genetically modified ciliary cells encased in a semi-permeable membrane that allows cell nutrients in and neurotrophic factors out, he explained.

In a prospective open-label study, patients receiving the implant for a variety of retinal disorders showed a trend toward improvement in their visual acuity. He highlighted the case of a 52-year-old man with retinitis pigmentosa who could read no lines of the ETDRS chart at baseline but achieved a visual acuity of 20/400 after receiving the implant.

Multimodal imaging
On the diagnostic side, several presentations were devoted to the potential utility of multimodal imaging.

Sebastien Wolf MD, Bern, Switzerland described his experience with a multimodal fundus imaging system which integrates a broad range of technologies including Heidelberg Retina Angiographer, fundus camera, photo slit lamps and a Heidelberg Retina Tomographer. The system employs a central server for data storage and retrieval. The images are accessible to viewing and image manipulation stations, which use a uniform software platform (Heidelberg Eye Explorer), Dr Wolf said.

Marc De Smet MD CM PhD FRCSC, FRCO phth, Middleheim Hospital, Antwerp, Belgium, told the congress that a system that combines OCT with a scanning laser ophthalmoscope would produce parallel images with a pixel-to-pixel correspondence. The integration of the technologies can provide a very clear assessment of the effect of treatment on eyes with retinal disorders, he said.

From structure to function
Other presentations at the EURETINA Congress examined new technologies for testing visual function.

EURETINA video awards
Cesare Forlini MD, Ravenna, Italy was the recipient of the first prize in this year’s EURETINA video competition for his presentation “Proliferative diabetic retinopathy: Triamcinolone-assisted bimanual surgery and re-flow technique”. The re-flow technique creates a cavity between the posterior capsule and the anterior hyaloid. It therefore reduces the risk of iatrogenic cataract. The injection of triamcinolone provides a clear visualisation of vitreous remnants, which can then be removed with a bimanual technique.

Second prize went to Bernhard Stoffelns MD, Mainz Germany, for “Transpupillary therapy for malignant choroidal melanoma”. Third prize went to Alberto Zambrano MD for “Vitrectomy in parasitic lesions.”
Marie-Jose Tassignon MD, Belgium, suggested that SLO microperimetry could predict visual outcome in patients undergoing surgery for macular holes. The technology allows for the selective testing of the diseased area with variable light intensities and variable light wavelengths.

She also noted that visual function in patients with retinal diseases might be more precisely determined by a technique called vision monitor photo-oculography. The technique measures eye movements while a patient is reading, based on the position of the corneal reflex compared to the pupillary centre.

Edoardo Midena MD, Padua, Italy, noted that microperimetry might help predict the visual outcome of eyes with diabetic macular oedema. In addition, in AMD patients the technology can determine fixation characteristics, which can be useful in quantifying the disease's impact on functional vision and optimising patient selection and the timing for treatment, he said.