

SCLERAL LENSES IN CORNEAL DYSTROPHIES, SPECIFICALLY KERATOCONUS

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Introduction. Corneal dystrophies are inherited disorders (typically autosomal dominant) affecting almost every layer of the cornea. Keratoconus is a degenerative eye condition where the cornea thins and takes on a conical shape, unlike the normal spherical form. Keratoconus can lead to severe visual disturbances. Patients most often report photophobia, double vision, and image distortion. It is the most common form of corneal dystrophy and can affect one or both eyes, usually starting in adolescence or after the age of twenty. The condition affects about 1 in 1000 people, regardless of nationality and place of residence.

Objective of the Study. This study aims to evaluate the effectiveness and safety of scleral contact lenses in the visual rehabilitation of individuals with keratoconus.

Material and Method. A retrospective study of keratoconic subjects examined between 2013 and 2018 was selected and analyzed from the PubMed database. Subjects were included regardless of age, sex, pre-existing morbidity, or scleral lens design. Only eyes that successfully fitted with scleral contact lenses for ≥ 1 year were included. Exclusion criteria were previous corneal surgery, dystrophy, degeneration, and trauma.

Results. The study included 157 eyes from 86 subjects. The mean severity score of keratoconus at initial assessment was 3.6 ± 1.0 . The lenses used were gas permeable, non-ventilated, with a mean total diameter of 15.8 ± 0.6 mm and 70.1% toric scleral peripheral. Physiological adverse events were reported in 9.6% of eyes, including microbial keratitis (0.6%), phlyctenulosis (0.6%), corneal abrasion (1.3%), acute red eye caused by contact lenses (1.3%), corneal infiltrative events (1.3%), pingueculitis (1.3%), and hydrops (3.2%). Lens-related adverse events were observed in 55.4% of eyes. Surface issues included poor wetting (1.9%), handling difficulties (3.8%), reservoir fogging (7.0%), lens intolerance (7.6%), deposits (8.9%), and broken lenses (26.1%). The most frequent management measures were lens adjustment (54.0%), patient re-education (29.5%), medical treatment (5.5%), surgical referral (6.8%), wear time adjustment (2.5%), surface treatment (1.2%), and lens replacement (0.6%). LogMAR visual acuity, measured at best correction, significantly improved from a mean of 0.50 with glasses to 0.08 with scleral lenses ($P < 0.0001$). During the study, 14.6% of eyes experienced a decrease in visual acuity with scleral lenses due to progression of keratoconus.

Conclusions. Consistent with other studies, this research demonstrates the excellent safety and effectiveness of scleral contact lenses for subjects with keratoconus.