Diabetes being a chronic multisystem disease with end-organ damage, it would be natural to expect raised serum EPO, especially with coexisting nephropathy and anaemia.² Earlier reports show that the correction of anaemia (and also supplementation of EPO) decrease the effects of retinopathy with structural improvement, possibly through the improved oxygenation of the macula.^{2,3} It would be fallacious then to compare the acute imbalance of retinal vein occlusion (RVO) cases, with DME. Also, EPO level in the DME group was found to be 430 mU/ml (41–3000), and in the RVO group, it was 91.3 mU/ml (30–417). It would have been interesting to note the near normal levels of EPO in some of the DME cases despite the presence of DME. This would probably imply the role of other factors in DME. In this regard, the authors may have overlooked important factors for the production of EPO, such as nephropathy status, Hb levels, and coexisting vascular disease.³

The authors have shown ingenuity in their study; however, we reckon that it would have been better served with a comprehensive outlook of the risk factors being studied.

References

- 1 Garcia-Arumi J, Fonollosa A, Macia C, Hernandez C, Martinez-Castillo V, Boixadera A *et al.* Vitreous levels of erythropoietin in patients with macular edema secondary to retinal vein occlusions: a comparative study with diabetic macular edema. *Eye* 2008, advance online 1 August 2008, doi:10.1038/eye.2008.230.
- 2 Friedman EA, L'Esperance FA, Brown CD, Berman DH. Treating azotemia-induced anemia with erythropoietin improves diabetic eye disease. *Kidney Int Suppl* 2003; (87): 57–63.
- 3 Davis MD, Fisher MR, Gangnon RE, Barton F, Aiello LM, Chew EY *et al.* Risk factors for high-risk proliferative diabetic retinopathy and severe visual loss: Early Treatment Diabetic Retinopathy Study Report #18. *Invest Ophthalmol Vis Sci* 1998; 39(2): 233–252.

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Sir, Erythropoietin and diabetic macular oedema

We appreciate the comments of Dr Uparkar regarding our article. We agree that serum erythropoietin (EPO) is expected to be raised in diabetic patients. However, we showed that vitreous EPO levels were raised because of intraocular production in our earlier article.¹ Dr Uparkar states that it would be fallacious to compare the acute imbalance or retinal vein occlusions with diabetic macular oedema (DME), a chronic condition. However,

other vitreous factors, such as vascular endothelial growth factor (VEGF), are raised in both diseases;^{2,3} hence, we believe our study is not so fallacious. We agree that systemic factors are related with EPO production, but we remind Dr Uparkar that, as mentioned above, intraocular production was responsible for raised vitreous EPO levels.¹

References

- 1 Hernández C, Fonollosa A, García-Ramírez M, Higuera M, Catalán R, Miralles A *et al.* Erythropoietin is expressed in the human retina and it is highly elevated in the vitreous fluid of patients with diabetic macular edema. *Diabetes Care* 2006; 29(9): 2028–2033.
- 2 Nguyen QD, Tatlipinar S, Shah SM, Haller JA, Quinlan E, Sung J *et al.* Vascular endothelial growth factor is a critical stimulus for diabetic macular edema. *Am J Ophthalmol* 2006; 142(6): 961–969.
- 3 Noma H, Funatsu H, Yamasaki M, Tsukamoto H, Mimura T, Sone T *et al.* Aqueous humour levels of cytokines are correlated to vitreous levels and severity of macular oedema in branch retinal vein occlusion. *Eye* 2008; 22(1): 42–48.

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Sir, Tonometer disinfection practice in the United Kingdom: the climate implications

We read with interest the article entitled 'Tonometer disinfection practice in the United Kingdom: a national survey',¹ and agree with the conclusion that guidelines for tonometer disinfection in the United Kingdom are necessary. We would like to comment on the article's surprising finding that 23% of ophthalmology units with training recognition have adopted exclusive use of disposable tonometer prisms despite evidence that there is still a risk of transmission of pathogens when using these,² and that they are less accurate than a Goldmann prism.³ In the absence of concrete evidence of reduced risk of transfer of viral and bacterial pathogens and controversy about the small theoretical risk of transmission of vCJD,⁴ we must consider the financial and environmental costs associated with the use of disposable prisms. If we assume that an average ophthalmologist sees 4000 patients per annum, the cost of two non-disposable Goldmann prisms and 36 l of 0.5% sodium hypochlorite solution would be £244 per annum. The cost for Tonosafe disposable prisms for this number of patients would be £2324 (personal communication, Haag Streit). This amounts to a cost per patient of 58.1 pence for the Tonosafe prism and 6.1 pence for the

non-disposable prism, a difference in cost per doctor per annum of £2080. Waste produced per 4000 patients using non-disposable prisms is 48 plastic bottles, whereas using disposable prisms results in 5.52 kg of plastic and 1.68 kg of paper waste. There are approximately 2500 consultants, associate specialists, and trainee ophthalmologists working in the United Kingdom (Royal College of Ophthalmologists, personal communication). If all of these were to use disposable Tonosafe prisms, this would result in an approximate added cost to the NHS of £5.2 million per annum and the production of 4.2 tonnes more paper waste, and 13.8 tonnes more plastic waste than if non-disposable prisms were used. Climate change is happening and mankind is believed to be responsible.⁵ In the absence of a strong case for disposable prism use, guidelines on disinfection can support practice which reduces the risk of cross contamination to acceptable levels, reduces costs and reduces the contribution of ophthalmologists to climate change.

References

- 1 Hillier RJ, Kumar N. Tonometer disinfection practice in the United Kingdom: a national survey. *Eye* 2008; **22**(8): 1029–1033.
- 2 Lockington D, Mukherjee S, Mansfield D. Bacterial contamination of the disposable prism holder during routine tonometry for intraocular pressure. *Eye* 2008 e-pub ahead of print 6 June.
- 3 Maino AP, Morgan LH, Hercules BL, Tullo AB. Are disposable prisms an adequate alternative to standard Goldmann tonometry prisms in glaucoma patients? *Ophthalmology* 2006; **113**(10): 1837–1841.
- 4 Amin SZ, Smith L, Luthert PJ, Cheetham ME, Buckley RJ. Minimising the risk of prion transmission by contact tonometry. *Br J Ophthalmol* 2003; **87**(11): 1360–1362.
- 5 IPCC, 2007: Summary for Policymakers. In: Solomon, SD Qin, M Manning, Z Chen, M Marquis, KB Averyt, M Tignor and HL Miller (eds). *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

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Sir,
Reply to Dr Somner

We thank Somner and Lockington for their comments. They bring an interesting perspective to the debate of disposable *vs* non-disposable tonometer heads. The financial and environmental impact of the disposable

tonometer they describe has not been described in this detail before and may influence the practice of units in the United Kingdom.

The national survey on tonometer disinfection highlights that units in the United Kingdom may be using disinfection practices that are insufficient based on currently published guidelines. The facts that some units do not have two tonometers per doctor, that soaking times may be inadequate for sufficient disinfection, that rinsing practices of tonometers may not be sufficient, and that the strength and type of disinfection solutions in use may not be appropriate all lead us to believe that this may leave patients at risk of cross contamination and an iatrogenic infection.¹

Outbreaks of epidemic keratoconjunctivitis from well reputed eye units have been documented, and tonometers have been implicated as one of the potential sources for the spread of these epidemics.^{2,3}

The department of health has instituted an advisory committee for dangerous pathogens (ACDP), for transmission of spongiform encephalopathy, with an ophthalmic subgroup, which is in the process of drafting guidelines for disinfection practices for instruments used in the specialty. Their guidelines are due to be published towards the end of 2008 and include a disinfection guideline for non-disposable instruments (including tonometer heads), which will be more stringent and potentially more difficult to adhere to than currently published guidelines. Their guidelines will recommend that if strict disinfection practices cannot be adhered to, the use of disposable instruments should be considered when these are available (personal communication from the ACDP, Ophthalmology subgroup).

We believe that units that cannot adhere to a safe and acceptable tonometer disinfection practice, which adheres to published guidelines, should consider the use of a disposable tonometer head as the financial, legal, and public relations impact of an outbreak of epidemic keratoconjunctivitis or the iatrogenic spread of infection because of inadequate disinfection practices would be considerable.

References

- 1 Hillier RJ, Kumar N. Tonometer disinfection practice in the United Kingdom: a national survey. *Eye* 2008; **22**(8): 1029–1033.
- 2 Gottsch JD. Surveillance and control of epidemic keratoconjunctivitis. *Trans Am Ophthalmol Soc* 1996; **94**: 539–587.
- 3 Cheung D, Bremner J, Chan JT. Epidemic keratoconjunctivitis—do outbreaks have to be epidemic? *Eye* 2003; **17**(3): 356–363.

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