consideration of the large choroidal tumour and exudative retinal detachment.

Intravitreal bevacizumab seems to be effective for early and small choroidal metastasis of colon adenocarcinoma. Further studies and longer follow-up are required to verify its efficacy.

Conflict of interest

The authors declare no conflict of interest.

References

1 Manzano RP, Peyman GA, Khan P, Kivilcim M. Testing intravitreal toxicity of bevacizumab (Avastin). *Retina* 2006; **26**(3): 257–261.

2 Amselem L, Cervera E, Díaz-Llopis M, Montero J, Garcia-Pous M, Udaondo P et al. Intravitreal bevacizumab (Avastin) for choroidal metastasis secondary to breast carcinoma: short-term follow-up. *Eye* 2007; **21**(4): 566–567.

3 Kuo IC, Haller JA, Maffrand R, Sambuelli RH, Reviglio VE. Regression of a subfoveal choroidal metastasis of colorectal carcinoma after intravitreous bevacizumab treatment. *Arch Ophthalmol* 2008; **126**(9): 1311–1313.

C-J Lin[1], K-H Li[1], J-F Hwang[1] and S-N Chen[1,2]

[1]Department of Ophthalmology, Changhua Christian Hospital, Changhua City, Taiwan
[2]School of Medicine, Chung Shan Medical University, Taichung City, Taiwan
E-mail: 108562@cch.org.tw

Sir,
Interactive computer-based self-reported, visual function questionnaire: the Palmpilot-VFQ

We read the article by Unver *et al*[1] with interest. The authors propose the Palmpilot-PDA as a method to overcome the barrier in implementing patient-reported outcomes (PROs). However, the work on using the Rasch analysis deserves further comment.

First, the authors calculate a total score from all questions in the PalmPilot-VFQ. However, a fundamental criterion underlying the Rasch models is unidimensionality. Unidimensionality refers to all items contributing to the measurement of a single underlying trait.[2] Although unidimensionality can be assessed by fit statistics as has been performed by the authors, recent studies suggest that these alone are inadequate and recommend performing principal components analysis (PCA) of the residuals for a detailed evidence of dimensionality.[3] It is crucial to establish unidimensionality because in its absence, the user will always be uncertain regarding the underlying latent trait being measured in a questionnaire. Reporting a total questionnaire score is invalid in such a scenario. Consider a multidimensional clinical measure derived by combining visual acuity and IOP values to form a clinical score from 0 to 100. Although this may save time in the clinic, the output is of no use as it conveys no meaning. With recent studies suggesting that the NEIVFQ measures not QOL but visual functioning, establishing the underlying latent trait in this popular questionnaire assumes greater significance.[4] Therefore, researchers should perform a PCA of residuals to establish unidimensionality (or lack of unidimensionality thereof) during assessment of questionnaires.

Second, the authors have not examined the validity of the subscales of PalmPilot-VFQ. The present analyses were limited to assessing the NEIVFQ-25 as a single overall measurement. It is important to investigate the validity of subscales because the validity of an overall scale does not imply valid subscales. Usually the subscales have fewer items and so it is not uncommon to come across subscales that lack precision for meaningful measurement.[5] The precision, perhaps reported with person separation, should be reported for each subscale.

The initiative to develop a PalmPilot-VFQ is laudable, and with a fuller description of the psychometric properties, particularly unidimensionality and precision of the subscales, the PalmPilot-VFQ may improve the implementation of PRO measurement.

References

1 Unver YB, Yavuz GA, Sinclair SH. Interactive, computer-based, self-reported, visual function questionnaire: the PalmPilot-VFQ. *Eye* 2009; **23**(7): 1572–1581.

2 Pesudovs K, Burr JM, Harley C, Elliott DB. The development, assessment, and selection of questionnaires. *Optom Vis Sci* 2007; **84**(8): 663–674.

3 Smith Jr EV. Detecting and evaluating the impact of multidimensionality using item fit statistics and principal component analysis of residuals. *J Appl Meas* 2002; **3**(2): 205–231.

4 Massof RW, Ahmadian L. What do different visual function questionnaires measure? *Ophthalmic Epidemiol* 2007; **14**(4): 198–204.

5 Gothwal VK, Wright T, Lamoureux EL, Pesudovs K. Activities of daily vision scale: what do the subscales measure? *Invest Ophthalmol Vis Sci* 2009, epub ahead of print 13 August 2009, doi: 10:1167/iovs09-3448.

VK Gothwal[1,2], K Pesudovs[1]

[1]Department of Ophthalmology, NH&MRC Centre for Clinical Eye Research, Flinders Medical Centre and Flinders University of South Australia, Adelaide, South Australia, Australia
[2]Meera and LB Deshpande Centre for Sight Enhancement, Vision Rehabilitation Centres, LV Prasad Eye Institute, Hyderabad, India
E-mail: vijayagothwal@gmail.com