

Outcomes of Contact/Scleral Lenses in Keratoconus: A Retrospective Cohort Study.



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AIM: To evaluate the outcomes of contact/scleral lenses in patients with keratoconus

METHODS: This retrospective study evaluated files of 506 patients 913 eyes with keratoconus who were fitted with contact/scleral lenses between 2010 and 2025. Uncorrected distance visual acuity (UDVA), corrected distance visual acuity (CDVA), and lens-corrected visual acuity (LCVA) were evaluated at baseline and at the follow-up examinations. Keratoconus stage, keratometric findings, slit-lamp biomicroscopy findings, and lens performance were recorded.

RESULTS: 32.3% of eyes had allergic conjunctivitis, 1.6% atopic keratoconjunctivitis, and 2.2% vernal keratoconjunctivitis. 389 eyes were fit with rigid gas-permeable lenses (RGP), 377 with soft contact lenses (SCL), 90 with hybrid contact lenses (HCL), and 57 with scleral lenses (SL). 55.6% of the patients were classified as stage 4 keratoconus. The trial lens type differed significantly according to keratoconus stage ($p < 0.001$). At baseline, UDVA and CDVA were significantly higher in eyes fitted with SCL and lower in eyes fitted with SL ($p < 0.001$). LCVA remained stable during follow-up ($p = 0.174$) and was superior to CDVA at all follow-up examinations ($p < 0.001$). No significant changes were observed in keratometric findings during the follow-up period ($p = 0.261$). During follow-up, lens parameters were modified in 8.3% of eyes, lens type was changed in 10.3% of eyes, and 8.7% of patients discontinued contact lens use. In eyes with lens type change, transitions were most commonly made to KeraSoft and SL. Among patients who discontinued lens use, the most common lens types were RGP (36.4%). The most common reason for contact lens discontinuation was ocular surface problems, observed in 43.2% of patients. There were no clinically significant side effects in any patient eye.

Figure 1: Stage Distribution

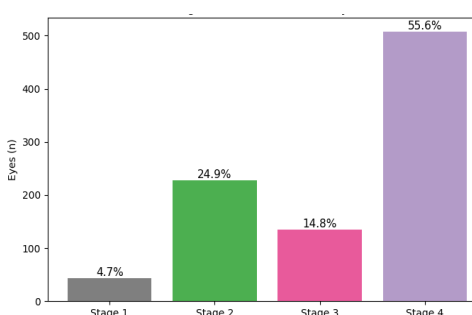


Figure 2: Lens trial

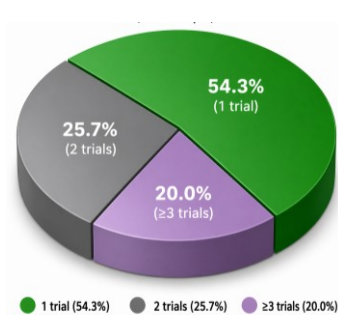


Figure 3: Baseline Visual Parameters

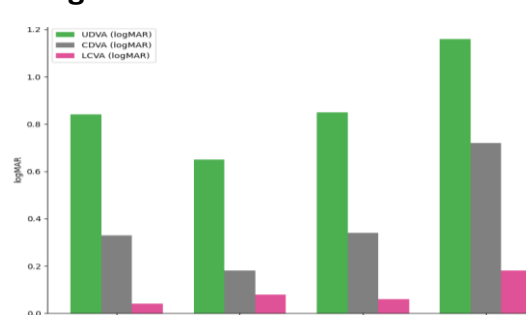
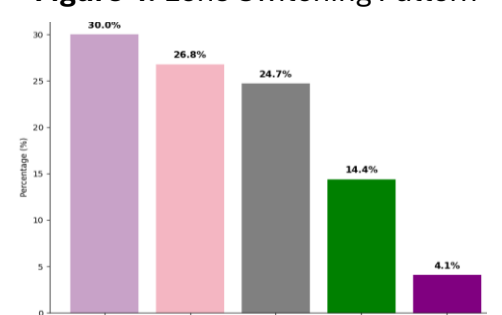


Figure 4: Lens Switching Pattern



Discussion: Contact lenses safe and effectively provided long-term visual rehabilitation at all stages of keratoconus. Although they did not alter the disease (Santodomingo-Rubido J et al.,2022). Most lens changes originated from RGP lenses, and the most common second choices were KeraSoft and scleral lenses. Reduced comfort, lens intolerance, decentration, and corneal scarring during long-term wear of RGP lenses were the major reasons for to transition to alternative lens types. (Moon et al.,2006).

Conclusion: Lens changes may be required during long-term follow-up due to lens intolerance and ocular surface alterations. Regular follow-up helps maintain both visual rehabilitation and corneal stability. Appropriate lens selection, patient compliance, and regular follow-up are essential for safety and sustained visual outcomes.

Contact/scleral lenses safe and effectively improve visual acuity in keratoconic eyes, irrespective of the stage