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Integrating the Growing Spectrum of Presbyopia Treatments Into Optometric Practice

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Integrating the Growing Spectrum of Presbyopia Treatments Into Optometric Practice

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Content Source

This continuing education (CE) activity captures content from a live in-person symposium.

Activity Description

This supplement summarizes didactic presentations and interactive case discussions by an expert panel on strategies to manage presbyopes from early to late stages of presbyopia progression with new and emerging pharmaceutical treatments options as well as next-generation presbyopia-correcting IOLs.

Target Audience

This certified CE activity is designed for optometrists.

Learning Objectives

Upon completion of this activity, the participant should be able to:

- **Define** the prevalence, etiology, and key characteristics of progression of presbyopia from early to late-stage patients
- **Outline** strategies for finding, communicating with, and educating patients about presbyopia correction clinical outcomes, costs, risks, and benefits, including quality of life and quality of vision considerations
- **Describe** how the latest presbyopia-correcting IOL technologies, multifocal contact lenses and pharmaceutical presbyopia treatments can address outcomes in a new group of presbyopia patients, including those with comorbid conditions

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Please complete prior to accessing the material and submit with Posttest/Activity Evaluation/Satisfaction Measures for credit.

1. Please rate your confidence in your ability to outline strategies for educating patients about presbyopia correction clinical outcomes, costs, risks, and benefits, including quality of life and quality of vision considerations (based on a scale of 1 to 5, with 1 being not at all confident and 5 being extremely confident).

A. 1
B. 2
C. 3
D. 4
E. 5

2. What has the most significant impact on quality of life in comparison to other age-related ailments?

A. Loss of near vision
B. Arthritis
C. Dry eyes
D. Hearing loss

3. A 53-year-old 3D hyperope presents for a refractive surgery consult. She states she is interested in spectacle independence. What is the best option for this patient?

A. Monovision LASIK
B. Distance vision LASIK
C. Refractive lens exchange
D. Presbyopia drops

4. Which presbyopia-correcting drop activates pupil modulation and ciliary body contraction?

A. Preservative-free low dose pilocarpine
B. Brimonidine titrate 0.2% and carbachol 3%
C. Preservative-free phentolamine 0.7% and low dose pilocarpine 0.4%
D. Lipoic acid choline ester 1.5%

5. What IOL is pupil independent?

A. Wavefront-shaping IOL
B. Enhanced monofocal IOL
C. Small aperture IOL
D. Hybrid multifocal/extended depth of focus (EDOF) IOL

6. A 65-year-old woman with a history of iris trauma presents for a cataract surgery consultation. What IOL will work best for her?

A. Enhanced monofocal IOL
B. Small aperture IOL
C. Hybrid multifocal/EDOF IOL
D. Wavefront-shaping IOL

7. A patient with a history of photorefractive keratectomy (PRK) has moderate nuclear cataracts that are affecting his distance and near vision. He has posterior corneal astigmatism. What IOL would you recommend for this patient that can be adjusted after surgery?

A. Light adjustable IOL
B. Small aperture IOL
C. Hybrid multifocal/EDOF IOL
D. Wavefront-shaping IOL

8. What is the mechanism of action for lipoic choline ester 1.5%?

A. Pupil modulation
B. Ciliary body contraction
C. Lens softening
D. Combination of pupil modulation and ciliary body contraction

9. Stage 1 of dysfunctional lens syndrome involves what changes?

A. Increased higher-order aberrations and forward scatter of light
B. Decreased contrast sensitivity
C. Early lens opacities
D. Loss of accommodation

10. What color filter does hybrid multifocal/EDOF IOL use to reduce halo, glare, and starbursts?

A. Red
B. Blue
C. Violet
D. Green

11. A 42-year-old emmetropic presbyopic patient is interested in near correction but does not want to wear glasses or contacts. What treatment would you recommend for the patient?

A. Monovision LASIK
B. Distance vision LASIK
C. Refractive lens exchange
D. Presbyopia drops

INTEGRATING THE GROWING SPECTRUM OF PRESBYOPIA TREATMENTS INTO OPTOMETRIC PRACTICE

This supplement reviews the latest in pharmaceutical treatments for presbyopia and presbyopia-correcting IOLs. Patient education, including review of adverse events, plays an important role in the patient journey.

The Early Presbyope: Pharmaceutical Presbyopia Treatments

Growing your practice with pharmaceutical presbyopia treatments

DOUGLAS K. DEVRIES, OD

Presbyopia onset begins between the ages of 40 and 45 years. The characteristics of this population are changing. Incomes are rising, people are working longer, and near vision has never been more important. According to Burke Healthcare Research, presbyopia has a significant impact on patients' quality of life. It increases the chance of injury, including falls and hip fractures, and affects mental health and productivity.[1-2]

DRAWBACKS OF CURRENT PRESBYOPIA SOLUTIONS

Optical presbyopia correction includes spectacles and contact lenses. Spectacle correction can hurt self-confidence and is inconvenient. Contact lenses are inconvenient, and compliance issues can lead to contact lens-related dry eye and other issues.

Surgical options include multifocal IOLs, corneal inlays, refractive lens exchange, and monovision LASIK vision correction. Multifocal IOLs are usually not a good option for early presbyopes, and halos and glare are bothersome for some patients. Corneal inlays are expensive, result in reduced distance vision, can be difficult for patients to adjust to, and have many postoperative complications. Refractive lens exchange may not be a good fit for early presbyopes, and the cost and surgery risks may not outweigh the benefits. Monovision LASIK correction is irreversible, may result in dry eye, and is hard to adjust for some patients. Also, hyperopic treatments are less predictable.[1]

There is a gap between optical and surgical options, and this is where pharmaceutical drops play a role.

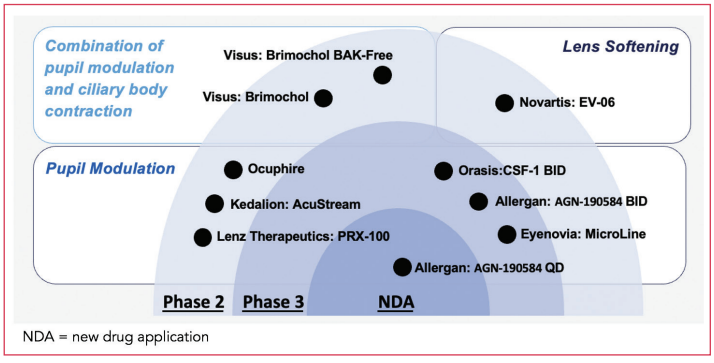

Figure. Pharmaceutical presbyopia treatment approaches.

KEY CONSIDERATIONS FOR PHARMACEUTICAL PRESBYOPIA TREATMENTS

- Maximize duration of effect
- Minimize onset time
- Limit reduction of distance and night vision
- Minimize adverse events
- Minimize impact on ocular surface health
- Maximize drop administration comfort to increase compliance

Pharmaceutical presbyopia treatment approaches include pupil modulation, pupil modulation and ciliary body contraction combination, and lens softening (Figure).

PUPIL MODULATION

Pilocarpine hydrochloride ophthalmic solution 1.25% (Vuity, Allergan) is an FDA-approved pharmaceutical drop for the treatment of presbyopia. GEMINI-1 and GEMINI-2 phase 3 results showed that if used bilaterally, once a day, for 30 days, participants had a statistically significant gain of at least 3 lines. In GEMINI-1, the onset was rapid, at 15 minutes, and lasted for about 6 hours without any distance vision loss. Distance corrected intermediate visual acuity lasted 10 hours. Patient education should include discussing headaches.[4]

CSF-1 (Orasis Pharmaceuticals) is a preservative-free low dose pilocarpine 0.4% drop. It uses an ocular surface-friendly

multifaceted proprietary vehicle. Phase 3, NEAR-1, and NEAR-2 studies indicated that twice daily, bilaterally, for two weeks resulted in a gain of at least 3 lines of near vision with no loss of distance visual acuity. On day 15, this 3-line improvement occurred as early as 20 minutes and lasted up to 8 hours. Adverse effects were mild and temporary. Participants also reported high comfort levels with the drop.[5]

A microdose of 8 µL pilocarpine 1% or 2%, Microline (Eyenovia) uses a proprietary dispenser (Optejet) for drop application. This dispenser eliminates excessive overdosing by reducing systemic exposure.[6]

Nyxol, preservative-free phentolamine 0.75% and low-dose pilocarpine 0.4% (Ocuphire Pharma), also restrict pupil size. Phentolamine is a nonselective alpha-adrenergic agonist that inhibits the contraction of the smooth muscle of the iris.[7]

PUPIL MODULATION AND CILIARY BODY CONTRACTION COMBINATION

Brimochol (Visus Therapeutics) is a combination drop of brimonidine titrate 0.2% and carbachol 3%. Brimonidine is an alpha-2 agonist and carbachol is a cholinergic agent. Together, they prevent pupil dilation and hyperemia, and inhibit ciliary body contraction. Brimonidine also increases the bioavailability of carbachol. Phase 2 VIVID study results showed that both preservative-free brimochol and brimochol with BAK are significantly efficacious with a duration of action up to 9 hours. It is well tolerated with a favorable safety profile. In the study, a 3-line gain of binocular uncorrected near visual acuity (UNCVA) within an hour without any loss of distance vision was observed in 83% of participants. There is an ongoing phase 3 BRIO trial.[8]

LENS SOFTENING

UNR844 (Novartis) is a topical lipoic acid choline ester 1.5% that softens the lens by breaking down its disulfide bonds, increasing lens fluidics. A clinical trial is currently in the recruiting stage.[9]

EDUCATING PRESBYOPES

Pharmaceutical presbyopia treatment requires extensive education and setting realistic expectations for the patient. Other factors to consider are the cost and risk of using the drops. Usage and quality of life considerations also matter as a once-a-day dosing regimen may be easier for some patients.

CONCLUSION

It is essential to consider that more presbyopes will be coming into your practice to obtain drops. The days of over-the-counter readers are numbered. Remember that patient education is vital, and direct-to-consumer marketing and newsletters will help group your practice. Before starting the presbyopia drop journey, a comprehensive eye exam should be done.

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The Cataract Patient: Addressing Patient Needs With Next-Generation Presbyopia-Correcting IOLs

Overview of the latest presbyopia-correction IOLs

BY CECELIA C. KOETTING, OD, FAAO, DIPL ABO

Patients have high demands for functional vision at all distances. As the presbyopia population ages, the incidence of age-related cataracts increases, providing an opportunity to correct both cataracts and presbyopia with IOLs. Choosing the correct IOL includes the following considerations: visual needs, lifestyle, daily activities, concerns about dysphotopsia, and comorbidities.

The goal of presbyopia correction is to regain some of the lost visual function and help the patient better focus on near objects. While spectacles, contact lenses, and monovision refractive surgery are options for treating presbyopia, some patients want complete independence from these corrections. Presbyopia IOL options include enhanced monofocal, wavefront-shaping extended depth of focus (EDOF), small aperture, hybrid multifocal/EDOF, and light adjustable lens.[1]

ENHANCED MONOFOCAL

The Tecnis Eyhance and Eyhance Toric (Johnson & Johnson Vision) enhanced monofocal IOL uses a refractive technology with no rings and a steep central curvature that causes a local increase in power. The power changes continuously from the center to the periphery of the lens with a higher order aspheric surface. This design helps with chromatic dispersion, spherical aberration, and A-constant, resulting in improved vision quality and clarity.

Distance vision with an enhanced monofocal IOL is comparable to an aspheric monofocal IOL (Figure 1). The progressive increase

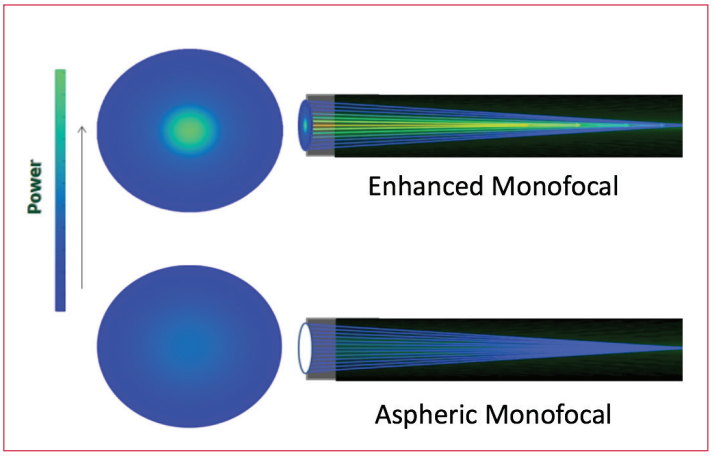

Figure 1. Aspheric monofocal versus enhanced monofocal IOL power progression.

in power from the periphery to the center of the lens results in a slightly extended range of vision. The enhanced monofocal IOL also has a larger landing zone than a standard aspheric lens, and it is pupil independent.

This lens works well for the active patient that would benefit from a slightly extended depth of focus for intermediate near work activities, such as computer work. It has a similar dysphotopsia profile to an aspheric monofocal IOL. It works well for patients who are not candidates for diffractive technology, such as those with ocular surface and retinal diseases. It is a premium monovision approach.[2]

WAVEFRONT-SHAPING EDOF

The Acrysof IQ Vivity (Alcon) wavefront-shaping EDOF IOL has two transition elements. The first is an elevated plateau height of 1 µm which stretches the wavefront resulting in a continuous extended focal range. The stretched light causes a delayed and advanced wavefront. The delayed wavefront forms at the near end, and the advanced wavefront forms at the far end of the extended focal range. The second element is a slight curvature change across the central 2.2 mm. This transition causes a shift in the wavefront to utilize both wavefronts. Compared to an aspheric monofocal IOL, there is no clinically relevant difference in binocular mesopic contrast sensitivity.[3]

The ideal patients for this IOL have an active lifestyle, such as golfers, scuba divers, and runners, and wants reduced spectacle dependence for their activities. With this lens, patients will still have intermediate distance visual function, such as computer work and board games. This lens works well for patients who are risk averse to visual disturbances. Be cautious with patients with retinal disease, irregular astigmatism, and moderate/severe glaucoma.

SMALL APERTURE

The IC-8 (AcuFocus) small aperture IOL design is based on the pinhole effect, which filters out any unfocused and aberrated peripheral light. It focuses central light rays on the retina, which results in a lower dysphotopsia profile. In a multicenter

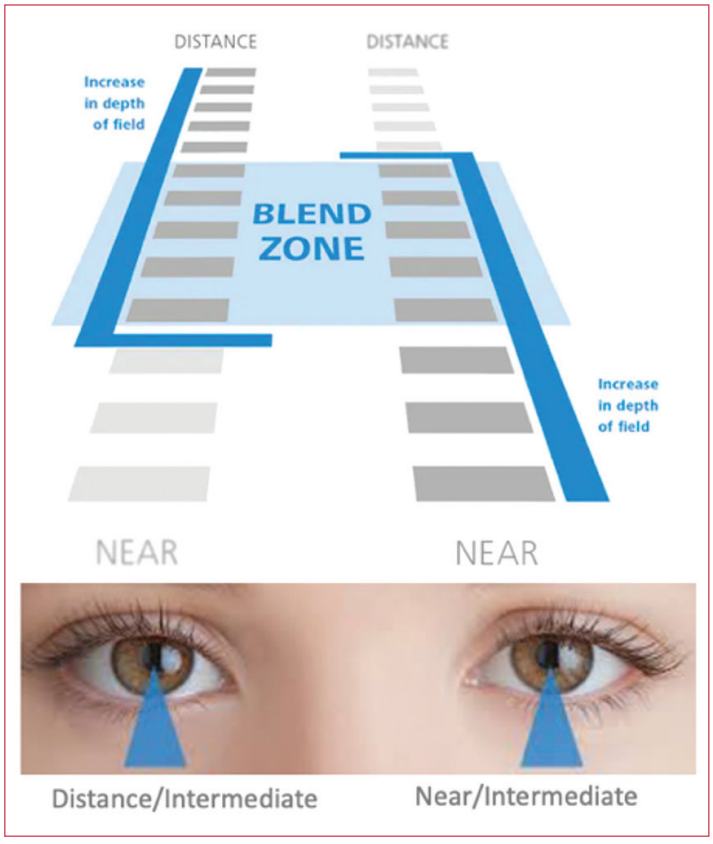

Figure 2. Customizable blended vision.

trial, patients were fit with a small aperture IOL in one eye and a monofocal in the other. They achieved and maintained excellent binocular far and intermediate uncorrected visual acuity and good near visual acuity.

This lens works well for the patient who may be sensitive to dysphotopsias. Due to its design, it is forgiving of refractive surprises that can sometimes be found after corneal refractive surgery, correcting up to 1.50 D of residual astigmatism. The best candidates for this lens are patients who have been successful with monovision or multifocal contact lenses. Patients with a history of iris trauma, irregular corneas, corneal scars, and complex cataract cases perform well with the lens.[3,4] It is not recommended to use this in a patient with any macular disease or proliferative diabetic retinopathy.

HYBRID MULTIFOCAL/EDOF

The Tecnis Synergy (Johnson & Johnson Vision) hybrid multifocal/EDOF IOL combines diffractive multifocal and EDOF technologies using a diffractive echelette surface and achromatic technology. This design uses a violet filter to reduce halos, glares, and starbursts with a broad defocus range and excellent near vision with higher contrast under lower light conditions. The continuous range of vision provides excellent image contrast during the day and at night.

This lens works well for patients seeking spectacle independence for distance and near, especially in lower light conditions.[5] Patients

who have irregular astigmatism, glaucoma, or ocular surface, macular and retinal diseases are not good candidates for this lens.

LIGHT ADJUSTABLE

The light adjustable lens (LAL; RxSight) is composed of a photosensitive silicone macromer. The macromers undergo polymerization with targeted UV light exposure to adjust the lens change shape, therefore changing the refractive power. This lens can be adjusted up to three times and corrected between -2D to +2D spherical and 0.50 D to 3.00 D cylinder. The patients must wear UV protective glasses during all waking hours to protect them from accidental changes due to light. The customized blended vision achieved at conclusion means there is no noticeable increase in dysphotopsias (Figure 2).

This lens works well for people who are anisometropic, have long or short eyes, and who need astigmatism correction. It works well for patients post refractive surgery who may be more prone to postoperative refractive surprises.[6,7] It will not work well for the patients who poorly dilate, have pupils smaller than 7 mm, or will not be compliant with postoperative instructions.

CONCLUSION

Always match patients to the technology that meets their needs and set realistic expectations with patient education. With any cataract patient, always clean up the ocular surface before referral. Treat all ocular surface disease as well as insure all other comorbidities are stable and under control. Make sure to communicate all treatments and findings with the surgeon. Good communication is key for comanagement and success for our patients.

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Talking to Patients About Their Presbyopia-Correcting IOL Options

Presbyopia case discussions

BY MARC R. BLOOMENSTEIN, OD, FAAO

Patient education is essential for cataract patients. The ability to correctly identify the patient's wants versus needs and make a recommendation for the appropriate lens is an acquired skill. As optometrists, we should view the condition of having cataracts in absolutes. Patients either have cataracts, or they do not.

It is important to begin patient education at the earliest sign of lenticular changes to prepare the patient for future intraocular lens decisions. Patient education should discuss the three stages of dysfunctional lens syndrome (DLS; Table). This discussion will help guide them through the stages of their presbyopia journey.[1]

Now that we understand DLS, a thorough history and examination must be conducted. Review the quality and quantity of corneal astigmatism and evaluate for any ocular surface abnormalities such as previous refractive surgery and keratoconus. Also, look for retinal diseases, such as age-related macular degeneration, epiretinal membranes or any retinopathy, as well as glaucoma. Educate patients about postoperative complications that may include dry eye disease or unwanted refractive errors.[2]

With the new available IOLs, patients are experiencing fewer visual adverse effects postoperatively. Visual neuroadaptation plays a vital role in this. Multifocal IOLs have an increased incidence of visual disturbances during the first week postoperatively compared to monofocal IOLs. Over time, multifocal IOL patients neuroadapt, and these disturbances are less noticeable. This effect should be explained to patients preoperatively to reduce buyer's remorse.[3] A good rule of thumb is to always talk about the potential visual disturbances prior to any surgery. Patients who do not fully understand the lens' limitations will oftentimes think these are side effects rather than normal outcomes.

Aspheric IOLs work best for patients who may be sensitive to visual disturbances due to aberrations. Patients may opt for an

TABLE. DYSFUNCTIONAL LENS SYNDROME STAGES

Stage 1	• Loss of accommodation
Stage 2	• Increased higher-order aberrations and forward scatter of light • Decreased contrast sensitivity • Early lens opacities
Stage 3	• Clinically significant cataract • Decreased functional vision

IOL that will give them the opportunity for spectacle independence. Multifocal and extended depth of focus (EDOF) lenses are options but understanding the patient's needs will help with the decision.[2]

Another aspect of patient education requires understanding the kind of personality they have. Neurotic patients are more likely to be dissatisfied with their postoperative results, so underpromise and overdeliver for these patients. More agreeable patients are more likely to be happy with their postoperative results.[2]

CASE 1: STAGE 1 DLS EMMETROPE

A 45-year-old emmetropic presbyopia patient is interested in near correction.

Solution: It is best to wait and prescribe presbyopia-correcting pharmaceutical drops. If the patient is not happy with the cost, educate the patient that glasses or contact lenses would work best.

CASE 2: STAGE 1 DLS HYPEROPE

A 45-year-old patient with +3D of hyperopia OU wants to know his presbyopia-correction options. He is struggling with both distance and near vision.

Solution: There are a few solutions for this patient. Assess for any latent hyperopia. A distance LASIK correction with presbyopia pharmaceutical drops will help if the patient does not have any latent hyperopia. Also, educate the patient about the possibility of a refractive lens exchange in the future. This will help them prepare for it if they choose that option.

CASE 3: STAGE 2 DLS MYOPE

A 55-year-old woman with a history of myopic monovision LASIK has lost the ability to read and wants spectacle independence.

Solution: Presbyopia-correcting pharmaceutical drops will work for her and provide her the ability to correct both eyes for distance and near. If she feels that the drops are not working as well, a contact lens in combination with the drops may be another alternative. I would also talk to the patient about the potential for a refractive lens exchange.

CASE 4: STAGE 3 DLS RISK-AVERSE

A 70-year-old man is very averse to any night vision symptoms. He is interested in lowering his dependence on spectacles but is fine wearing readers when necessary.

Solution: This patient should be educated on all his presbyopia-correcting options. Since the patient is sensitive to visual disturbances, a multifocal IOL or hybrid will not work well for this patient. Perhaps consider an EDOF, enhanced monofocal, or small aperture lens.[2]

CONCLUSION

Talk to presbyopic patients about their correction options, including pharmaceutical treatment and IOLs. Proper education can alleviate postoperative remorse and build trust between the doctor and patient.

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Case Presentations: Addressing Presbyopia With Latest Technologies

Matching the patient with the ideal IOL

BY MARC R. BLOOMENSTEIN OD, FAAO; DOUGLAS K. DEVRIES, OD; AND CECELIA C. KOETTING, OD, FAAO, DIPL ABO

Advancements in intraocular lens (IOL) technology are changing our approach when talking to patients about cataract surgery. As newer lenses are approved, there is a transition from viewing cataract surgery as a restorative procedure to more of a refractive procedure. Astigmatism and correction can be achieved with IOLs with many options and combinations available.

CASE 1: NIGHTTIME TRUCK DRIVER WITH DYSPHOTOPSIAS

A 61-year-old truck driver with nuclear sclerotic and cortical cataracts was having difficulty with glare at night and seeing his dashboard. He was not a spectacle wearer. The patient's uncorrected visual acuity (UCVA) was 20/40 OD and 20/50 OS. With the brightness acuity test (BAT), UCVA was 20/150 OD and 20/200 OS. The rest of the ocular exam was unremarkable.

Solution: The patient received wavefront-shaping EDOF IOLs in both eyes. His right eye received a toric EDOF IOL. His postoperative UCVA was 20/20 distance, 20/20 intermediate, J3 OD and 20/20 distance, 20/25 intermediate, and J2 OS.

The patient was happy with night driving and could read his dashboard. He uses over-the-counter readers for tiny print. A refractive IOL is not usually recommended for this type of patient due to dysphotopsia at night (Figure). However, this patient was experiencing dysphotopsia before cataract surgery, so the patient was already used to it and did well with the lenses.[1]

CASE 2: MODERATE PRESBYOPIC ACCOUNTANT SEEKING SPECTACLE INDEPENDENCE

A 58-year-old accountant with posterior subscapular cataracts would like spectacle independence, even if it means she may experience some potential glare at night. Her hobbies included hiking and reading. Best corrected visual acuity (BCVA) was 20/30+ OD and 20/25- OS. With BAT, the patient was 20/70 OD and 20/60 OS. The rest of her exam was unremarkable.

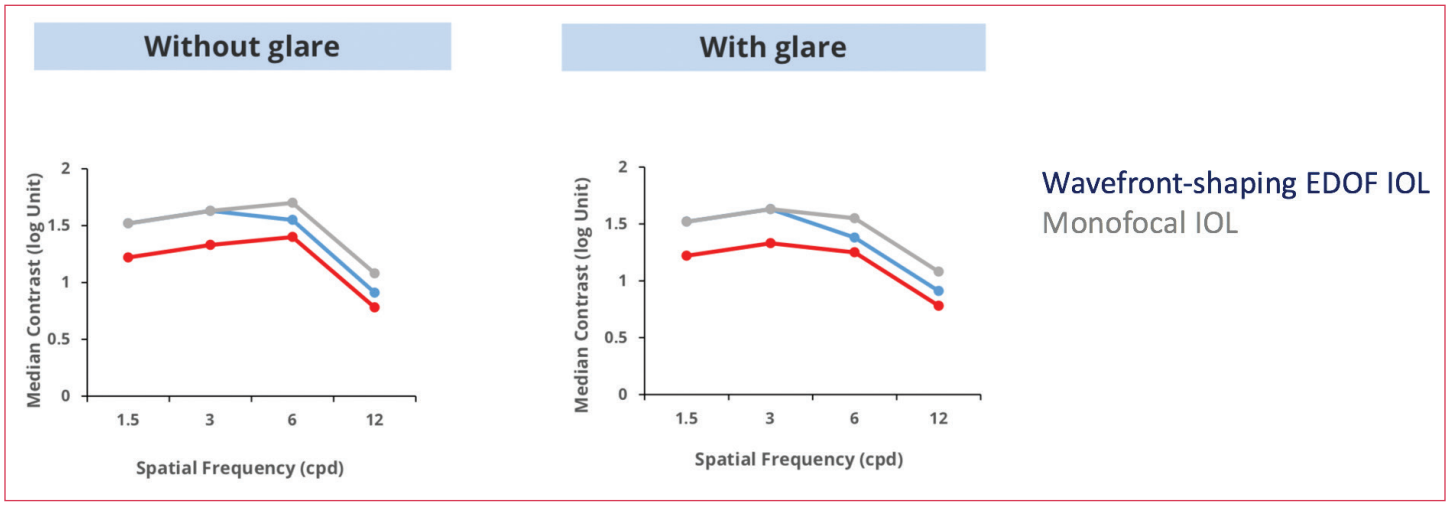

Figure. Wavefront-shaping EDOF versus monofocal with and without glare binocular mesopic contrast sensitivity.

Solution: The patient underwent cataract surgery with a hybrid multifocal/EDOF IOL OU. The target refractive goal was zero to first plus. The postoperative UCVA was 20/20 distance, 20/20 intermediate, J1 uncorrected OD, and 20/20 distance, 20/25 intermediate, J1+ OS.

The patient was happy with her vision at all distances despite noticing halos around light. She is still able to drive at night. Patient education is critical in cases like this. The patient was prepared to experience some dysphotopsia as a side effect of the cataract surgery, so when she did, it was not a deal breaker.[1]

CASE 3: TEACHER WITH REDUCED NEAR VISION WITH MONOVISION CONTACT LENSES

A 62-year-old teacher with nuclear sclerotic and cortical spoking cataracts is currently wearing monovision contact lenses with OD for distance. BCVA was 20/50 OD and OS and BAT 20/70 OD and 20/80 OS. The rest of her exam was unremarkable. She had trouble driving at night, and near vision was not as clear as it used to be.

Solution: The patient underwent cataract surgery. She received a standard monofocal IOL with limbal relaxing incision for astigmatism correction set for distance in her right eye and a small aperture IOL in her left eye. Her right eye postoperative UCVA was 20/20 for distance and J8 for near. Her left eye was 20/25 distance, 20/25 intermediate, and J2.

The patient can read on the computer and smart board while teaching in class. She is happy with her vision. The patient was in her early 60s, indicating she still has residual accommodation. We do not want to create absolute presbyopia as we would be ending her presbyopia journey prematurely. Due to this, monovision is not recommended.[1]

CASE 4: RETIRED PATIENT WITH DRY EYE DISEASE

A 70-year-old retired woman with moderate myopia presents for a cataract consultation. She previously wore monovision contact lenses and had to discontinue wearing them due to dry eye disease. She wanted a multifocal IOL to achieve spectacle independence like when she wore her contact lenses. She likes to take her glasses off in the evening to read. BCVA was 20/60 OD and 20/50- OS. Anterior segment evaluation revealed significant MGD and inferior SPK OU.

Solution: The ocular surface disease was treated first with repeat biometry upon completion of treatment. The patient received enhanced monofocal IOLs with a target of plano OD and -2 OS. Postoperative UCVA distance was 20/20 OD and near J1 OS. With refraction, OD was 20/15- and OS 20/20.

Because the patient had dry eye disease, the ocular surface had to be treated because accurate biometry is critical for lens selection. Untreated dry eye is one of the common causes of dissatisfaction among patients who receive multifocal IOLs. The red flag for this patient is that she wants spectacle independence with multifocal IOLs. Patient education is imperative here as she needs to adjust her expectations. She is not a good candidate for multifocal IOL as low to moderate myopes who read without glasses are sometimes unhappy with multifocal IOL near vision. Because the patient has had previous success with monovision, an enhanced monofocal IOL will work best.[1] Another lens to consider is the light adjustable lens so that it can be adjusted after surgery. This lens has been shown to improve postoperative UCVA at distance compared to a standard monofocal IOLs.[2]

CONCLUSION

A firm understanding of the patient's wants, needs, and surgical limitations, plus thorough patient education, can increase patient satisfaction. Listen to patients, manage their expectations, and treat any ocular surface disease before surgery. ■

1. Sachdev GS, Sachdev M. Optimizing outcomes with multifocal intraocular lenses. *Indian J Ophthalmol*. 2017;65(12):1294.
2. Yeu E, Cuozzo S. Matching the patient to the intraocular lens. *Ophthalmology*. 2021;128(11).

INTEGRATING THE GROWING SPECTRUM OF PRESBYOPIA TREATMENTS INTO OPTOMETRIC PRACTICE

COPE Release Date: August 1, 2022
COPE Expiration Date: August 31, 2023

INSTRUCTIONS FOR CREDIT

To receive credit, you must complete the attached **Pretest/Posttest/Activity Evaluation/Satisfaction Measures Form** and mail or fax to Evolve Medical Education LLC; 353 West Lancaster Avenue, Second Floor, Wayne, PA 19087; Fax: (215) 933-3950. To answer these questions online and receive real-time results, go to https://evolvemeded.com/course/2208-supp. If you experience problems with the online test, email us at info@evolvemeded.com. *NOTE: Certificates are issued electronically.*

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City _____ State/Country _____ Zip _____

License Number:_____OE Tracker Number:_____National Provider ID:_____

*Evolve does not share email addresses with third parties.

DEMOGRAPHIC INFORMATION

Profession
___ MD/DO
___ OD
___ NP
___ Nurse/APN
___ PA
___ Other

Years in Practice
___ >20
___ 11-20
___ 6-10
___ 1-5
___ <1

Patients Seen Per Week (with the disease targeted in this educational activity)
___ 0
___ 1-15
___ 16-30
___ 31-50
_____ >50

Region
___ Midwest
___ Northeast
___ Northwest
___ Southeast
___ Southwest

LEARNING OBJECTIVES

Did the program meet the following educational objectives?	Agree	Neutral	Disagree
Define the prevalence, etiology, and key characteristics of progression of presbyopia from early to late-stage patients	_____	_____	_____
Outline strategies for finding, communicating with, and educating patients about presbyopia correction clinical outcomes, costs, risks, and benefits, including quality of life and quality of vision considerations	_____	_____	_____
Describe how the latest presbyopia-correcting IOL technologies, multifocal contact lenses and pharmaceutical presbyopia treatments can address outcomes in a new group of presbyopia patients, including those with comorbid conditions	_____	_____	_____

POSTTEST QUESTIONS

Please complete at the conclusion of the program.

1. Based on this activity, please rate your confidence in your ability to outline strategies for educating patients about presbyopia correction clinical outcomes, costs, risks, and benefits, including quality of life and quality of vision considerations (based on a scale of 1 to 5, with 1 being not at all confident and 5 being extremely confident).

A. 1
B. 2
C. 3
D. 4
E. 5

2. What has the most significant impact on quality of life in comparison to other age-related ailments?

A. Loss of near vision
B. Arthritis
C. Dry eyes
D. Hearing loss

3. A 53-year-old 3D hyperope presents for a refractive surgery consult. She states she is interested in spectacle independence. What is the best option for this patient?

A. Monovision LASIK
B. Distance vision LASIK
C. Refractive lens exchange
D. Presbyopia drops

4. Which presbyopia-correcting drop activates pupil modulation and ciliary body contraction?

A. Preservative-free low dose pilocarpine
B. Brimonidine titrate 0.2% and carbachol 3%
C. Preservative-free phentolamine 0.7% and low dose pilocarpine 0.4%
D. Lipoic acid choline ester 1.5%

5. What IOL is pupil independent?

A. Wavefront-shaping IOL
B. Enhanced monofocal IOL
C. Small aperture IOL
D. Hybrid multifocal/extended depth of focus (EDOF) IOL

6. A 65-year-old woman with a history of iris trauma presents for a cataract surgery consultation. What IOL will work best for her?

A. Enhanced monofocal IOL
B. Small aperture IOL
C. Hybrid multifocal/EDOF IOL
D. Wavefront-shaping IOL

7. A patient with a history of photorefractive keratectomy (PRK) has moderate nuclear cataracts that are affecting his distance and near vision. He has posterior corneal astigmatism. What IOL would you recommend for this patient that can be adjusted after surgery?

A. Light adjustable IOL
B. Small aperture IOL
C. Hybrid multifocal/EDOF IOL
D. Wavefront-shaping IOL

8. What is the mechanism of action for lipoic choline ester 1.5%?

A. Pupil modulation
B. Ciliary body contraction
C. Lens softening
D. Combination of pupil modulation and ciliary body contraction

9. Stage 1 of dysfunctional lens syndrome involves what changes?

A. Increased higher-order aberrations and forward scatter of light
B. Decreased contrast sensitivity
C. Early lens opacities
D. Loss of accommodation

10. What color filter does hybrid multifocal/EDOF IOL use to reduce halo, glare, and starbursts?

A. Red
B. Blue
C. Violet
D. Green

11. A 42-year-old emmetropic presbyopic patient is interested in near correction but does not want to wear glasses or contacts. What treatment would you recommend for the patient?

A. Monovision LASIK
B. Distance vision LASIK
C. Refractive lens exchange
D. Presbyopia drops

ACTIVITY EVALUATION

Your responses to the questions below will help us evaluate this activity. They will provide us with evidence that improvements were made in patient care as a result of this activity.

Rate your knowledge/skill level prior to participating in this course: 5 = High, 1 = Low_____

Rate your knowledge/skill level after participating in this course: 5 = High, 1 = Low_____

This activity improved my competence in managing patients with this disease/condition/symptom. _____ Yes _____No

Probability of changing practice behavior based on this activity: _____High _____ Low _____No change needed

If you plan to change your practice behavior, what type of changes do you plan to implement? (check all that apply)

Change in pharmaceutical therapy _____
Change in nonpharmaceutical therapy _____
Change in diagnostic testing _____
Choice of treatment/management approach _____
Change in current practice for referral _____
Change in differential diagnosis _____
My practice has been reinforced _____
I do not plan to implement any new changes in practice _____

Please identify any barriers to change (check all that apply):

_____ Cost
_____ Lack of consensus or professional guidelines
_____ Lack of administrative support
_____ Lack of experience
_____ Lack of time to assess/counsel patients
_____ Lack of opportunity (patients)
_____ Reimbursement/insurance issues
_____ Lack of resources (equipment)
_____ Patient compliance issues
_____ No barriers
_____ Other. Please specify: _____

The design of the program was effective for the content conveyed	___ Yes	___ No
The content supported the identified learning objectives	___ Yes	___ No
The content was free of commercial bias	___ Yes	___ No
The content was relative to your practice	___ Yes	___ No
The faculty was effective	___ Yes	___ No
You were satisfied overall with the activity	___ Yes	___ No
You would recommend this program to your colleagues	___ Yes	___ No

Please check the Core Competencies (as defined by the Accreditation Council for Graduate Medical Education) that were enhanced through your participation in this activity:

_____ Patient Care
_____ Practice-Based Learning and Improvement
_____ Professionalism
_____ Medical Knowledge
_____ Interpersonal and Communication Skills
_____ System-Based Practice

Additional comments:

_____

_____ I certify that I have participated in this entire activity.

This information will help evaluate this activity; may we contact you by email in 3 months to inquire if you have made changes to your practice based on this activity? If so, please provide your email address below.

_____

_____