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Sir,
Regarding 'transient visual loss due to reversible 'pending' central retinal artery occlusion in occult giant cell arteritis'

I read with interest the correspondence published by Sane *et al*[1] describing the fluorescein angiographic findings of reversible retinal circulatory abnormalities associated with giant cell arteritis. It is erroneously stated that this is the first time this has been reported. In 2003, I described a similar case of occult giant cell arteritis in a gentleman who had lost vision in excess of 100 times.[2] I presented fluorescein angiography of an attack in progress showing the total occlusion of retinal circulation and then reperfusion.

Conflict of interest

The author declares no conflict of interest.

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Sir,
Chorio-retinal thickness measurements in patients with acromegaly

We read with interest the article by Pekel *et al*[1] comparing choroidal, foveal, and peripapillary retinal thickness between acromegaly patients and healthy adults. The authors reported that the mean subfoveal choroidal thickness (SFCT) was higher in acromegaly patients (374.4 *vs* 308.6 μm in the study and control groups, respectively).

It would be interesting, however, to know whether this thickening occurs to the same extent throughout the macula, or if certain regions are more severely affected. There is a potential limitation in measuring choroidal thickness at a single point subfoveally because point thickness measurements can be influenced by local changes in choroidal thickness or irregularities in the choroid–scleral border. The choroid is a complex three-dimensional structure with a highly anastomosed network of blood vessels. Significant topographic variations of choroidal and retinal thicknesses at the macula have been reported.[2,3] Some regions of the choroid may be more sensitive to endocrinological changes in acromegaly.

It may thus be useful to measure choroidal thickness at different regions of the macula, for example, at different distances from the fovea both vertically and horizontally, or by assessing mean choroidal thicknesses of pre-defined sectors using the Early Treatment Diabetic Retinopathy Study grid.

We are curious to know if the time of the optical coherence tomography scans were standardized, or if they occurred at different times of the day. Earlier studies have demonstrated significant diurnal variation of SFCT measured using spectral-domain optical coherence tomography.[4] As the amplitude (difference between the maximum and minimum choroidal thickness) has been reported to be as high as 67 μm, and this amplitude is greater among patients with thicker choroids,[4] the observed difference in SFCT between diseased and normal eyes in this study (mean 65.8 μm) could partly be accounted for by diurnal variation.

In summary, we congratulate the authors on their interesting findings and look forward to further studies examining the ocular effects of acromegaly at various regions of the macula. It is increasingly evident that the choroid has important roles in normal physiology and in ocular diseases, the study of which will be greatly facilitated by the new swept-source optical coherence tomography devices.[5]

Conflict of interest

The authors declare no conflict of interest.

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Sir,
Effect of cooling proparacaine 0.5% eye drops on patient's comfort during instillation

Effect of cooling proparacaine 0.5% eye drops on patient's comfort during instillation.

Proparacaine is commonly used for topical ophthalmic anaesthesia. However, it causes stinging when instilled into the eye. Studies have suggested that cooling tetracaine eye drops may be helpful in reducing the patient's discomfort during instillation.[1,2]

We aimed to study if there is any difference in pain score and duration between cooled proparacaine eye drops and room temperature proparacaine eye drops by measuring the difference in the mean pain scores and duration using a previously validated visual analogue scale (VAS).[3]

Healthy study subjects were recruited from our adult clinic staff. The exclusion criteria were personnels with any pre-existing ocular disease, history of corneal surgery, current pregnancy, or eye drop usage. All volunteers received both anaesthetics in a prospective, randomised, double-masked protocol. All applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during this research.

Each subject received one drop of refrigerated (at 4 °C/39.2 °F) proparacaine hydrochloride 0.5% in one eye and one drop of proparacaine hydrochloride 0.5% at room temperature (at 23–25 °C/73.4–77 °F) in the other eye in a randomised manner using a computer-generated randomisation table. Both the subject and the observer evaluating the pain score were blinded to the temperature of the drops. The proparacaine used in this study was Alcaine 0.5%, manufactured by Alcon (Singapore), containing proparacaine hydrochloride 0.5%. Each subject was asked to indicate on the VAS the amount of pain they felt after each drop and to report when the pain resolved completely. A timer was started immediately by the first observer after instillation of the eye drop and stopped when the subject reported no further pain. Immediately, after the administration of the first drop, the second observer who was blinded to the temperature of the administered drop evaluated the pain score using the VAS. The procedure was repeated for the other eye. After the administration of both the eye drops, subjects were then asked to indicate which eye drop they felt was the cooler one. The VAS score and pain duration were then analysed using Student's *t*-test on SPSS version 21 (IBM Corp, Singapore).

Twenty-five subjects consisting of 18 females and 7 males were enrolled into the study. The mean age of participants was 31 years (SD 10.1, range 22–56 years). Thirteen received cooled proparacaine first, and 12 received room temperature proparacaine first. The difference in mean pain scores between cooled proparacaine (13.16 ± 9.96 mm, (95% confidence interval (CI), 9.05–17.27 mm)) and room temperature proparacaine (14.22 ± 10.31 mm, (95% CI, 9.97–18.48 mm)) was not statistically significant ($P = 0.549$). The mean duration of stinging for cooled proparacaine was 10.68 (SD 7.14, (95% CI, 7.67–13.70)) seconds compared with room temperature proparacaine 12.79 (SD 8.60, (95% CI, 9.16–16.43)) seconds. Cooling proparacaine reduced the duration of pain associated with instillation only by a mean of 3 s ($P = 0.036$). Forty per cent ($n = 10$) of the subjects were able to guess the cooled eye drops correctly.

In our study, we found that cooling proparacaine eye drops reduces the duration of pain associated with instillation but not the severity. In contrast to tetracaine studies,[1,2] our study did not show a significant difference in pain severity. This might be because proparacaine induces less pain on instillation compared with tetracaine,[4] and so any reduction in pain due to cooling might be difficult to detect by our study participants. However, our study showed that cooling proparacaine reduced the duration of stinging sensation.

There are several limitations to our study. We enrolled healthy volunteers, not patients. Hence, our findings may not be generalisable to the patient population. Subjects were not blinded to the objective of the study, as we were required by our institutional review board to inform our subjects that we are comparing cold and room temperature proparacaine. There is a possibility that the study subjects are able to tell the temperature of the eye drops used, which may lead to subject bias in the reporting of pain scores. Our findings may be especially relevant in the pediatric patient population. Proparacaine eye drops are often used before cycloplegic eye drop instillation for cycloplegic refraction in our centre. This is because instilling cycloplegic eye drops can be especially uncomfortable.[5] As the cooperation of the child is dependent on their comfort, any measure that reduces pain associated with eye drop usage may be helpful. However, further studies are needed to ascertain the usefulness of cooling proparacaine eye drops in this population.

In conclusion, we found that cooling proparacaine had an effect in reducing the duration but not the severity of discomfort associated with instillation.

Conflict of interest

The authors declare no conflict of interest.

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