

Newsdesk

Photodynamic therapy for ARMD

Results of a randomised, double masked placebo controlled trial involving 609 patients at 22 centres in North America and Europe showed that patients with the sight threatening "wet" form of age related macular degeneration (ARMD), treated with photodynamic therapy (PDT), were more likely to have stable vision (defined as a loss of less than three lines of vision on a standard eye chart) or improved vision compared with placebo treated patients. These results are from the initial analysis of the 12 month follow up of an ongoing 2 year study. Statistical significance was at a p value of 0.0002. Patients treated with PDT were 34% more likely to retain their vision over the 12 month period compared with the placebo group, and 16% were more likely to experience an improvement in their vision compared with 7% of placebo treated patients. The treatment may show benefit over other forms of treatment such as conventional laser therapy because associated tissue damage is limited. Indeed, this may be suggested by the beneficial results on secondary end points such as contrast sensitivity and lesion growth.

Wet ARMD accounts for 15% of all cases of ARMD and 90% of severe visual loss from ARMD—that is, it is the most visually disabling form of the disease. Up to 50 000 new cases of wet ARMD occur in the UK with 16 000 new registrations for blind or partial sighted registration.

In the current study, PDT appeared to be very well tolerated with less than 2% of the patients so far treated withdrawing from the study. Side effects included reactions at the injection site, transient mild to moderate decrease in vision (in 2% of treated patients), and 24 hour duration of photosensitivity. Multiple treatments appeared to be necessary to achieve sustained visual results with patients receiving 3.4 treatments on average. Drs S Harding (Liverpool) and J Arnold (Aberdeen) who are conducting the UK arm of the study urge caution by stressing that while this may be a promising potential new treatment, it does not restore vision in eyes that have already been significantly damaged.

Physics to propel the biotechnology revolution 2000?

The vast amount of information that will continue to emerge from the databanks holding information on, for instance, the human genome, are at risk of flooding the market to the point that data handling becomes the major restraint on further progress. A recent editorial in *Nature* (1999;397:89) has suggested that tools and techniques used by physicists to deal with similar problems may offer solutions for biologists. For instance, microarray technology allows simultaneous analysis of up to 10 000 genes in a single sample and the need now is to have systems which will permit useful evaluation of this information. Similar needs are evident in understanding networks of cell signalling molecules quantitatively as well as qualitatively since, at the present, cell signalling pathways are usually presented very selectively as each new pathway is discovered. Of much greater value, however, would be information on how changes in one pathway affect other pathways and lead to alterations in function or behaviour of the cell or tissue as a whole. This

enormous challenge for biologists and research scientists in all fields is being assisted by initiatives in the USA, where both the National Institutes of Health and the National Science Foundation are promoting developments at the physics biology interface. Ophthalmology and the visual sciences can benefit enormously from this approach since physicists are no strangers to the field and this new approach adds another dimension to their armamentarium.

Leucocyte plugging of retinal capillaries in diabetic retinopathy

Two recent articles from a Japanese research group (*Invest Ophthalmol Vis Sci* 1998; 39:2190–4 and *Curr Eye Res* 1999;18:49–55) using an in vivo technique to track leucocytes in the retinal circulation have provided support for the notion that leucocyte plugging of capillaries in diabetes may cause capillary occlusion, the prodromal event in retinal ischaemia and neovascularisation. The researchers injected the dye acridine orange, which labels nucleated cells, intravenously in rats with streptozotocin induced diabetes and followed the movement of leucocytes through the retinal circulation. While very few cells arrested their traverse through normal retinal vessels, in the streptozotocin diabetic rats large numbers of labelled leucocytes came to a halt within retinal capillaries and appeared to block blood flow in the retinal capillaries. Interestingly, these changes were observed soon after the onset of diabetes and before any histological evidence of retinopathy. The concept that leucocyte plugging of retinal vessels may underlie the pathogenesis of retinopathy is not new and there is evidence in humans showing that adhesion molecule shedding from endothelial cells is increased correlating with the severity of retinopathy. However, the studies referred to above are the first direct in vivo evidence that such a mechanism takes place.

UK life sciences committee

A new pressure group has been in operation for a year with the aim of offering a unified opinion from basic scientists to the government on matters affecting the life sciences. The committee is composed of representatives from various societies such as the Biochemical Society, the Anatomical Society and such like, amounting to 13 UK life science groups in all. The remit is to coordinate the activities of its member societies in areas such as science policy and funding, career development, education, and communication with the public. At present, there is no representation from medical societies or from basic science in ophthalmology or visual sciences. Contact can be made through Robert Freedman, secretary, at the Biochemical Society.

Publishing on the internet

A few pioneering journals in the early days of the internet converted themselves wholly to publishing electronically with a variety of methods of peer review, including none. This sea change in the approach to medical publishing is reminiscent of the early days of scientific publishing in the late 19th century when peer review occurred with published responses by the readership to articles already published in a given journal, a procedure altogether more open than current practice by

most journal editors. Now with the increasing success of electronic publishing, most journals are, at the very least, having to provide a web interface and allow the publication of material not strictly peer reviewed in the conventional sense. The issue is not trivial and has been debated on many occasions, particularly for medical publishing where new information can have direct implications for healthcare practice. As reported in the internet magazine *HMS Beagle* (The BioMedNet Magazine Cutting Edge The Future of Medical Publishing: a Site of the Debate: <http://hmsbeagle.com/01/cutedge/day3.htm> issue 46; Jan 22), major issues relate to aspects such as validation of the information and appropriate dissemination of information. Much depends on the nature of the journal and the impact it has in its field. The authors of the articles in this debate appear to recommend an urgent review of the peer review process and a move towards standard procedures.

Staffing crisis in obstetrics and gynaecology in the UK

The UK medical profession is viewing with interest the staffing difficulties in the specialty of obstetrics and gynaecology and, in particular, the response of the government to lack of consultant positions for the 250 specialty accredited junior doctors. This situation has arisen because of the lack of an integrated centralised staffing allocation system for the NHS as a whole and the relative autonomy of individual hospital trusts to appoint doctors. It is also compounded by the recent changes in fixed term training programmes for junior doctors introduced by the Calman report and which sees the first tranche of these term accredited doctors coming off the assembly line in mid 1999. This has implications for all other specialties including ophthalmology and requires the attention of the government, according to Mr James Johnson, chairman of the Joint Consultants Committee, if highly trained specialists in all disciplines are not to face unemployment or to take positions for which they are overqualified.

Compensating for visual latency

Visual latency is defined as the time taken for processing images through the visual pathway and, although very rapid, is still likely to have some effect on the perceived position of an object as the observer moves through space, potentially leading to inaccurate spatial location of objects. Compensation for this potential observer error has previously been attributed to a perceptual extrapolation of the true object position to its correct location by an as yet unexplored cortical mechanism. Now, as reported in the journal *Nature* (1999; 396:424), accurate location of object position depends on motor rather than perceptual compensation. If this is correct it suggests that we move our fixation to a predicted object location from the true location as we move through a scene—that is, we do not truly fixate on the object in the same way as we would if we were stationary. Intuitively this would seem to be correct and individuals with a better capacity for regulating this compensatory mechanism might have survival advantage and perhaps even be better sportsmen and women.



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