

Growing Your Optometric Practice with the New Spectrum of Presbyopia Treatments

Description:

With new innovations in treatment for presbyopia come available both surgically and topically, we revisit an old topic. How do we really define presbyopia and how do these new options fit in with our tried and true? And how do we discuss these with our patients?

Objectives:

1. Discuss new surgical presbyopia options
2. Discuss new and emerging presbyopia drops
3. Discuss how to utilize and describe to patients

Outline:

1. Presbyopia prevalence (5 min)
 - a. Part of Aging
 - i. Cataracts
 - ii. Ptosis
 - iii. Presbyopia
 - iv. Dryness
 - b. Aging population
 - i. Increased number of patients with presbyopia
 1. 2010 89% of >45 in US had presbyopia
 2. Global 2015 1.1billion had presbyopia
 - ii. Percentage of those currently treated
 - c. Loss of function
 - i. Difficulty performing near tasks
 1. Estimated 11billion potential productivity loss
2. Definition of Presbyopia (5 min)
 - a. Definition of presbyopia
 - i. AOA
 - ii. AAO
 - iii. Age
 - iv. Functional vision
 - b. Complaints
 - i. Blurred vision
 - ii. Delays in focusing
 - iii. Fatigue
 - iv. Headache
 - v. Asthenopia
 - c. Stages of Presbyopia
3. Pathophysiology of presbyopia (10 min)
 - a. Accommodation

- i. Contraction of the anterior radial muscle segment of the ciliary muscle
 - ii. Moves toward sclera
 - iii. Causes
 - 1. a visible cavity
 - 2. forward rotation of the ciliary process
 - 3. increased tension in equatorial zonules
 - iv. Equatorial zonules determine the optical power changes
 - v. Changes
 - 1. Changes in the crystalline lens
 - a. Hardening
 - b. Yellowing
 - c. Thickening
 - d. Decreased elasticity of capsule lens material
 - e. Sclerosis causes anterior shift of equatorial fibers
 - 2. Zonules
 - a. Increased tension in the equatorial zonules
 - b. Change in angle of zonule insertion
 - b. Pupils
 - i. Decrease in pupil size secondary to atrophy of iris dilator muscle
 - 1. Increased constriction
 - 2. Causes decrease in dim vs bright pupil size
 - a. Decrease in light to retina
 - ii. Can be helpful
 - 1. Decreased peripheral optical aberrations
 - 2. Depth of focus
 - 3. Decreased need for focusing
 - iii. Resultant improved vision at distance and near
 - iv. Down side
 - 1. Decreased contrast sensitivity
 - 2. Poor vision in low illumination
 - 3. Increased visual distortion
4. Treatment of Presbyopia (15min)
- a. Tried and true
 - i. OTC readers
 - 1. One size fits no one
 - ii. Prescription glasses
 - 1. Single vision near or computer glasses
 - 2. Bifocal
 - 3. Progressives
 - iii. Contact lenses
 - 1. Monovision
 - iv. Multifocal
 - b. Refractive lens exchange or cataract surgery
 - i. Monovision

- ii. Single vision distance with glasses for near
 - iii. Single vision near with glasses for distance
 - iv. Premium IOL's
 - 1. EDOF and Multifocal
 - 2. Accommodating IOL
 - c. CXL
 - i. PiXL
 - d. PEARL
 - e. LASIK/PRK
 - i. Monovision
 - f. SMILE
 - g. Previous Corneal inlays No longer available
 - i. Raindrop
 - 1. Transparent hydrogel inlay
 - ii. Kamra
 - 1. Pinhole effect
5. Topical Treatments in the Pipeline (15 min)
- a. Pilocarpine based treatments
 - i. Pilocarpine is a cholinergic agonist **that works** on the muscarinic 3 agonist pathway to **cause miosis**
 - ii. Utilizing pilocarpine-based ocular therapeutics helps to create pinhole optics, **which increases** the depth of focus
 - 1. EYenovia
 - 2. Abbvie
 - 3. Orasis
 - 4. Ocuphire
 - b. Other Miotic based therapies
 - 1. *Aceclidine (LENZ Therapeutics).*
 - a. Aceclidine is a parasympathomimetic that acts as a muscarinic receptor agonist, causing miosis by engaging the iris sphincter while avoiding the ciliary muscle.
 - b. Aceclidine helps to increase depth of focus, utilizing the pinhole effect, and its method of action to avoid the ciliary muscle and associated myopic shift and side effects.
 - 2. Visus Therapeutix
 - a. This ocular drop contains carbachol, a cholinergic agent, and brimonidine, an alpha-2 agonist.
 - b. Together these two actives decrease the pupil's size, creating a sustained pinhole effect that allows only centrally focused light rays to enter the eye, thereby reducing blur and increasing depth of focus
 - c. Lens Softening technologies
 - i. Novartis FDA trials stopped
 - ii. Cellix Bio, pre-FDA