showed continued inactivity of the lesion. No additional Ranibizumab treatments had been required during this time. During follow-up, fundus autofluorescence imaging showed no significant enlargement of the areas of chorioretinal atrophy in the paramacular area (Figure 3).

Comment

L-ORD is an autosomal dominant retinal dystrophy caused by a mutation (Ser163Arg) in the protein C1QTNF5, which leads to the formation of a thick extracellular sub-RPE deposit.[2,3] Early features of the disease include nyctalopia and fine macular drusen, followed later by peripheral retinal and macular atrophy. Patients are also predisposed to choroidal neovascularisation, usually by the sixth decade.[4] If untreated, the natural history of the lesions is poor.[1] To date, only laser photocoagulation of lesions in three eyes has been reported, with poor results.[1] We report the successful 12-month outcome of a juxtafoveal CNV treated with intravitreal Ranibizumab. Closure of the lesion was achieved after three treatments, with stabilisation of vision and no evidence of recurrence at month 12. Intravitreal Ranibizumab appears to be safe and more effective than laser photocoagulation in the treatment of CNV in patients with L-ORD.

Conflict of interest

The authors declare no conflict of interest.

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KH Aye, R Gupta, SJ Talks and AC Browning

Department of Ophthalmology, Claremont Wing, Royal Victoria Infirmary, Newcastle upon Tyne, UK
E-mail: Andrew.Browning@nuth.nhs.uk

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Sir,

24-h Intraocular pressures measured with two tonometers

We read with interest the article 'Untreated 24-h intraocular pressures measured with Goldmann applanation tonometry *vs* nighttime supine pressures with Perkins applanation tonometry' by Quaranta *et al*.[1] The study has methodological issues that are of interest and should be clarified.

One goal of this study was to compare the daytime sitting intraocular pressure (IOP) with the nighttime supine IOP in untreated patients with ocular hypertension or glaucoma. Ideally, such a comparison should be based on data using the same method of tonometry for all the measurements. As the Goldmann tonometer, the clinical gold standard, can only be used to obtain measurements in the sitting position, the handheld Perkins tonometer was used for the supine IOP measurements. Comparison of IOP measurements with these two different tonometers can be misleading, and would have been obviated by comparison of daytime sitting IOP measurements using the Perkins tonometer with those obtained using the Goldmann tonometry.

Using a Perkins tonometer to obtain both daytime and nighttime measurements, rather than the Goldmann tonometer for the daytime measurements and the Perkins tonometer for the nighttime measurements, would have been preferred. The authors lost an opportunity to maximize the statistical power by using two different tonometers. As mentioned by the authors, a Perkins tonometer may not provide the same IOP values as a Goldmann tonometer. A critical issue is the direction of possible measurement errors. It has been reported that the Perkins tonometer can underestimate IOP by 0.6–1.5 mm Hg compared with the Goldmann tonometer.[2–5] If an underestimation by the Perkins tonometer occurred in this study, IOP values at night may have been underestimated.

The authors used the Goldmann sitting IOP measured at 1000 hours as inclusion criterion for the study. Subjects who had IOP below 22 mm Hg at 1000 hours were excluded from the 24-h IOP evaluations. This may have created a bias toward inclusion of patients with higher IOPs in the morning, thus potentially helping to explain the relatively higher pressures obtained during the daytime period compared with the nighttime period. As the authors were interested in studying the general 24-h IOP profile in ocular hypertension and glaucoma, it seems logical that they should not have restricted their inclusion to only those patients with high pressures in the morning.

We also noticed the difference in daytime and nighttime definitions in this study compared with relevant publications in the literature. The authors performed IOP measurements every 4 h and divided the six readings in the 24-h period equally as daytime and nighttime readings. This definition is different from other publications that divided the 24-h day into a 16-h daytime/wake period and 8-h nighttime/sleep period to study IOP or aqueous flow.[6,7] The use of a similar definition would have allowed better comparison

of the results of this study with those from earlier investigations.

Conflict of interest
The authors declare no conflict of interest.

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RN Weinreb, JHK Liu and FA Medeiros

Department of Ophthalmology, Hamilton Glaucoma Center, University of California, San Diego, La Jolla, CA, USA
E-mail: weinreb@eyecenter.ucsd.edu

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Sir,
Response to Weinreb *et al*

We thank Drs Weinreb, Liu, and Medeiros for their time and effort to respond to our article 'Untreated 24-h intraocular pressures measured with Goldmann applanation tonometry *vs* nighttime supine pressures with Perkins applanation tonometry'. The authors raise good questions to which we respond below.

1. *A daytime Goldmann vs Perkins sitting pressure:* We agree that such a measurement would have provided more information. However, there were several issues that led us to our design:

   a. *Usual practice*: Most clinicians use Goldmann for daytime measurements and we wished to emulate clinical practice as much as possible during the study.
   b. *Study goal*: Even if we had compared daytime Goldman and Perkins pressure, the small mechanistic differences between the two tonometers would remain despite the fact that both use a similar applanation technique. Therefore, for the purpose of this study, we assumed the interchangeability of the two tonometers for assessing sitting and supine daytime pressures. As this was an unsupported study, this design allowed us to focus our resources on nighttime measurements, which is the main purpose of the study.

2. *The Perkins tonometer measurements for both nighttime sitting and supine measurements:* Again, we agree that this measurement would have provided more information. However, Goldmann applanation tonometry is the gold standard for measuring the intraocular pressure. Consequently, if we had used the Perkins only at night then we would have lost the opportunity to establish untreated sitting pressures during this time period measured by the gold standard. There was a trade off in design with either choice.

3. *The 10 : 00 inclusion criterion of 22 mm Hg and selection bias:* The authors' letter raises an interesting point that some glaucoma patients with low morning pressures could have been excluded from the study. We chose this level of pressure as an entry criterion for several reasons:

   a. A pressure level of 22–24 mm Hg is a commonly used inclusion criterion in clinical trials that helps excludes patients without disease or with normal-tension glaucoma.
   b. It provided an ability to recruit known patients from the authors' databases in a reasonably efficient manner.
   c. Patients with a low morning pressure would have required multiple measurements throughout the day to identify the time of their elevated pressure, which would have been an inconvenience to the patients and clinic staffs.

   We believe the number of glaucoma patients missed by our definition was few because most patients have their highest diurnal pressure in the morning.[1,2]

4. *The definition of day and night pressure cycles and the literature:* We appreciate this point again. Although studies differ in the results of untreated nighttime pressure curves, we chose a 12-h definition because in many, but not all, trials the late evening pressure (2200 hours) more closely relates to the mid-nighttime pressure (0200 hours) than the daytime curve (please see Table 1).[3–9] However, based on Table 1, no matter how evening pressures are defined for the purpose of analysis, such divisions do not necessarily always conform to physiological function.

The above observations highlight the general challenges mentioned in our paper that nighttime measurement of the intraocular pressure provide multiple problems that might be solved with future research.

1. *How should the nighttime intraocular pressure be measured*? Although Goldmann applanation tonometry is the gold standard in measuring the