TOPOGRAPHY-GUIDED CUSTOMIZED ABLATION TREATMENT FOR KERATOCONUS AND POST-LASIK ECTASIA: MONTREAL PROTOCOL

Avi Wallerstein, MD1; Eser Adiguzel, PhD1; Tenley N. Bower, MD2; Salim Korban, BSc3; Mark Cohen, MD4

PURPOSE
To determine efficacy, safety, and stability of TCAT (topography-guided customized ablation treatment) excimer laser corneal surface ablation combined with corneal collagen cross-linking (CXL) for keratoconus (KC) and post-LASIK ectasia with a new treatment protocol.

METHODS
Prospective study of a new treatment protocol for adjusting the TCAT ablation profile (the Montreal protocol), consisting of a 7.0 mm PTK zone of 60 um followed by an ablation alogorithm incorporating both Topolyzer and Orbscan II measurements. Five minute accelerated CXL post-TCAT. RM-ANOVA and Holms Sidak post-hoc tests were used. Subjective quality of vision (QoV) questionnaire was administered.

RESULTS
168 eyes (133 KC, 35 ectasia), 77 with 6 month FU. Significant UDVA improvement (0.9±0.6 vs. 0.6±0.5 logMAR, p<0.001), and cyl reduction (-3.86±2.31 vs. -1.95±1.41D, p<0.001). Post-op UDVA 20/20, 20/30, 20/40, 20/50 in 6, 26, 38, 45%, post-op CDVA in 21, 72, 83, 92%; pre-op CDVA in 13, 60, 76, 87%. ≥2 CDVA lines loss-9%, 1 line-13%, no change-32%, gain ≥1- 46%. Post-op Kmax stable from 1-6 mths (p=0.14). 9.3% rated postop QoV worse, 3.7% no change, 87% better. 41% using corrective lenses postop vs. 61% preop. Postop corrected and uncorrected vision rated 7.4±2.5 and 5.5±2.5, vs. preop 6.3±2.0 and 3.8±2.4.

1 LASIK MD
2 Pittsburgh, PA
3 McGill University
CONCLUSIONS

The Montreal protocol for TCAT/CXL showed a large reduction in cylinder, improvement in UDVA, decreased dependence on corrective lenses, and high patient satisfaction. Safety profile was good considering early reporting.