

**Session 2-K: Refractive: Wavefront Results**

**Title: Q-Value Adjusted Topography-Guided Ablation Using the Allegretto Wave Eye-Q Excimer Laser**

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**Purpose:** To evaluate the efficacy, safety and predictability of topography-guided customized ablation using the Allegretto wave Eye-Q and the Allegro Topolyser.

**Methods:** A prospective non randomized study of topography-guided customized ablation for eyes with irregular secondary corneal astigmatism following previous refractive procedures. Those included decentered LASIK ablation, radial keratotomy, myopic keratomileusis and trauma . Sixteen eyes of thirteen patients were included in the study. Preoperatively, all eyes were examined by the Allegro Topolyzer and consistent topographic data exported to the Allegretto wave Eye-Q laser system where calculation of the ablation pattern was done. A Q-value of -0.34 was chosen for postoperative corneal asphericity. Tilt function was turned off in all eyes to reduce the ablation depth. Postoperatively, UCVA, MR, BSCVA and subjective evaluation of glare and night vision problems were recorded.

**Results:** Irregular astigmatism was significantly reduced with a more regular topographic pattern . UCVA was improved in 75 % of eyes while BSCVA improved in all eyes with 62.5 % of patients gaining one or more lines than the preoperative BSCVA. No patients lost any lines from their preoperative BSCVA. Larger ablation zone including the entire pupillary area was achieved in 81.25 % of cases with previous decentered ablation. 87.5 % noted disappearance of glare and night vision problems . However, most eyes were left with a residual refractive error and 37.5 % of eyes needed another step to correct such an error whenever the residual corneal thickness permitted.

**Conclusion:** Q value adjusted topography-guided customized ablation using the Allegretto wave Eye-Q system is an effective and safe technique for improving corneal irregular astigmatism resulting from previous refractive procedures or trauma thus increasing best corrected visual acuity and improving quality of vision.