Corneal Reshaping – Improving Patient Outcomes

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This handout has been printed well in advance of the 2014 Denver AAO Meeting and therefore will not coincide 100% with the lecture slides. If you would like a PDF of the actual slide presentation please contact us at either BruceMorgan@ferris.edu or CraigNorman@ferris.edu and we will send it to you after the lecture has taken place.

1) GP Use Globally

2) Contemporary OK / Corneal Reshaping
   a) Reverse geometry lens designs.
   b) Stable, high Dk lens materials.
   c) Overnight reshaping modality.
   d) Instruments for detailed topographic analysis.
   e) Improved fitting techniques.

3) Estimated Corneal Reshaping Wearers 2014
   a) North America – 56,000
   b) EMEA - 60,000
   c) Japan, Korea, Taiwan – 90,000
   d) Asia, Australia, New Zealand - 430,000

4) Questions Regarding Corneal Reshaping
   a) How Does It Work?
      • Cellular compression with intercellular fluid transfer
      • Increased cell mitosis
      • Increased cell retention
      • Localized stromal remodeling?
      • Multifactorial
   b) Orthokeratology Fitting Considerations
      • Pre-fit topography
      • Eccentricity
      • Keratometry
      • Pupil diameter (dynamics)
      • Lid position and tension
      • Occupation (adults)
   c) Patient Selection
      • Myopia between -0.50 to -6.00D
      • Some designs to -5.00D
      • Corneal astigmatism 0.00 to -1.75D
      • Committed to term of fitting program
      • Understands the necessity for compliance
• Patients to avoid

  d) Astigmatic Correction
     • Dual axis technique

  e) Hyperopic Corneal Reshaping
     • Low to Moderate Hyperopes
     • Presbyopes (Monovision)

  f) High Myopia Correction
     • Methods
     • Partial Correction

5) Design Availability
   a) CRT vs. VST
   b) Common Fitting Characteristics
      • 10-11.5mm OAD; 6.0mm OZD
      • Desire good centration; limited lens lag
      • Fit to achieve +0.50D to +0.75D endpoint

6) Myopia Control
   a) Environmental studies
   b) Earl Smith 2005
      • Eye growth may possibly be retarded, or halted through:
      • “A precise and pre-determined optical system at the corneal plane that will manipulate the peripheral optics of the eye.”
      • Myopes Typically Exhibit Relative Hyperopia in the Periphery
      • The “Image Shell” Post OK
   c) Myopia Control – methods
      • Spectacles
      • Pharmaceuticals
      • Contact Lenses
      • Soft Lenses
      • Corneal reshaping / Ortho-k
   d) Myopia Control - studies
      • Pauline Cho – LORIC
      • Jeff Walline – CRAYON
      • Helen Swarbrick
      • Korea
      • OK Myopia Control Study - Catholic Univ. of Seoul - 6 investigator sites
      • SMART
      • Myopia Control with Orthokeratology contact lenses in Spain (MCOS)
      • Retardation of Myopia in Orthokeratology (ROMIO) Study: A 2-Year Randomized Clinical Trial

7) Infection Concerns
   a) Post market surveillance: Dr. Mark Bullimore - The Ohio State University
8) Strategies for Improving Patient Outcomes
   a) Fitting Techniques and Lens Designs for Corneal Reshaping
      • Dispensing vs empirical vs software based
      • On-eye evaluation methods
         a. How much tear thickness is really under the lens?
   b) Importance of Topography
      • Does fluorescein evaluation really tell us everything we need to know?
      • Lens Inspection
      • Surface inspection, especially mid-periphery
      • Polish?
      • Radiuscope?
   c) How do you care for lenses?
      • Hydrogen Peroxide
      • Progent
      • Q-tip
   d) What is the optimal revisit schedule?
      • 3 months
      • 6 months
      • Yearly
   e) What is the optimum lens replacement schedule?
      • Yearly
      • Every 2 years
      • PRN?
   f) Parental involvement
      • How much, how little?

9) Summary
   a) Find a system that fits your practice
   b) Learn as much about the system as possible