Newsdesk

TAP moves to VIP: a new trial on treatment of CNV with photodynamic therapy

A phase 3 randomised multicentre double blind trial has commenced (March 1998) on the use of photodynamic therapy (PDT), with Verteporfin (BPD-MA), of subfoveal choroidal neovascularisation (CNV) in age related macular degeneration and in pathological myopia. Twenty eight centres in the USA and Europe are involved with two centres in the UK at Aberdeen Royal Infirmary and St Paul's Eye Hospital, Liverpool.

PDT with Verteporfin is a selective laser treatment for CNV that combines a photochemical dye and non-thermal laser irradiation to produce vascular occlusion. The photosensitive dye is injected intravenously and localises selectively in areas of new vessels where it is activated by a low energy diode laser with the generation of free radicals which presumably induce intravascular thrombosis. Non-selective conventional thermal laser destroys both neurosensory retina and underlying subfoveal CNV which often produces an immediate drop in visual acuity. PDT with Verteporfin may be a less destructive, more selective way to treat subfoveal CNV.

Both UK centres are actively seeking patient referral and further inquiries regarding this study (VIP: Verteporfin in Photodynamic Therapy) should be directed to Miss Jennifer Arnold, Mr Dara Kilmartin, Dr John Olson, or Ms Rhona McKechnie at the Eye Clinic, Aberdeen Royal Infirmary, Foresterhill, Aberdeen AB25 2ZN; or to Mr Simon Harding or Ms Sandy Murphy, at 8Z Link, St Paul's Eye Unit, Royal Liverpool University Hospital, Prescott Street, Liverpool L78XP.

A signalling defect in type 2 diabetes

Type 2 diabetes is a major cause of maculopathy associated blindness and is characterised in many cases by variable degrees of insulin resistance, the molecular basis of which has remained a puzzle for some time. Recent studies in knockout mice have shown that a very similar syndrome to human type 2 diabetes can be produced by deletion of the insulin receptor substrate protein 2 (IRS-2) gene (*Nature* 1998;**391**:900–4). IRS proteins are second messenger substrates for tyrosine phosphorylation following receptor stimulation by insulin or insulin-like growth factor. Four IRS proteins are known and combined defects in IRS-1 and insulin receptor genes in mice also produce a strong diabetic phenotype. IRS-2 may compensate for IRS-1 single gene defects and it thus appears that more than one gene defect is required to produce overt diabetes. However, insulin resistance with its lack of B cell reserve appears to depend predominantly on IRS-2 and its effects are widespread, affecting not only general carbohydrate metabolism but mitogenesis and cell differentiation. In fact, B cell function itself is critically dependent on a normally functioning IRS-2 gene.

Ophthalmic physicians meet again

The 3rd Medical Ophthalmological Society (MOS) meeting was held at St Thomas's Hospital, London in February 1998. As reported at this time last year (see Newsdesk, *BJO* 1997;**81**:342), the MOS provides a forum for the developing subspecialty of medical ophthalmology and focuses on diagnosis and treatment of the wide range of medical disorders in ophthalmology at risk of neglect while the advances in ophthalmic surgery hold attention. Delegates at this well attended and popular meeting emphasised the important role of the MOS for several reasons: firstly, MOS meetings bring together ophthalmologists and physicians/internists to discuss both basic science and clinical management of conditions common to both specialties; and, secondly, MOS meetings highlight the role of ophthalmic physicians in the management of not uncommon medical ophthalmic conditions which do not receive a sufficiently high coverage in general ophthalmic meetings. A third area in which the MOS is likely to play a more active role is in underlining shortfalls in the training of surgical ophthalmologists who may not obtain sufficient exposure to this area of ophthalmology, and thus the MOS provides an opportunity for trainees to present and discuss medical problems.

This year was no exception. The first session was largely devoted to a symposium on sarcoidosis which covered basic and applied immunology, particularly with regard to pulmonary manifestations of sarcoidosis and indicating a future possibility of "genetic fingerprinting" involving HLA association, allelic polymorphisms, and polymorphisms in cytokine production to help predict the course and severity of the disease—questions we are currently unable to answer. This was followed by presentations detailing the variety of dermatological, neuro-ophthalmological, and ocular presentations and complications of sarcoidosis and underscored the difficulty in diagnosis of systemic sarcoidosis solely from ophthalmological or neurological signs without a tissue diagnosis, in the absence of which, however, practitioners should not be deterred from judicious yet adequate immunosuppressive therapy for sight or life threatening inflammation of the eye or CNS, provided infectious causes have been excluded.

Other topical issues in management of medical disorders affecting the eye were aired. Debate over the controversy as to whether all diabetics or diabetes with hypertension should be treated with ACE inhibitors based on data from the EUCLID study group (see Newsdesk, *BJO* 1997;**81**:624) drew strong conclusions that further evidence is really required before support can be given to the role of ACE inhibitors protecting against diabetic retinopathy, irrespective of the evidence of protection against diabetic renal disease, particularly in hypertensive, albuminuric diabetics. Overall, the feeling among delegates was that the MOS was likely to play a more prominent role in shaping ophthalmic practice and influencing training issues in the future.

Retrenchment and realignment in European ophthalmic research

During the past few years there has been a increasing demand for a unification of ophthalmic and vision research associations in Europe. Until recently several different groups held separate meetings usually devoted to specialist areas of research. However, from 1992 an interim grouping of research societies under the title of Joint European Research Meeting in Ophthalmology and Vision (JERMOV) has held annual autumn meetings in Montpelier, France. During this period decisions and agreements were reached which allowed the merger of several individual groups particularly the Association for Eye Research (AER), which was the longest established European research group and the European Community Ophthalmic Research Association (ECORA) under the one umbrella group now known as the European Association of Vision and Eye Research (EVER). The first meeting of the new association will be held in Palma de Majorca, Spain (7–11 October 1998) and it is expected that European eye and vision research will get a new impetus from this reorganisation. All aspects of eye and vision research are suitable for presentation at EVER meetings and several section interests will be developed.

Feedback in the visual pathways?

Feedback regulatory mechanisms are well known to all undergraduate medical students in which hypothalamic pituitary neuroendocrine control systems serve as the ultimate paradigm. Processing visual information has steadfastly been recognised to be exclusively feed-forward from the retina to the lateral geniculate body and on to the visual cortex wherein there lies further hierarchical organisation of specific visual perceptions. The notion that feedback processing may also occur in the visual system has recently gained ground based predominantly on anatomical studies of "back projecting" pathways (see review in *Current Biology* 1998;**8**:R135–9). In theory, such pathways may send information back to the earliest stages of visual processing in the retina. For instance, the problem of edge detection depends on changes in light intensity and this has profound implications for our ability to see faces, especially new faces. In the absence of changes in light intensity, the brain has to make decisions concerning the location of edges and according to the stored prototype model it draws on a number of stereotype faces in its memory to produce a best fit on the basis of computational algorithms. Several other models, such as the adaptive resonance model and the fuzzy ART model, work on the basis of self organising neural networks whereby signals from the visual cortex help to train other neurons to categorise information they receive from neurons further down in the visual pathway. Anatomically, back projecting pathways have been found to be quite extensive if not very large, and are also quite selective—for example, from area V1 in the cortex to the parvocellular layer in the lateral geniculate nucleus. The precise function of many of these pathways—for instance, as facilitatory, inhibitory, or "synchronisers" awaits elucidation.