

Lacrimal Occlusion with Cross-Linked Hyaluronic Acid Canalicular Gel to Optimise the Ocular Surface in Patients with Moderate-To-Severe Dry Eye Disease Before Cataract and Refractive Surgery: A Real-World Patient Cohort Analysis

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Aim:

This analysis aimed to evaluate the efficacy and feasibility in using cross-linked hyaluronic acid canalicular gel for lacrimal occlusion in patients with moderate-to-severe dry eye disease (DED) prior to undergoing cataract and refractive surgery in a real-world setting.

Methods:

Consecutive patients with moderate-to-severe DED planned for cataract surgery or laser-assisted in-situ keratomileusis (LASIK) were analyzed from November 2025 until January 2026. All patients received bilateral administration of cross-linked hyaluronic acid canalicular gel (LacriFill®) into their lacrimal drainage system pre-operatively. All LacriFill® treated patients had reduced tear meniscus ($<0.25\text{mm}$), tear film breakup time (TBUT) ≤ 10 seconds and Oxford score III or worse. Patients with active ocular infection, nasolacrimal duct obstruction, previous lacrimal surgery and hypersensitivity to hyaluronic acid were excluded. The primary parameters assessed included improvement in ocular surface disease metrics (corneal staining, tear meniscus height, Schirmer's score, TBUT), standard patient evaluation of eye dryness (SPEED) score and surgical outcome metrics.

Results:

Three patients who underwent bilateral cataract surgeries and four who underwent bilateral

myopic LASIK were analyzed. Mean time from lacrimal occlusion to surgery was 16.5 days. Mean baseline Oxford score was 3.5. There was statistically significant improvement in mean tear meniscus height ($0.15 \pm 0.04\text{mm}$, $p < 0.01$), Schirmer's score ($5.7 \pm 1.5\text{mm}$, $p < 0.01$), TBUT (5.5 ± 2.6 seconds, $p < 0.01$), Oxford score (-1.2 ± 0.5 , $p < 0.01$) and SPEED score (-11.3 ± 3.0 , $p < 0.01$) at one week pre-operatively. All improvements were sustained at 4 weeks post-operatively. All patients achieved at least 6/7.5 unaided Snellen visual acuity and $\pm 0.25\text{D}$ SE from refractive target at 4 weeks post-operatively. There were no reported adverse events at 3 months post-operatively.

Conclusion:

Administration of cross-linked hyaluronic acid canalicular gel was well tolerated and showed improvements in ocular surface stability and tear film parameters prior to cataract or refractive surgery in the real-world setting.

Disclosures / Conflicts of Interest:

Johnson Yan Ning Neo: Consultant for Nordic Pharma