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EDITORIAL

Editor's choice—top papers of 2010

A Lotery

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Welcome to Eye's themed issue on glaucoma. In this issue, we have a selection of focused editorials and reviews from glaucoma experts, a Cambridge Symposium paper highlighting an exciting new imaging technique for measuring *in vivo* apoptosis, and a broad selection of original glaucoma research. I hope you will agree that this is a stimulating issue.

While picking the articles for this specially themed issue, I also had the opportunity to reflect on some of the great papers published by *Eye* over the last year.

Tao and Jonas[1] made an important finding that AMD patients undergoing anti-vegf therapy had a significantly shorter axial length cf. cataract patients. This association merits further study by assessment in other cohorts. If replicated, it may lead to novel insights into why some AMD patients develop 'wet' AMD.

The use of anti-vegf therapy featured in several other highly cited papers. This included a study of the therapeutic effect of bevacizumab injected into the silicone oil of eyes with neovascular glaucoma after vitrectomy for advanced diabetic retinopathy.[2] Interestingly, bevacizumab was effective in inducing regression of neovascularisation. Thus, this paper highlights that intra-silicone oil injection of bevacizumab has a biological effect.

Novel treatments for central retinal vein occlusion are now licensed for clinical use. Tao *et al*,[3] however, also showed that the non-licensed treatments bevacizumab and triamcinolone can both improve visual acuity in non-ischaemic central vein occlusion. On the basis of results like this, it seems likely that discussions on whether ophthalmologists should use licensed *vs* unlicensed treatments will extend beyond age-related macular degeneration.

Optical coherent imaging (OCT) has transformed medical retinal practice, and two of our top cited papers dealt specifically with OCT. There are many different OCT machines available and sometimes patients are imaged on different machines. Different equipment gives different foveal thickness measurements. If not appreciated this could result in incorrect treatment being given. Carpineto *et al*[4] showed, however, that there is a correlation between different OCT machines, suggesting that a conversion factor could be developed to allow intra- machine comparison.

Cukras *et al*[5] highlighted important differences between time- *vs* spectral-domain devices. They showed that the choice of time-domain (Stratus) *vs* spectral-domain (Cirrus) OCT systems has a measurable impact on clinical decision making in exudative AMD.

As they state 'Spectral-domain OCT systems may be able to generate more consensus in clinical interpretation and, in particular cases, detect disease activity not detected by time-domain systems. Clinical trials using OCT-based clinical evaluations of exudative AMD may therefore need to account for these inter-system differences in planning and analysis.' This may also affect choice of equipment for service delivery as well.

Moving to the front of the eye, Versura *et al*[6] utilised tear proteomics to show that tear protein changes anticipate the onset of more extensive clinical signs in early stage dry eye disease. They showed a downregulation of lipophilin A and C, and lipocalin-1 in patients with dry eye. This is suggested to be associated with post-translational modifications. Little is known of the underlying aetiology of dry eye, for example, is it genetic? Studies such as this are thus important.

Sengupta *et al*[7] produced a very nice paper comparing the use of a mydriatic cocktail with a wick for preoperative mydriasis in cataract surgery to the standard regimen of preoperative topical dilating drops. They showed statistically significant superior mydriasis in the wick group. As they state 'It is the dream of every surgeon to have eyes with excellent mydriasis to facilitate a complication-free cataract surgery. We hope that the above-mentioned mydriatic cocktail regimen may go a long way in this regard.' Their method certainly appears to have merit, as they demonstrated their cocktail regimen was safe, efficacious, time saving, and cost effective.

Department of Ophthalmology, University of Southampton, Southampton Eye Unit, Southampton, UK

Correspondence: A Lotery, Department of Ophthalmology, University of Southampton, Southampton Eye Unit, Tremona Road, Southampton S016 6YD, UK
Tel: +44 (0) 23 8079 4590; Fax: +44 (0) 23 8079 4120.
E-mail: A.J. Lotery@soton.ac.uk

Medical management is important to remember while dealing with ophthalmic disease. This was highlighted by Rudkin *et al*,[8] who found that in 64% of central retinal artery occlusion (CRAO) patients there was a vascular risk factor. This included hyperlipidemia, hypertension, and carotid artery stenosis. Therefore, patients presenting with CRAO may have a previously undiagnosed vascular risk factor that may be amenable to medical or surgical treatment. As this population is at a high risk of secondary ischaemic events, risk factor modification is prudent.

Genetic studies also featured in our higher cited papers. Lin *et al*[9] found an association between lumican gene polymorphisms and high myopia. This result merits further assessment of this gene in myopia, including attempted replication of these findings in additional cohorts.

My final top paper of 2010 is an intriguing laboratory study produced by Professor Foulds *et al*.[10] Using an animal model, he suggests that laser treatment of macular oedema or retinal neovascularisation may obtain its effect not only by improving oxygen availability in the inner retina but also by reducing the load of angiogenic/permeability factors that accumulate in the photoreceptors in hypoxic/ischaemic conditions. After decades of use, the reason that laser photocoagulation works in the treatment of macular oedema or retinal neovascularisation remains unclear. Thus, studies such as this are welcome.

I hope you agree that these studies are interesting and useful to clinical practice. I hope you enjoy reading this themed glaucoma issue as well.

Conflict of interest

The author declares no conflict of interest.

References

1 Tao Y, Jonas JB. Refractive error and smoking habits in exudative age-related macular degeneration in a hospital-based setting. *Eye* 2010; **24**(4): 648–652.
2 Falavarjani KG, Modarres M, Nazari H. Therapeutic effect of bevacizumab injected into the silicone oil in eyes with neovascular glaucoma after vitrectomy for advanced diabetic retinopathy. *Eye* 2010; **24**(4): 717–719.
3 Tao Y, Hou J, Jiang Y-R, Li X-X, Jonas JB. Intravitreal bevacizumab *vs* triamcinolone acetonide for macular oedema due to central retinal vein occlusion. *Eye* 2010; **24**(5): 810–815.
4 Carpineto P, Nubile M, Toto L, Aharrh Gnama A, Marcucci L, Mastropasqua L *et al*. Correlation in foveal thickness measurements between spectral-domain and time-domain optical coherence tomography in normal individuals. *Eye* 2010; **24**(2): 251–258.
5 Cukras C, Wang YD, Meyerle CB, Forooghian F, Chew EY, Wong WT. Optical coherence tomography-based decision making in exudative age-related macular degeneration: comparison of time- *vs* spectral-domain devices. *Eye* 2010; **24**(5): 775–783.
6 Versura P, Nanni P, Bavelloni A, Blalock WL, Piazzi M, Roda A *et al*. Tear proteomics in evaporative dry eye disease. *Eye* 2010; **24**(8): 1396–1402.
7 Sengupta S, Subramoney K, Srinivasan R, Nongrum B, Agarwal V, Pandian DG *et al*. Use of a mydriatic cocktail with a wick for preoperative mydriasis in cataract surgery: a prospective randomised controlled trial. *Eye* 2010; **24**(1): 118–122.
8 Rudkin AK, Lee AW, Chen CS. Vascular risk factors for central retinal artery occlusion. *Eye* 2010; **24**(4): 678–681.
9 Lin H-J, Wan L, Tsai Y, Chen W-C, Tsai S-W, Tsai F-J. The association between lumican gene polymorphisms and high myopia. *Eye* 2010; **24**(6): 1093–1101.
10 Foulds WS, Kaur C, Luu CD, Kek WK. A role for photoreceptors in retinal oedema and angiogenesis: an additional explanation for laser treatment? *Eye* 2010; **24**(5): 918–926.