creation of customised simulation models for cornea surgical practice with a short lead time and reduced waste.

**OP-7**

**PREDICTING CORNEAL ODEMA FROM SCHEIMPFLUG IMAGES OF FUCHS’ ENDOTHELIAL CORNEAL DYSTROPHY (FECD)**

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**Introduction** We previously developed a model to predict improvement in central corneal thickness (CCT) after Descemet’s membrane endothelial keratoplasty (DMEK) for FECD from Scheimpflug images. The model incorporated parameters of pachymetry map isopach regularity and posterior corneal radius. In this study we assessed if adding corneal backscatter and pachymetric progression indices improved the predictive power of the existing model.

**Methods** The additional 37 parameters of interest were exported from the Scheimpflug camera software for images of eyes undergoing DMEK and were combined with all previous 180 parameters originally considered for the predictive model. Gradient boosting machine (GBM) models were used to determine the 5 parameters with highest relative influence. A regression model was derived from the 5 highest relative influencers and goodness-of-fit of predicted vs. observed improvement in CCT was assessed in derivation and validation groups.

**Results** Anterior and mid-corneal backscatter were high influencers along with isopach regularity parameters whereas pachymetric progression indices were not. After incorporating corneal backscatter, the predictive power (from R²) of the model in the derivation group was 79% (n=48). When the derivation model coefficients were applied to the validation group, the predictive power in the validation group was 72% (n=45).

**Conclusions** Combining anterior and mid-corneal backscatter with isopach regularity parameters creates a strong predictive model of CCT improvement after DMEK. However, the predictive power of this model did not improve the predictive power of the original model (derivation group, 80%; validation group, 78%). The predictive model could provide important ancillary test information to help inform clinical decision-making for FECD.

**OP-8**

**ABSTRACT WITHDRAWN**
male, 25 female; median age 42 years (range 8–95)). Most reported subjectively reduced VA, frequently associated with photophobia (89.2%). Clinical findings included bilateral involvement (67.6%), with conjunctival injection (97.3%), corneal staining (97.3%), and corneal oedema (27%). Following diagnosis, most patients received topical lubricants (86.5%), topical antibiotics (73%) and topical steroids (64.9%). Mean visual acuity improvement in affected eyes was 15.8 EDTRS letters by first follow-up appointment (average 7.3 days (range 2–34)). No geographic clustering was identified on postcode analysis.

Conclusions We report the first large case-series of patients with eczema experiencing novel ocular surface toxicity, related to periorcular Epimax application following changing formulary recommendations. These mild ocular chemical injuries resolved to periocular Epimax application following changing formulary with eczema experiencing novel ocular surface toxicity, related to stromal atrophy and keratocyte death. While further research is required to confirm these findings, this awareness has clinical implications for IOP measurements and subsequent glaucoma management in DMEK patients.

P-10 WHY IS THE CORNEA OFTEN MUCH THINNER THAN EXPECTED AFTER DMEK? A RETROSPECTIVE REVIEW AND DISCUSSION OF THE CLINICAL IMPLICATIONS

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Introduction DMEK is effective in surgically treating endothelial dysfunction, with visual improvement following oedema resolution. It has been our observation that postoperative DMEK corneas are often much thinner than anticipated. We wished to review our recent cases and discuss potential explanations and implications.

Methods Retrospective case-note review of 50 consecutive DMEK patients, including demographics and serial ultrasound central corneal thickness (CCT) measurements.

Results 63 eyes (33 combined phaco/DMEK; 30 DMEK alone) from 50 patients were identified (29 male, 21 female; median age 75 (34–87)). 87.3% (55/63) had Fuchs’ endothelial corneal dystrophy. Mean preoperative CCT was 680 μm (median 663 μm, range 582–934 μm), significantly reduced at 3 months postoperatively by 23.4% (520 μm; median 522 μm; 404–611 μm) and maintained by 6 months (22.6% reduction). Mean CCT was significantly lower than expected (523 μm vs 540 μm; p<0.001 (one sided t-test)), with 61.9% under 540 μm and 31.7% less than 500 μm. No association was found between 3-month CCT and donor endothelial cell count (median 2600 cells/mm² (2200–3600); p=0.29), or median donor age (71 years (49–88); p=0.22). 15.9% (10/63) of eyes required topical ocular hypotensives at 6 months.

Conclusion Approximately one-third of our cases resulted in sub-500 μm corneal thickness following DMEK. This phenomenon is not explainable solely due to a normalisation of anatomy (new functioning Descemet’s membrane/endothelial pump, corneal dehydration and epithelial re-modelling), but likely related to stromal atrophy and keratocyte death. While further research is required to confirm this findings, this awareness has clinical implications for IOP measurements and subsequent glaucoma management in DMEK patients.