Magnify Your Knowledge: Contact Lenses For Your Low Vision Patients

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Erin Kenny, OD, FAAO

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Dr. Kriti Bhagat
Disclosure Statement:
Alcon
Blanchard
Dr. Erin Kenny
Disclosure Statement:
Nothing to disclose
What is low vision?

- National Eye Institute Definition:
  - The best-corrected visual acuity less than \((<20/40)\) in the better-seeing eye
- ICD-10 Definition:
  - Condition caused by eye disease in which visual acuity is \(20/70\) or poorer in the better-seeing eye and cannot be corrected
- Functional definition:
  - Even with regular glasses, contact lenses, medicine, or surgery, everyday tasks are difficult to do, regardless of severity of visual field and/or visual acuity.
Role of Contact Lenses

- Refractive correction
  - High refractive errors
  - Anisometropia
- Low vision aid
  - Magnification
  - Field expansion
- Therapeutic intervention
  - Photosensitivity
  - Psych-social benefit
Pathologies that may benefit from contact lenses

- Achromatopsia
- Retinitis pigmentosa
- High refractive errors
- Aphakia
- Nystagmus
- Corneal irregularities
Risk Vs. Benefit

- Ocular health
  - Infection rates
- Monocular patients
- Age
- Ability to properly care for the lenses
- Insertion and removal concerns
Considerations

• Need for assistance
• Utilize with other low vision devices
• Patient’s goals
Contact Lens Options

• Soft Contact Lenses
  • Mass-produced
  • Custom
• Rigid Gas Permeable
  • Corneal
  • Scleral
• Hybrid
• Prosthetic
• Tinted
Achromatopsia (Rod monochromatism)

• **Definition:** inherited retinal disorder affecting the cones
• Typical vs. atypical
  • Complete vs. incomplete
• **Signs and Symptoms:**
  • Color blindness, decreased visual acuity, extreme light sensitivity and nystagmus
Why do CL help?

- Cone cells are not functioning as well, the rods are the main photoreceptor being utilized for vision
- Limits the light AND allows the remaining rods to function better
Sunlens Evaluation

- NoIR Red tinted transmissions
- Finalize in spectacles tint first
- Check visual acuity
  - Indoors vs. outdoors
Contact Lens Consideration

- Primary versus secondary
- Benefits
  - What is the goal of the lenses
- Glasses versus Contact lenses
  - Cosmesis
  - Compliance
X-Chrom Lenses

- Deep red tinted contact lens
- Monocular soft contact lens
- Primary use: color deficiency
  - Secondary use: achromatopsia, photosensitivity
X-Chrom Lenses
Case #1

• 28 year old white female presents for a low vision evaluation
• Diagnosed with atypical achromatopsia in 1990
Case #1

<table>
<thead>
<tr>
<th>Low Vision History</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Vision Loss</strong></td>
</tr>
<tr>
<td>Issues with glare indoors</td>
</tr>
<tr>
<td>Issues with glare outdoors</td>
</tr>
<tr>
<td>Preferred Eye</td>
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</table>
## Case #1

<table>
<thead>
<tr>
<th></th>
<th>Right Eye</th>
<th>Left Eye</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20/125</td>
<td>20/100</td>
</tr>
<tr>
<td></td>
<td>Visual Acuities Uncorrected Distance</td>
<td></td>
</tr>
<tr>
<td>Uncorrected Near</td>
<td>.16/1.0M = 20/125</td>
<td>.16/1.0M = 20/125</td>
</tr>
<tr>
<td>Pupils</td>
<td>Equal, round, reactive to light</td>
<td>Equal, round, reactive to light</td>
</tr>
<tr>
<td>Confrontation Fields</td>
<td>Full to finger count, mild blur central</td>
<td>Full to finger count, mild blur central</td>
</tr>
<tr>
<td>Nystagmus</td>
<td>SMALL amplitude nystagmus only noted in slit lamp</td>
<td>SMALL amplitude nystagmus only noted in slit lamp</td>
</tr>
<tr>
<td>Color</td>
<td>5/14 - Ishihara No pattern - D15</td>
<td>5/14 - Ishihara No pattern - D15</td>
</tr>
</tbody>
</table>
Case #1

- Contact lenses -0.50 sph OD, OS
- Best corrected VA: 20/80 OD, OS, OU
Retinitis Pigmentosa

- **Definition**: Progressive retinal dystrophy affecting the rods and eventually the cones
- **Signs and symptoms**: Night blindness, reduced peripheral field, central field loss, contrast sensitivity loss
  - Associated with high myopia
  - Associated with syndromes
Role of Contact Lenses

• High Myopia
• Night Blindness
• Glare

• Use with other devices
Types of lenses

• Soft lenses
• Custom soft lenses
• Rigid gas permeable lenses
  • Scleral lenses
• Hybrid lenses
• Tinted lenses
Case #2

- 53 year old white male presents for a low vision evaluation
- Diagnosed with retinitis pigmentosa 4 months prior
- Glare sensitivity/contrast enhancement is his main goal
Case #2

<table>
<thead>
<tr>
<th>Right Eye</th>
<th>Left Eye</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/20</td>
<td>20/20</td>
</tr>
<tr>
<td>Visual Acuity c Distance</td>
<td>See Goldmann</td>
</tr>
<tr>
<td>See Goldmann</td>
<td>Confrontation Fields</td>
</tr>
<tr>
<td>Severely reduced</td>
<td>Contrast Sensitivity</td>
</tr>
<tr>
<td></td>
<td>Severely reduced</td>
</tr>
</tbody>
</table>
Sunlens Evaluation

• Overcast glasses: C302Y Pilot lenses (Gold/Yellow)
• Extremely sunny, outdoor glasses: 4% Grey-Green NoIR tint
• BioSport Lens provided relief for days he would be outside
Pathological Myopia

**Definition:** Myopia with degenerative changes especially in the posterior segment
- Fuchs spots, lacquer cracks, choroidal neovascularization, peripapillary atrophy, tilting of the optic disc, retinal breaks/detachments

**Degenerative myopia**
- > 6 D or axial length > 26mm

**Signs and symptoms:** Central scotomas, peripheral field loss, contrast sensitivity loss, photophobia
Pathological Myopia and Low Vision

- Utilization of devices
  - Spectacle mounted telescopes
    - Short focus
- Galilean telescope
- Image clarity
  - Spectacles vs. CL
    - Spectacles provide minification
    - Relative magnification produced by a contact lens serves as an advantage over spectacle lens
    - CL eliminate peripheral distortion and prismatic effects
Case #3

- 19 year old African American female presents with complaints of decreased vision with glasses
- Dislikes wearing the glasses due to cosmetic appearance
- Difficulty playing volleyball in college
Case #3

Spectacle Rx:

OD: -17.25 - 2.75 x 035  20/25
OS: - 16.00 -1.25 x 018  20/25-
Case #3

• Options?
  • Soft Lenses
  • RGP Lenses
    • Scleral Lenses
  • Hybrids Lenses
Aphakia

• **Definition**: Absence of the lens of the eye
  • Congenital vs. Acquire
• **Signs and symptoms**: Refractive errors shows high amounts of hyperopia
  • Associated with other syndromes and other anterior segment abnormalities
Aphakia and low vision

- Correcting refractive error and additional magnification
  - Full field microscopes
  - Spectacle mounted telescopes
    - Short focus
- Image clarity
Role of Contact Lenses

- Optics
- Weight of glasses
- Cosmesis

- Use with other devices
Types of lenses

- Soft lenses
- Custom soft lenses
- Rigid gas permeable lenses
  - Scleral lenses
- Hybrid lenses
Silsoft

• Why?
  • Increased center thickness
  • Increased oxygen permeability
  • Overnight wear
  • Patient assistance program
Silsoft

- Fitting based on fitting guide
  - Base curve
  - Diameter
  - Assessment

- Insertion/removal techniques
Case #4

- 1 year old female
- s/p cataract surgery at 5 months of age
- Currently wearing spectacles
- Patching and being followed by pediatrics department
Case #4

- Current Rx:
  - OD +18.75 - 1.50x180
  - OS: plano

Visual Acuity

20/20 OU
Case #4

• Options?
Nystagmus

- **Definition**: Vision condition in which the eyes make repetitive, uncontrolled movements
  - Congenital vs. acquired
- **Signs and symptoms**: Reduction in vision, oscillopsia if acquired
  - Varying blur depending on null point
Nystagmus and low vision

• Responds well to magnification
• Contact lenses
  • Dampening effect
  • Glare reduction
• Handheld telescope
Type of Lenses

- Soft lenses
- RGP
  - RGP vs Soft Lenses
  - Corneal cylinder
Corneal Irregularities

- Keratoconus
- Corneal scarring/opacification
- Stevens Johnson Syndrome
- Keratopathies
- Dry eye syndrome
- Band K
- Corneal dystrophies
Corneal Irregularities

• Refractive error
• Glare problems
Type of Lenses

- Custom Soft Lenses
  - Custom keratoconic soft lenses
  - Increased center thickness
  - Increased stability
  - Increased comfort
Type of Lenses

• RGP
  • Masking of corneal irregularities
  • Increased visual acuity
  • Improved ocular surface
  • Protection

• Hybrid lenses
Case #5

- 27 year old white male presented for a low vision evaluation
<table>
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<th>Left Eye</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/300</td>
<td>20/300</td>
</tr>
<tr>
<td>Distance Visual Acuities c Rx</td>
<td></td>
</tr>
<tr>
<td>Profound contrast loss</td>
<td>Profound contrast loss</td>
</tr>
<tr>
<td><strong>Contrast Sensitivity</strong></td>
<td></td>
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</table>
Decreased field of view

- Glaucoma, stroke, retinitis pigmentosa
- Affects orientation and mobility
- Spectacles provide safety but also can hinder field of view
- Utilize with other low vision devices
Role of Contact Lenses

- Increase field of view
- Glasses versus contact lenses
- Low vision device usage
Contact Lens Options

- Soft Contact Lenses
  - Mass-produced
  - Custom
- Rigid Gas Permeable
  - Corneal
  - Scleral
- Hybrid
Glare/Light Sensitivity

- Any low vision pathology can provide discomfort
  - Oculocutaneous albinism
  - Ocular albinism
  - TBI
  - Optic neuropathy
- Discomfort vs. disability
Role of Contact Lenses

- Decrease photophobia
- Cosmesis
Types of Contact Lenses

- Tinted lenses
- Colored lenses
  - Mass-produced
  - Custom
    - Fitting methods
Case #6

- 30 year old female with traumatic brain injury
- Perfect vision except extremely photophobic
  - Is she low vision? YES
- Enjoys watching football on Sundays with her friends but can’t stand the glare off the TV
- Wears plum tinted sunlenses
Contacts - “Migraine lenses”

- Orion BioSport Lenses
- TBI = Perfect ocular health
- Anecdotally, short wavelength colors are favorable for TBI patients
Medical Necessity

“Medically necessary contact lenses are non-elective contact lenses prescribed when certain medical conditions hinder vision correction through regular eyeglasses. In other words, contact lenses are a medical necessity and the generally accepted standard of treatment.”
July 3, 2012

Insurance Management Services
PO Box 15688
Amarillo, TX 79105

RE: Letter of Medical Necessity for Patient John Doe, Insured #: 123456789

To Whom It May Concern:

I have examined Mr. Doe, who has Keratoconus, Stable Condition (CPT Code 371.61), and who, according to the 1999 American Medical Association “Definition of Medical Necessity,” qualifies for medically necessary contact lenses. It is, therefore, medically necessary for Mr. Doe to wear RGP scleral contact lenses. I write this letter for review of benefits under Mr. Doe's plan for the prescribing of contact lenses that are therapeutic, and not cosmetic.

The service code (CPT) for this diagnosis is:

92072: Fitting of Contact Lens for Management of Keratoconus, Initial Fitting
   The fee for that service is $160.00

The material code (HCPCS) for this diagnosis is:

V2581: Contact lens, gas permeable, scleral, per lens (Two lenses will be needed.)
   The fee for these lenses is $650.00 for each lens.

Please contact me immediately about Mr. Doe's available benefits, or if you have any questions.

Sincerely,
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