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Organization Section: NCC/ BCLA

Paper Abstracts

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A customisable scleral lens system utilising two distinct sagittal depths: real-world clinical experience in cases with limbal asymmetry and scleral toricity

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Purpose: This retrospective, multi-country, case review explored real-world utilisation of a customisable scleral lens system (Zenlens). This subanalysis focused on lenses utilising Bi-Elevation, a technology that enables the creation of two sagittal depth values inside the lens vaulting chamber, helping achieve a precise fit in eyes with elevation differences between the two major meridians.

Method: Ten scleral lens-experienced eye care practitioners (ECPs) from three countries provided a deidentified retrospective convenience sample of ≥ 5 cases using a standardised case report form, including ≥ 3 complex cases with a range of customisations. Collected data included lens fitting patterns, clinical outcomes, and ECP satisfaction. Central institutional review board exemption was received.

Results: Of the ten ECPs, seven used Bi-Elevation lenses in ≥ 1 patient. Of all cases, Bi-Elevation lenses were fit in 24/62 eyes (39%) in 17/42 (40%) patients. In this subset, mean (SD) age was 52.9 (21.9) years, 8/17 were female, 12/17 were White, and the most common diagnosis was keratoconus (12/17). Mean (SD) horizontal and vertical sagittal depths were 4793 (400) μm and 5092 (439) μm , respectively. ECPs achieved optimal fit with a mean (SD) of 2 (1) modifications and 3 (1) visits total. Before lens fitting, 8% and 42% of eyes had a best-corrected visual acuity (BCVA) of 20/20 and 20/40 or better, respectively. After final lens fit, 67% and 92% of eyes achieved a BCVA of 20/20 and 20/40 or better. Patients reported a mean (SD) comfortable wearing time of 13 (3) hours. No adverse events were reported. ECPs were highly satisfied with the lens outcomes, and the degree, process and ease of customisation.

Conclusions: This multi-country case review provided valuable real-world insights into fitting practices and clinical outcomes with this customisable scleral lens utilising Bi-Elevation. This lens system may be an effective option for vision correction in patients with limbal asymmetry and/or scleral toricity.

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