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CORRESPONDENCE

Comment on: Keratopigmentation; a comprehensive review

Sergio Bonaque-González[1] · Juan M. Trujillo-Sevilla[1]

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To the Editor:

We read with great interest the article by H. Hasani et al. [1] regarding keratopigmentation's (KTP) indications and techniques. However, when the procedure has to be performed in large zones, it does not make any reference to the criteria followed to establish the area in which the procedure will be carried out. This could be an important consideration in KTP applied for improving functional visual symptoms. According to the literature, it seems that the selection of the area to be opacified is based on the subjective criteria of the surgeon. For example, in circular shapes a standard pupil diameter of 4–5 mm is often selected [2].

This subjectivity makes no sense from the point of view of visual optics. Currently, there exist image quality metrics that allow to discriminate with reasonable accuracy whether certain corrective vision treatments will provide an improvement over others. For that, eye's wavefront information is used. In a previous article [3], we demonstrated that the retinal image of the eye can be significantly improved, even in healthy eyes, by blocking those areas of the wavefront which most degrade retinal image quality using a static binary pupil mask placed in the pupil plane. This imply that a circular shape is not necessarily the one that maximize the quality of vision. For that purpose, it would be sufficient to obtain the eye's wavefront, the use of a segmentation algorithm, and the selection of an image quality metric [3]. The same approach can be applied to the case of KTP, taking into account that the procedure will be performed in the corneal plane and, therefore, the possibility of an asymmetric field view should be considered. In this way, the high rate of reoperations [2] could be reduced, and visual results should be optimized.

To date, this «wavefront-guided keratopigmentation» is a new concept that has only been tested in simulations in the pupil plane. This is probably because the low resolution in the wavefront provided by Shack-Hartmann-based commercial aberrometers is too low. However, a good approximation would already be possible with pyramidal sensors [4], and it could be completely addressed with the next generation of ocular aberrometers [5].

Compliance with ethical standards

Conflict of interest The authors declare no conflict of interest.

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✉ Sergio Bonaque-González
sergiob@wooptix.com

[1] Wooptix S.L, Sta. Cruz Tenerife, Spain