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Introduction

- Objective: To report on the number of trial lenses required to reach a finalized scleral lens (SL) by comparing the practitioner-derived (pSL) first lens order versus software-derived first lens order (rsPL) based on automated analysis of rasterstereography-based profilometry (RP).

Methods

- 3 patients (6 eyes) without corneal pathology were fit with SL (Blanchard, OneFit Med+, Manchester, NH) utilizing 2 techniques for the first lens order.
- The first was traditional selection based on SL fit guide and practitioner's experience for pSL.
- The second was the use of an online lens calculator (Blanchard, OneFit Online Calculator) for automated analysis of RP (Eaglet, ESP, Netherlands) data for initial rpSL.
- Once the first orders were received, diagnostic fitting was continued for each until finalized fitting parameters were achieved.
- The total number of lenses required to reach finalized SL was compared as well as the finalized pSL and rpSL parameters.

Differences in Final rsSL and pSL Parameters (μ)

	SAG	M	L	0-180	90-270
Lens 1	50	0	0	0	50
Lens 2	0	0	25	25	0
Lens 3	0	50	50	0	50
Lens 4	100	75	100	50	0
Lens 5	50	25	50	25	25
Lens 6	50	50	25	50	0

Results

- Final rpSL parameters varied from pSL by $41.7 \pm 37.6 \mu\text{m}$ ($p = 0.83$) in total sag, $33.3 \pm 30.3 \mu\text{m}$ ($p = 0.5$) in mid-peripheral corneal sag, $41.7 \pm 34.2 \mu\text{m}$ ($p = 0.44$) in limbal sag, edge at 000/180 was $25.0 \pm 22.4 \mu\text{m}$ ($p = 1$), and edge at 090/270 was $20.8 \pm 24.6 \mu\text{m}$ ($p = 0.48$).
- For rpSL, 6 of 6 eyes were finalized in 2 lens orders and for pSL 4 of 6 were finalized in 2 lenses and 2 of 6 in 3 lenses.
- On average rpSL were fit in 2.0 ± 0.0 lenses and pSL in 2.3 ± 0.5 lenses ($p = 0.14$).

Conclusions

- On average, there was a trend toward a more predictable finalized rpSL, with fewer lenses than pSL.
- This shows the potential for more efficient scleral lens fitting with lens calculation software and profilometry-derived data.
- Larger prospective studies are required to determine significance this data.

Disclosures

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References

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