

without sub-tenons anaesthesia, and no associated painful complications occurred.⁵

The authors included data regarding the 'strength of burns per session'. Further clarification regarding these data would be welcomed from the authors. We presume that 'strength' is in reference to visible burn intensity that is related to laser power, whereby a significantly higher fluence (power × time/area) is required for the 100-ms PRP compared with the lower-fluence 20-ms PRP. The ETDRS recommended the standard burn intensity (grey-white) as the threshold for PRP laser.

The authors allude to the risks of secondary macular oedema in anaesthetised eyes; this statement is misleading. The risks of post-PRP macular oedema are associated with high-energy and long-pulse laser, underlying macular ischaemia, young type 1 diabetic PDR patients, and weekly multi-session PRP.⁵

We consider routine periocular anaesthesia for PRP to be an unnecessary extra step for most patients, with additional risks, discomfort, and extra financial cost. Pascal retinal laser may incur significant cost savings for NHS departments, as the treatment times, number of treatment sessions, and total required outpatient clinic sessions are significantly reduced. In the era of Pascal photocoagulation, multi-spot, short-pulse PRP may improve the comfort of the patient's laser journey, and increase the compliance with laser treatment over the long term.

Conflict of interest

PES has received financial support from OptiMedica Corporation.

References

- Richardson C, Waterman H. Pain relief during panretinal photocoagulation for diabetic retinopathy: a national survey. *Eye (London)* 2009; **23**(12): 2233–2237.
- Jain A, Blumenkranz MS, Paulus Y, Wiltberger MW, Andersen DE, Huie P *et al.* Effect of pulse duration on size and character of the lesion in retinal photocoagulation. *Arch Ophthalmol* 2008; **126**: 78–85.
- Sanghvi C, McLauchlan R, Delgado C, Young L, Charles SJ, Marcellino G *et al.* Initial experience with the Pascal[®] photocoagulator: a pilot study of 75 procedures. *Br J Ophthalmol* 2008; **92**: 1061–1064.
- Royal College of Anaesthetists and the Royal College of Ophthalmologists. *Local Anaesthesia for Intraocular Surgery*. RCA, RCOphth: London, 2001.
- Stanga PE, Muqit MMK, Henson DB, Young LB, Charles SJ, Turner GS *et al.* Manchester Study of Pattern Scanning Laser (Pascal[®]) Panretinal Photocoagulation (PRP) in Proliferative Diabetic Retinopathy [MAPASS]: 1500 burns pattern single session *vs* single-spot multiple session PRP. *Invest Ophthalmol Vis Sci* 2009; **50**: E-Abstract 196.

PE Stanga^{1,2} and MMK Muqit^{1,2}

¹Manchester Royal Eye Hospital, Manchester, UK

²University of Manchester, Manchester, UK
E-mail: retinaspecialist@btinternet.com

Eye (2010) **24**, 1415–1416; doi:10.1038/eye.2010.37;
published online 26 March 2010

Sir, Pain relief during panretinal photocoagulation for diabetic retinopathy

We read with great interest the article 'Pain relief during panretinal photocoagulation for diabetic retinopathy: a national survey' by Richardson and Waterman.¹ We have some comments to share with the authors.

First, this is a study assessing the pain during panretinal photocoagulation (PRP) from the doctors' perspective. It may not be objective and convincing enough for us to draw a conclusion regarding whether PRP is painful and whether use of analgesics is effective in reducing pain based on the data of the present study. In fact, the authors might have added a question in their questionnaire regarding how the doctors knew their patients were in pain during the procedure. Did they actually ask the patients or only judged from the patients' incompletion? We notice that some patients could not cooperate during the procedure not because they felt painful. They in fact only felt 'sore' in the eye that was under PRP, or felt the scattered light to be 'too shining' for the contralateral eye. Moreover, different doctors might have different levels of understanding of the likelihood of pain in question 7 described in this study. It would be more objective to assess the pain by asking the patients to fill in the pain-rating scales.

Second, the authors may need to attach the questionnaire in the article, as it is important for us to know how it was designed and what questions exactly were asked. Besides, according to what was described in the article, it seems that there were some missing data, such as the age and gender of those patients who often felt pain during the procedure. In our own clinical practice, we have noticed that young female patients were more sensitive to the pain caused by the laser burns and were less compliant during PRP.

Conflict of interest

The author declares no conflict of interest.

Reference

- Richardson C, Waterman H. Pain relief during panretinal photocoagulation for diabetic retinopathy: a national survey. *Eye (Lond)* 2009; **23**(12): 2233–2237.

YJ Hu

Joint Shantou International Eye Center,
Guangdong, China
E-mail: kevin8899@sohu.com

Eye (2010) **24**, 1416; doi:10.1038/eye.2010.28;
published online 26 March 2010

Sir, Reply to Stanga and Muqit, and YiJun Hu

We welcome the fact that our paper has stimulated debate on pain relief in laser therapy and that we have

received responses from Stanga and Muqit,¹ and YiJun Hu.² It became apparent during our 2006 survey of ophthalmic units across the United Kingdom that a small number of units had started using Pascal laser photocoagulation, and we reported that the respondents considered that this was improving the situation with regard to pain and compliance during the procedure. These comments were anecdotal and were reported in the paper. We noted in the conclusion that the results should be viewed with caution because of the nature of the surveys and that newer lasers were being introduced at the time of the survey.

In terms of analgesia, we reported that 9% of units routinely use sub-tenons anaesthesia. We stated that there may be a case to support the use of sub-tenons based on the laser being used at the time, but suggested caution because of the potential side effects that Stanga *et al* allude to in their letter and also that new lasers that may cause less pain were emerging.

YiJun Hu makes an excellent point about pain assessment. As this was a survey of practitioners, we only have their viewpoint and we did not therefore attempt to offer any results from the patient's perspective. What was clear from many responses was that the responders often considered that their own patients were not in pain but that they knew colleagues for whom pain was an issue when they performed this therapy, which seems to suggest that different practitioners do identify pain differently.

Regarding the 'strength of burns per session' identified by Stanga and Muqit as requiring clarification, this was a term proposed during our questionnaire pilot. It was apparent that laser 'settings' were variable and that therapists identified different aspects of 'strength', such as 'intensity' and 'fluence', mentioned by Stanga and Muqit. The decision to go with 'strength' was taken to try to cover all of these aspects and also to assist with questionnaire brevity, that is, to have one question to cover them all. Few respondents had difficulty with this term, but a small number of them clarified their understanding of the term in their response.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Stanga PE, Muqit MMK. Retinal laser photocoagulation, anaesthesia, and pain responses. (Correspondence) *Eye* 2010; **24**: 1415–1416 (this issue).
- 2 YiJun Hu. Pain relief during panretinal photocoagulation for diabetic retinopathy. (Correspondence). *Eye* 2010; **24**: 1416 (this issue).

C Richardson and H Waterman

Midwifery and Social Work, The University of Manchester, Lancashire, UK
E-mail: Clifford.richardson@manchester.ac.uk

Eye (2010) **24**, 1416–1417; doi:10.1038/eye.2010.30;
published online 26 March 2010

Sir, Subjective visual perceptions during vitreoretinal surgery under local anaesthesia

I read with interest the article by Vohra *et al*¹ describing subjective visual perceptions during vitreoretinal surgery under local anaesthesia, and would like to comment on a point raised by the authors—that patients 'can be reassured that they [visual perceptions] are not normally frightening'. Although in this cohort only 2 (2.7%) patients were frightened by their visual perceptions, it is important to note that there is considerable variation in the proportion of patients who are frightened by their intraoperative visual sensations, ranging from 5.9 to 13.8%.^{2,3} The variation in the proportion of patients frightened is similar to that described during cataract surgery, which ranges from 3 to 19.4%.⁴

There are many possible reasons for this variation between studies, including cultural differences, as well as the previous operative experience of the patients. In the cohort of 65 patients described by Tan *et al*,² 61 (93.8%) were undergoing vitreoretinal surgery for the first time. It would be interesting to know what proportion of patients in this series had undergone previous vitreoretinal surgery. It has been suggested that previous ocular surgery may serve as a 'practical' form of counselling on the range of possible intraoperative visual experiences.⁴ A study on patients undergoing cataract surgery⁵ reported that 15.8% of patients undergoing surgery for the first time were frightened by their intraoperative visual sensations, compared with only 6% for those having surgery to the second eye.

Besides the proportion of patients who experience fear, it is also important to consider the severity of fear experienced by the individual. In an earlier multicentre study,² 12.8% of patients indicated that they would have preferred general anaesthesia in order to avoid experiencing these sensations, and 7.7% would still have wanted this even after being counselled on the higher risks associated with this form of anaesthesia. Of those who were frightened, 33.3% indicated that they would have wanted GA, compared with 8.9% of those who were not frightened.

In summary, I agree with Vohra *et al* that healthcare providers should explain to patients what they may encounter during vitreoretinal surgery, but urge caution about stating that they are not normally frightening.

Conflict of interest

The author declares no conflict of interest.

References

- 1 Vohra SB, Anya C, Farooq T, Murray PI. Subjective visual perceptions during vitreoretinal surgery under local anaesthesia. *Eye* 2009; **23**: 1831–1835.
- 2 Tan CS, Au Eong KG, Kumar CM. Visual experiences during cataract surgery: what anaesthesia providers should know. *Euro J Anaesthesiol* 2005; **22**: 413–419.
- 3 Tan CS, Mahmood U, O'Brien PD, Beatty S, Kwok AK, Lee VY *et al*. Visual experiences during vitreous surgery under regional anesthesia: a multicenter study. *Am J Ophthalmol* 2005; **140**: 971–975.
- 4 Sugisaka E, Shinoda K, Ishida S, Imamura Y, Ozawa Y, Shinoda H *et al*. Patients' descriptions of visual sensations