

**Sir,  
Response to: 'Comment on The Eye Phone Study:  
reliability and accuracy of assessing Snellen visual  
acuity using smartphone technology'**

We thank Rodríguez-Vallejo<sup>1</sup> for the comments on our paper.<sup>2</sup> The issues raised about the inadequacies of the Snellen Visual Acuity chart as a measure of vision are well founded, and we agree there are far better tools as highlighted in our paper.<sup>2</sup> However, the scope of our paper was to compare the smartphone visual acuity applications with the visual acuity measures most commonly used on a day-to-day basis in clinical practice. It has been our experience that the Snellen visual acuity chart is used far more frequently than any other standardised chart in clinical practice by physicians (including non-ophthalmologists such as general practitioners and emergency departments).

Our formula for calculation of optotype size is also based on the arcminutes subtended by each letter, where we have calculated the ideal optotype size for a standard letter and combined this with modifiers based on VA measure and distance from the chart. When tested, both formulas yield similar results.

With regard to Rodríguez-Vallejo's finding that the 'Snellen' app is more inaccurate on an iPhone 6, as mentioned in the letter, it is likely due to the non-responsive design of the application, leading to different results from our study, where we specifically used an iPhone 4 for all data collection. Tablets offer an exciting opportunity for visual acuity measurement, with many well-developed applications for visual acuity testing.<sup>3</sup> For the purposes of this study, we chose to focus on smartphones, as these are carried ubiquitously by medical practitioners, and, anecdotally, in our practice we noted that physicians used smartphone apps to check visual acuity more frequently than tablets.

Tests of vision using both smartphones and tablets is a rapidly developing area, and we look forward to reviewing the latest developments. We strongly believe there is a need for greater medical input when developing these apps, especially in the light of the recent FDA guidance.

**Conflict of interest**

The authors declare no conflict of interest.

**References**

- 1 Rodríguez-Vallejo M. Comment on 'The Eye Phone Study: reliability and accuracy of assessing Snellen visual acuity using smartphone technology'. *Eye (Lond)* 2015; **29**(12): 1627.
- 2 Perera C, Chakrabarti R, Islam F, Crowston J. The Eye Phone Study (EPS): reliability and accuracy of assessing Snellen visual acuity using smartphone technology. *Eye* 2015; **29**(7): 888–894.
- 3 Gounder P, Cole E, Colley S, Hille D. Validation of a portable electronic visual acuity system. *J Mobile Technol Med* 2014; **3**(2): 35–39.

C Perera<sup>1</sup> and R Chakrabarti<sup>2</sup>

<sup>1</sup>Department of Ophthalmology, Fremantle Hospital, Fremantle, Western Australia, Australia

<sup>2</sup>Department of Ophthalmology, Centre for Eye Research Australia, University of Melbourne, Melbourne, Victoria, Australia  
E-mail: chandrashan@gmail.com

*Eye* (2015) **29**, 1628; doi:10.1038/eye.2015.169;  
published online 11 September 2015

**Sir,  
Comment on 'Failure of intravitreal bevacizumab in the  
treatment of choroidal metastasis'**

We read with interest the article published in your journal 'Failure of intravitreal bevacizumab in the treatment of choroidal metastasis'.<sup>1</sup>

We agree that intravitreal bevacizumab as the primary treatment of choroidal metastases might not always be efficacious in controlling the disease and should not delay treatment that is more radical.

As the authors mentioned, choroidal metastases are associated with significant exudation; the choriocapillaris and Bruch's membrane are intact, and this may hinder the passage of the bevacizumab molecule through the retina.

Hence, we suggest another alternative, which is the use of systemic Bevacizumab, in association with chemotherapy in the treatment of choroidal metastasis. Systemic administration of bevacizumab could be superior to intravitreal injections due to its greater potential to concentrate in the metastatic tissue via the rich choroidal blood supply, regardless of the blood–retina barrier.

Systemic bevacizumab is nowadays an approved therapy for metastatic cancers originating from lung, ovaries, cervix, colon, brain, kidney and even the breast.<sup>2</sup> Combining systemic bevacizumab with chemotherapy seems to be an interesting modality of treatment in choroidal metastasis.

Two studies (Kourie *et al*<sup>3</sup> and George *et al*<sup>4</sup>) have recently published two cases of lung cancer with chroidal metastases successfully treated with systemic bevacizumab and chemotherapy. Obviously, further studies are warranted to confirm the IV superiority of Bevacizumab compared with intravitreal delivery in this setting.

**Conflict of interest**

The authors declare no conflict of interest.

**References**

- 1 Maudgil A, Sears KS, Rundle PA, Rennie IG, Salvi SM. Failure of intravitreal bevacizumab in the treatment of choroidal metastasis. *Eye (Lond)* 2015; **29**(5): 707–711.
- 2 Pazdur R FDA approval for bevacizumab. National Cancer Institute website <http://www.cancer.gov/about-cancer/treatment/drugs/fda-bevacizumab>.
- 3 Kourie HR, Antoun J, Schakal A, Nasr E, Sahyoun M, Kattan J. Complete disappearance of choroidal metastasis