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REFRACTIVE

Topic: Lenticular intrastomal surgery

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Comparison Of 4 Different Keratorefractive Lenticule Extraction(Klex) Techniques (Smile (Zeiss Visumax 500), Smile Pro (Zeiss Visumax 800), Clear (Zeimer Z8), Atos (Schwind)) In Terms Of Postoperative Uncorrected Visual Acuity And Refractive Error
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I confirm that I am an Ophthalmologist: Yes

Purpose: To compare the clinical outcomes of four different keratorefractive lenticule extraction(KLEx) techniques: SMILE (Zeiss Visumax 500), SMILE Pro (Zeiss Visumax 800), CLEAR (Zeimer Z8), and ATOS (Schwind) in terms of postoperative uncorrected distance visual acuity (UDVA) and refractive error.

Setting: private practice in a single center with multiple surgeons.

Methods: Data were retrospectively collected from Taipei Nobel Eye Clinic (2023/2/1-2024/1/31). Analysis included 50 SMILE (100 eyes) and 50 SMILE Pro (100 eyes), and 13 CLEAR (26 eyes) and 20 ATOS (40 eyes) patients, focusing on preoperative best-corrected visual acuity (BCVA) and refractive error, and postoperative UDVA and refractive error over a 3-month follow-up.

Results: Across 4 different KLEx techniques groups, ages ranged 28-33 years with consistent preoperative BCVA at 0.00 logMAR. Spherical errors ranged from -4.77 to -5.67D, and cylinder errors ranged from -0.80 to -1.35D preoperatively. Three months post-operation, UDVA was similar across groups(SMILE: 0.02±0.06 logMAR; SMILE Pro: 0.06±0.07 logMAR; CLEAR: 0.03±0.06 logMAR; ATOS: 0.03±0.06 logMAR). Specifically, SMILE Pro exhibited the smallest postoperative average spherical refractive error (-0.08±0.40 D), followed by CLEAR (-0.23±0.47 D), ATOS (-0.23±0.90 D), and SMILE (-0.42±0.43 D). For postoperative average cylinder refractive error, ATOS led (-0.41±0.40 D), followed by CLEAR (-0.45±0.31 D), SMILE (-0.47±0.34 D), and SMILE Pro (-0.47±0.40 D).

Conclusions: Three months after operation, the UDVA outcomes across the four different KLEx techniques were similar, indicating consistent good visual acuity improvement. SMILE Pro may showcase the best results in spherical refractive error correction, while ATOS may be the best in cylinder refractive error adjustment.

Disclosure of Interest: None Declared