Rotational Stability of Extended Depth of Focus Toric IOL with Intra & Post Operative Digital marking analysis & Refractive visual outcome

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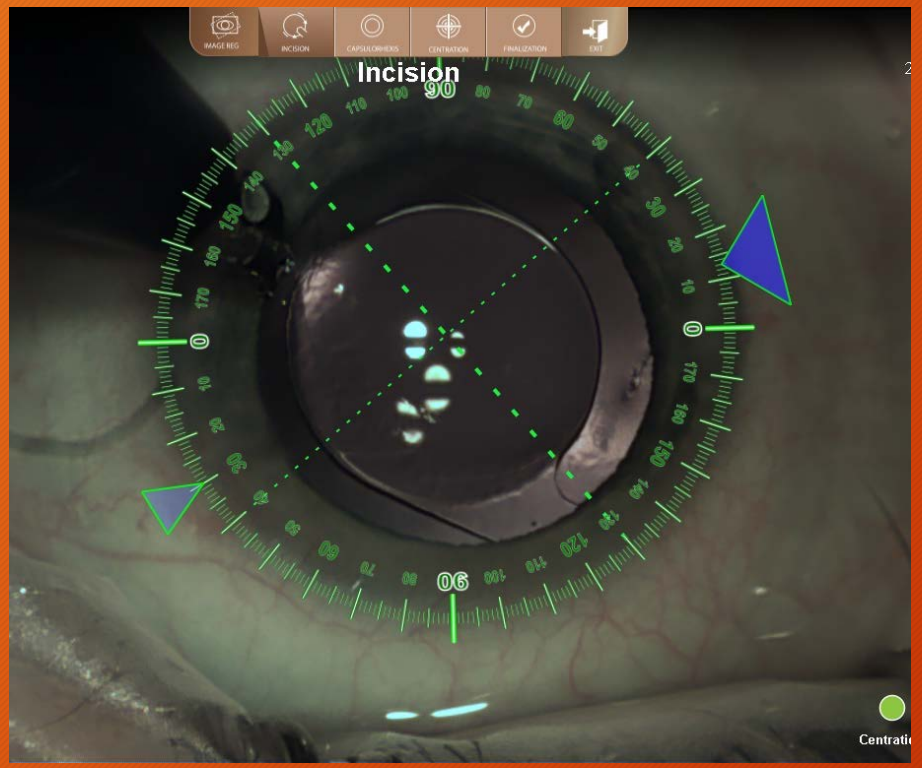
Purpose

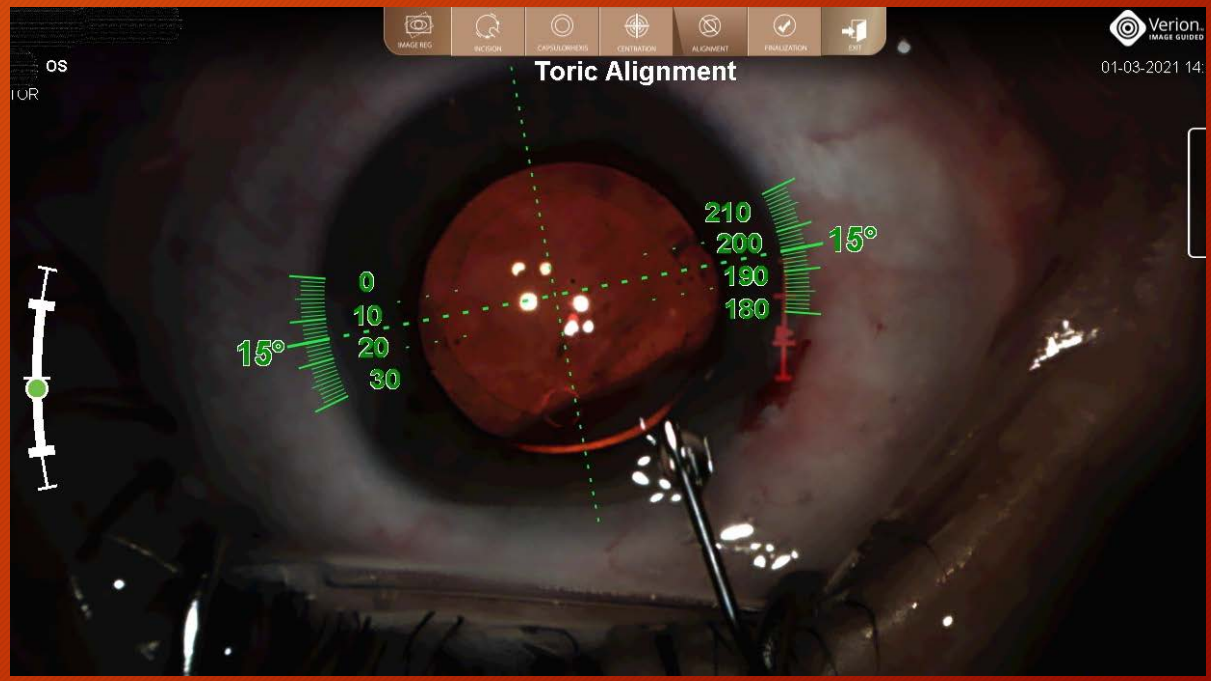
- To quantitatively assess the rotational stability of an EDOF Toric IOL (Vivity toric, Alcon, Tx) immediately following placement and at post op day 1, week 1 and week 4 Utilizing a digital marking system.

Methods

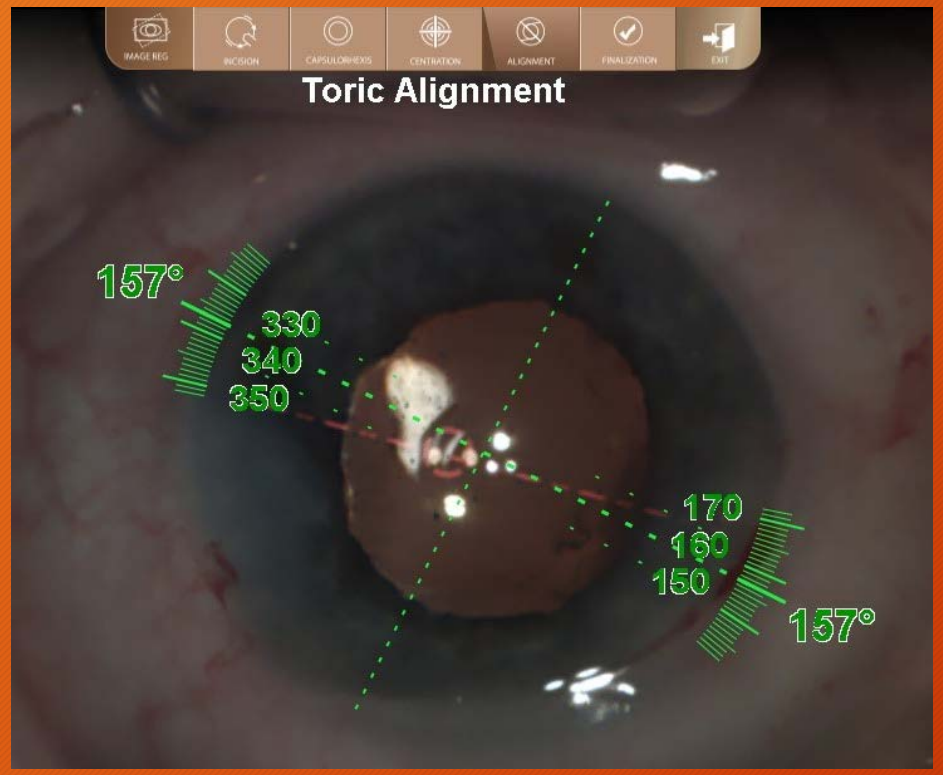
- Prospective, noncomparative single arm, single surgeon study evaluating 35 patients undergoing cataract extraction
- IOL power between +15.0D to +25.0D, with corneal astigmatism between 0.75 and 2.25D. No limiting Ocular pathology.
- IOL implantation employed intraoperative digital marking (Verion Image guided system, Alcon, Tx) and intraoperative aberrometry (ORA, Alcon, Tx).
- Digital marking photographs were taken and analyzed at all post op visits and data compared to evaluate rotational stability.

Intra operative digital marking





Digital marking photographic analysis

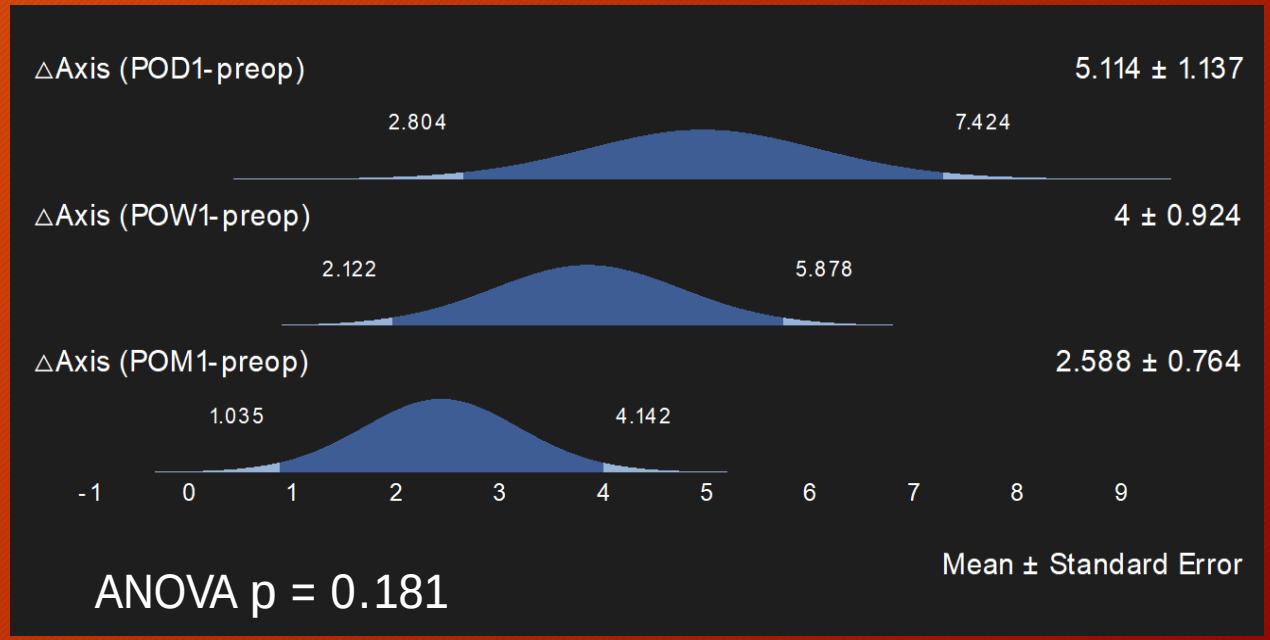


Results

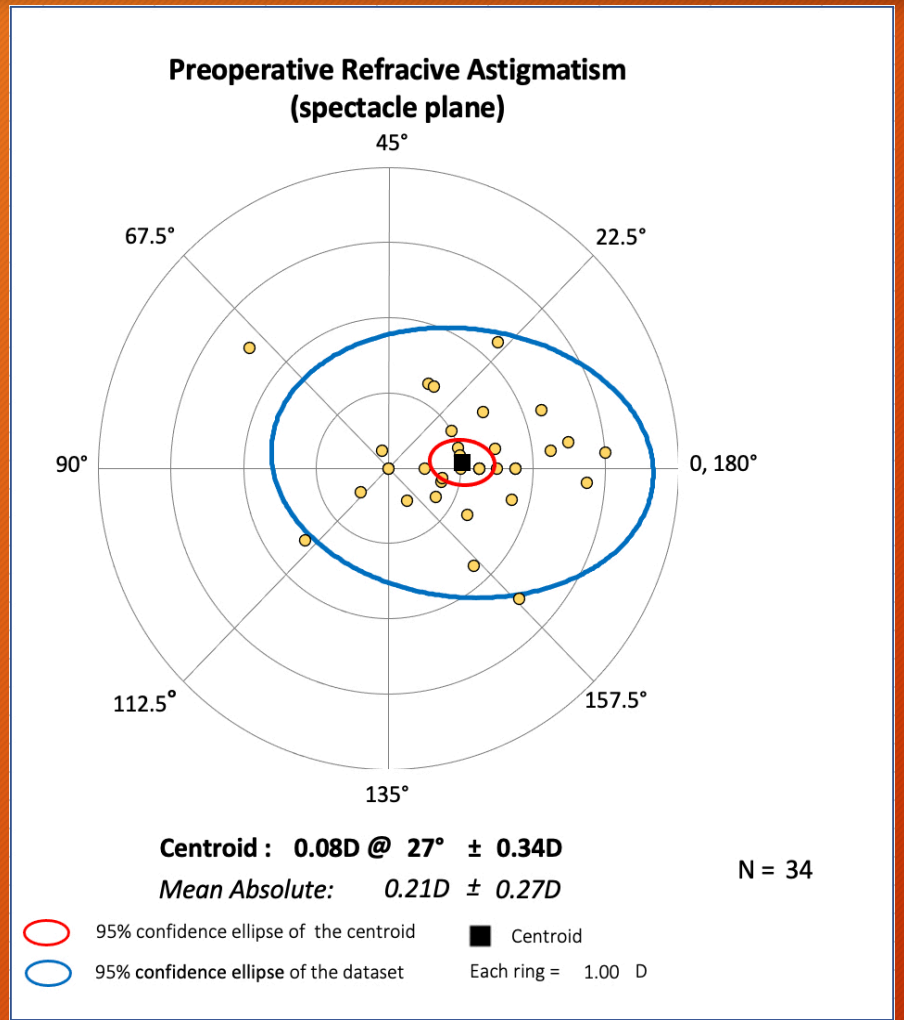
- No patient experienced a post op rotation of Toric EDOF IOL greater than 5 degrees at post op month 1 interval (mean 2.6 +/-0.8)

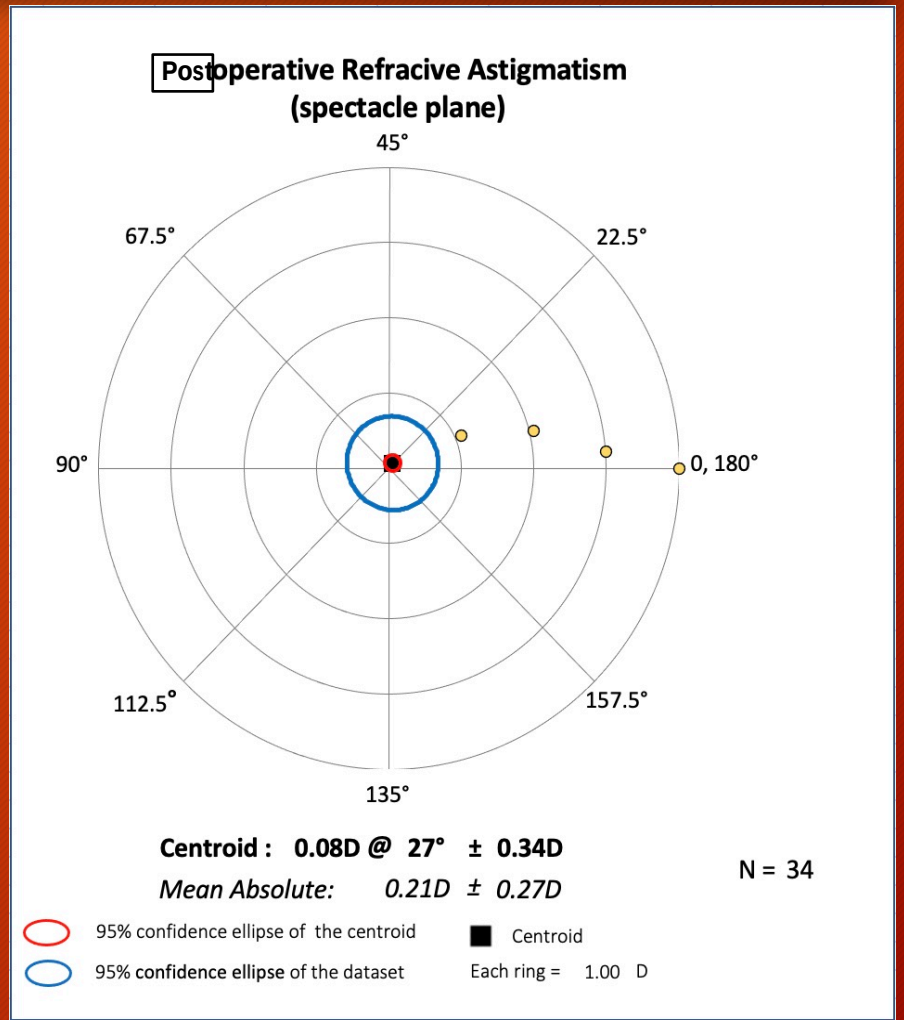
At POM1 interval:

- The percentage of eyes with absolute prediction error <0.5D was 94.3%
- The percentage of eyes with residual astigmatism <0.5D was 94.3%
- The percentage of eyes with residual astigmatism <1.00D was 100%



Results


Preoperative Refracive Astigmatism
(spectacle plane)
45°
67.5°
22.5°
90°
0, 180°
112.5°
157.5°
135°
Centroid : 0.08D @ 27° ± 0.34D
Mean Absolute: 0.21D ± 0.27D
N = 34
95% confidence ellipse of the centroid
95% confidence ellipse of the dataset
Centroid
Each ring = 1.00 D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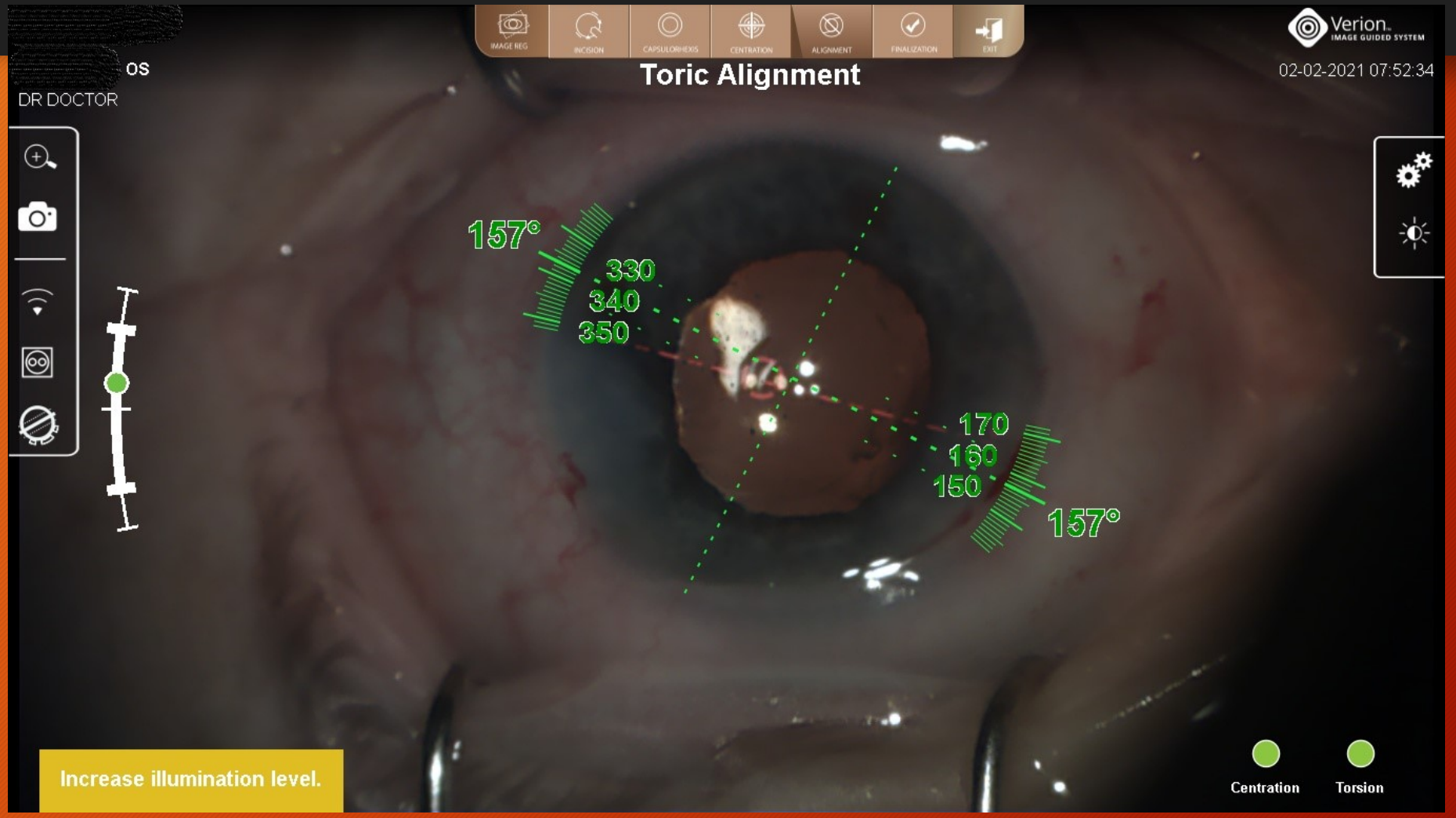
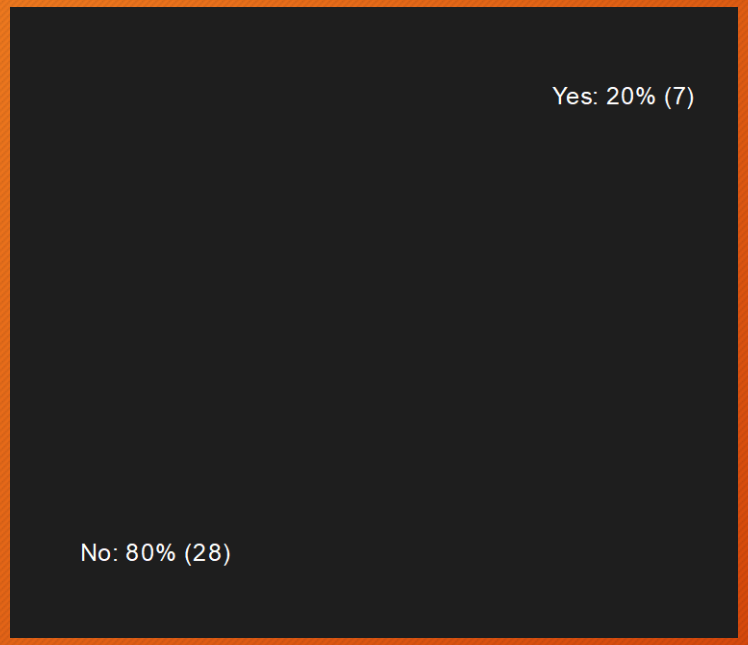
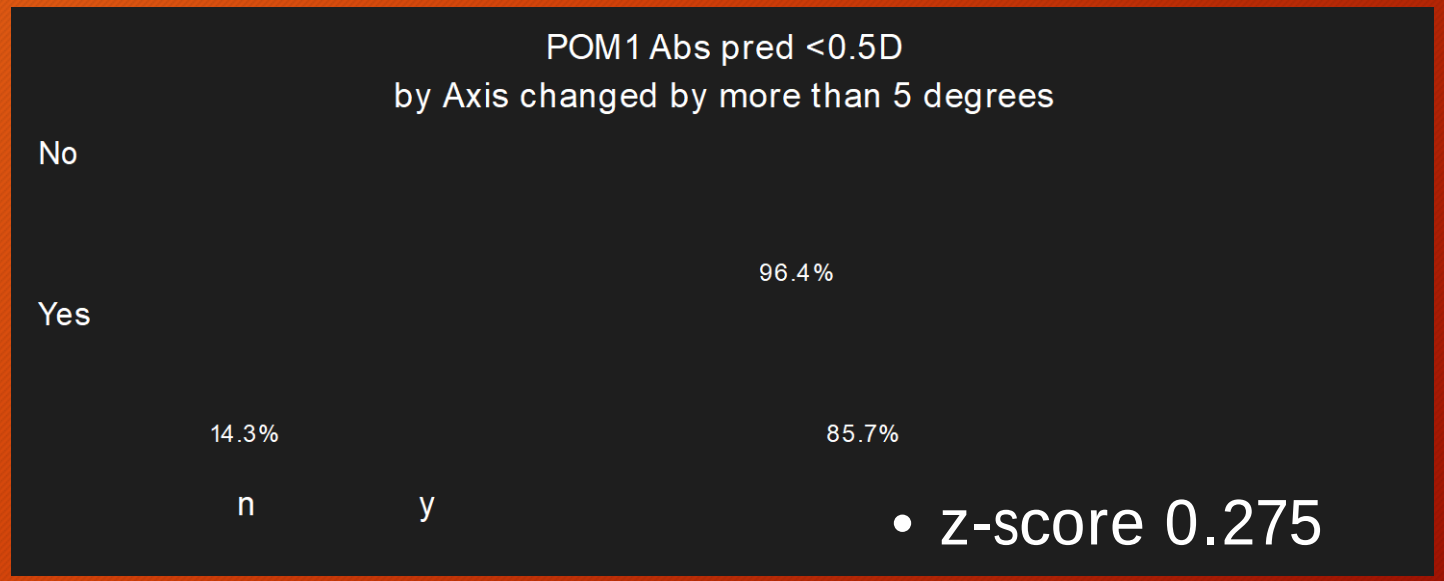
ORA intra operative aberrometry



Axis changed >5 degrees Intra-Operative due to ORA compared to Pre-Op prediction





- z-score 0.275

No Statistical significant difference in absolute prediction error when ORA axis used in place of pre operative Keratometry

Conclusion

- This study confirmed all prior objectives and found the rotational stability of the Vivity Toric IOL to be excellent verified by photographic analysis of a digital marking system.

- ORA intraoperative aberrometry helps in validating and reaffirming preoperative measurements with the Vivity Toric IOL.