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Ocular Dominance and Stereopsis as Crucial Assessment in Presbyopia Refractive Surgery

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1 We read with interest the study by Rahmania et al.¹ in the January 2021 issue emphasizing the
2 superiority of enhanced depth of focus using negative spherical aberration modulation in the non-
3 dominant eye compared with contact lens monovision. They also demonstrate the effectiveness of
4 positive spherical aberration induction to improve intermediate and near vision in the dominant eye.
5 Regarding preoperative methodological assessment we want to focus on ocular dominance procedure.
6 The authors explored ocular dominance with the pinhole test and the lens fogging technique. Later in
7 the surgical procedure, authors stated that for the dominant eye, distance vision was corrected with a
8 target refraction of +0.50 diopters and in the non-dominant eye, the target refraction was -2.50 D.

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10 Hole-in-card test for motor ocular dominance and +1.00 diopters lens fogging technique were the most
11 effective test to choice dominant and non-dominant eye for presbyopia refractive surgery.² However, it
12 seems not only to determine right of left dominance, although the point is to exclude those refractive
13 candidates with strong or clear dominance. Seijas et al.² concluded that no clear ocular dominance
14 occurred in their study population. In addition, the dominant eye changed, in the same subject,
15 depending on the test used. Jain et al.³ described monovision results and subject satisfaction rate along
16 with standard monovision (dominant eye adjusted for distance) and crossed monovision (dominant eye
17 adjusted for near). They found that both groups obtained similar visual and refractive outcomes and
18 satisfaction rate seems to have no difference. Moreover, Handa et al.⁴ found that binocular summation
19 failed on patient with strong ocular dominance after adding positive spherical lens in front of one eye.
20 Therefore, dominance preoperative examination may lie in determining the potential dominance
21 magnitude rather than whether the dominant is the right or left eye.

22 Another highlight would be the stereoacuity assessment, Alarcón et al.⁵ performed presbyopic refractive
23 surgery on twenty-five patients within the dominant eye corrected for distance vision and the non-
24 dominant eye for near vision but with the half myopic target in the near eye than Rahmania et al.¹ study.
25 Alarcón and colleagues⁵ found a contrast sensitivity and stereoacuity significant decrease after
26 presbyopia refractive procedure. This implies a binocular summation loss and consequently a decrease
27 in the visual quality achieved after refractive surgery. In this case, the stereoacuity data would be a key

28 information in the potential success surgery prediction. Finding information on this variable in
29 Rahmania et al.¹ manuscript would have been very suitable.

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31 In conclusion, extensive ocular dominance and stereopsis preoperative assessment appear to be critical
32 to achieve success rate on visual, refractive and satisfaction outcomes on presbyopia refractive surgery.

33 In the same way, we would like to congratulate the authors for the excellent results obtained.

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