Abstract

**PURPOSE:** To evaluate the indications for modern scleral lenses and their clinical performance in patients who were fitted with scleral lenses at the authors' practices.

**METHODS:** In this cross-sectional survey, all the necessary data were obtained at the first follow-up visit during the 5-month study period. There were four types of scleral lenses: spherical, front-surface toric, back-surface toric, and bitoric. The preformed scleral lens fitting technique developed at Visser Contact Lens Practice was used in all patients. The lenses were cut by precise Sub Micron Lathing from a Boston Equalens II blank at Procornea. Visual acuity and slitlamp findings were recorded. A specially designed classification for scleral lens fitting was used to investigate clinical performance.

**RESULTS:** The largest proportion of the 178 patients (284 eyes) were diagnosed with keratoconus (143 [50.4%] eyes) followed by postpenetrating keratoplasty (56 [19.7%] eyes). The remaining diagnoses were irregular astigmatism, keratitis sicca, corneal dystrophy, and multiple diagnoses. The ratio of spherical to back-surface toric designs was 1:1.1. Clinical examination showed sharp increases in visual acuity (median increase, 0.45) and safe physiologic responses of the anterior eye. All the patients could continue to wear scleral lenses, with 79.2% with the same lens parameters.

**CONCLUSIONS:** Several types of corneal abnormality were managed successfully with modern scleral lenses. The main indication was optical correction of an irregular corneal surface. Satisfactory clinical performance meant that all the patients could continue to wear their scleral lenses.

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