Calculation of intraocular lens power using average equivalent keratometry readings in eyes with non-progressive keratoconus.

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Purpose

- Patients with concomitant keratoconus and cataract provide a unique difficulty in planning for refractive outcomes
- IOL power calculation is fraught with error
  - Difficulty estimating true corneal power using standard keratometry methods
- We present a novel approach to determining keratometric power for IOL calculations in keratoconic eyes

Methods

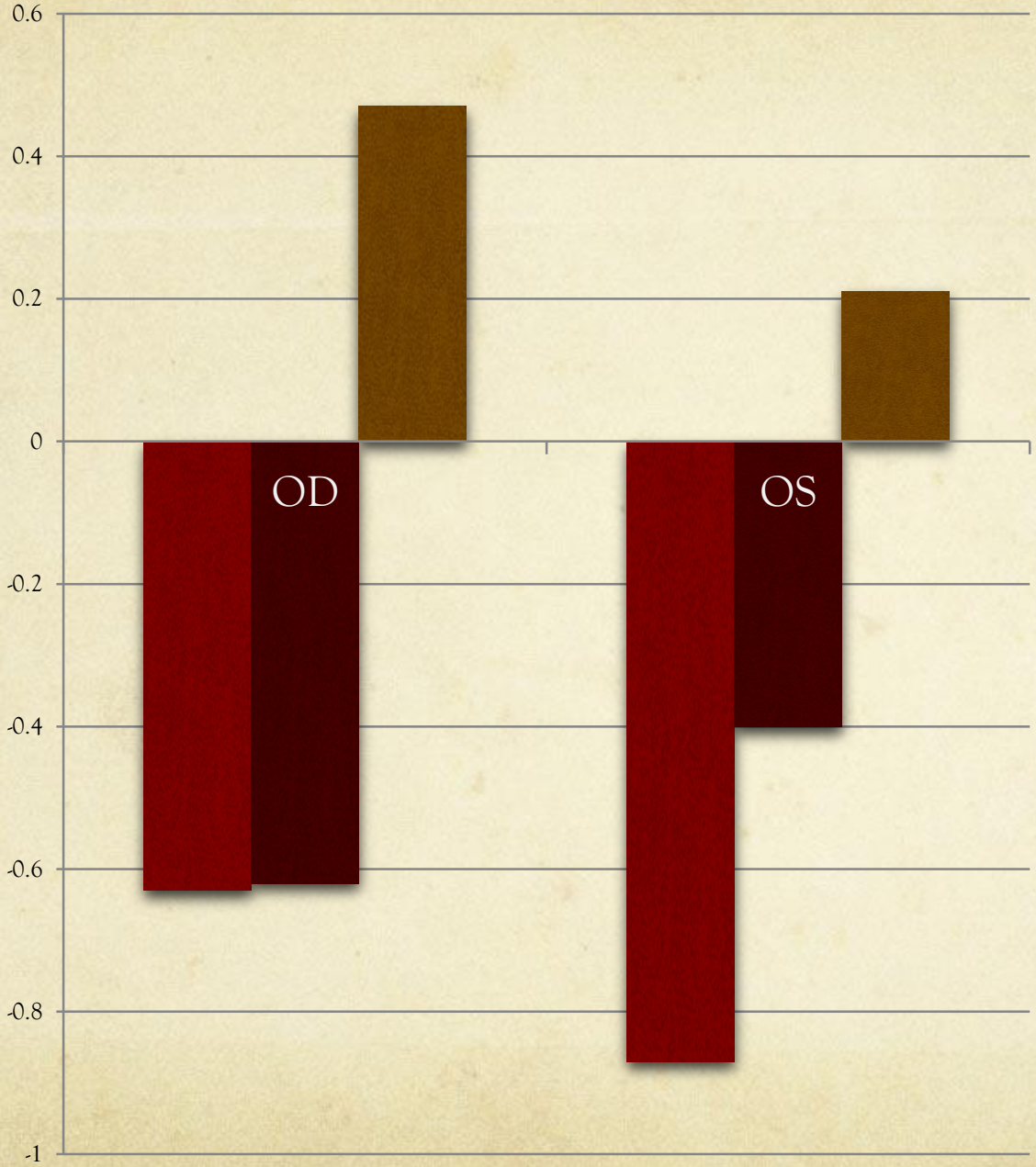
- 2 eyes from one patient were scheduled to undergo cataract surgery
- Keratometric measurements using IOL Master (Carl Zeiss, Inc.) and Pentacam HR (Oculus) were taken
  - Equivalent K readings were averaged over zones 1-4mm
- Axial lengths were taken using IOL Master
- SRK/T formula was used to calculate IOL with both IOL Master and Pentacam K values

Methods (cont'd)

- IOL selection was done using SRK-T formula using the average of Pentacam EKR Zones 1-4mm
  - Target refraction = mild myopia
- Cataract surgery performed successfully in both eyes without complication
- Best corrected visual acuity (BCVA), manifest refraction and eye examination performed at one month follow-up

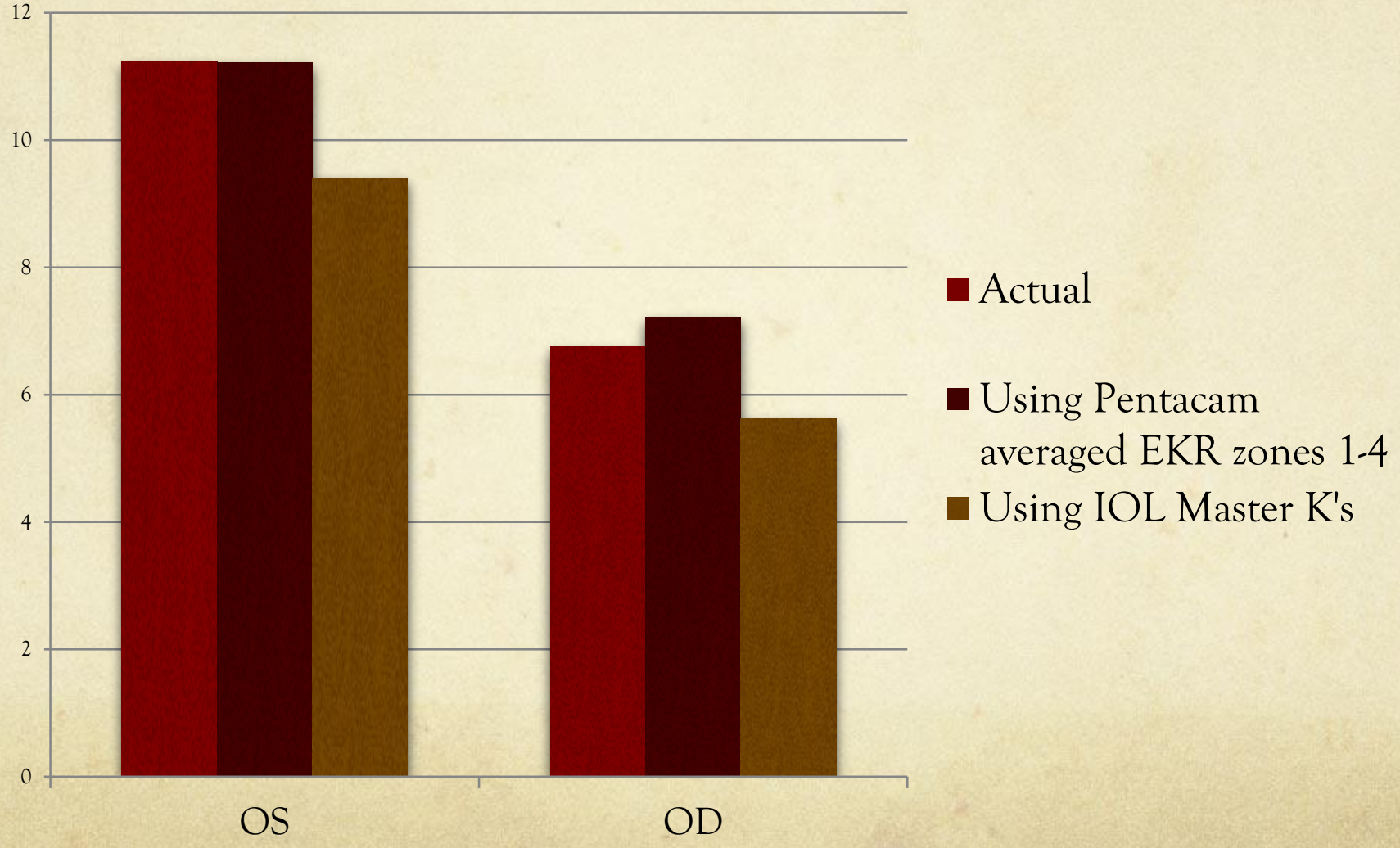
Results

- At one month follow-up, BCVA was 20/20 OD and 20/40 OS
  - OS had developed an epiretinal membrane postoperatively
- Manifest refraction was within 0.5D of target for both eyes
  - OD -0.63D MRx; -0.62D target
  - OS -0.87D MRx; 0-.47D target



- Actual post-operative refraction
- Predicted post-op refraction using zonal EKR
- Post-op refraction were lens chosen using IOL Master K's

Predicted IOL needed for emmetropia



Conclusion

- Averaged Zones 1mm-4mm of Pentacam Equivalent Keratometry Readings (EKR) may prove a more accurate reading for patients with stable, nonprogressive keratconus compared to standard keratometric measurements
- Significantly closer results to predicted refractive outcomes compared to IOL Master K readings
- Larger study needed to determine if this method is effective for larger population of keratoconus patients