PRESBYOPIA: THE FUTURE IS HERE

New treatment options are helping us meet patient needs better than ever before.

BY NEENA JAMES, OD

Presbyopia is universal; if we live long enough, we will all experience it. Researchers reported that 1.8 billion people were presbyopic in 2015 and that, by 2030, this number will reach 2.1 billion.[1] The need for more treatment options is vast, and innovation in this field is welcome. Growth is the name of the game; think of how many patients who rely on readers alone have never had a comprehensive eye examination. That makes presbyopia not only a treatment opportunity but also a gateway to preventative eye care and broader eye health education.

To optometrists, presbyopia feels routine. We know there is nothing wrong, and we know it is inevitable. For many patients, however, struggling to see up close is life-changing. It can be scary, frustrating, and often embarrassing, especially in a world that depends on smartphones. Presbyopia has been shown to cause more symptoms and reduce quality of life more than hypertension, glaucoma, and macular degeneration combined.[2] Even in its earliest stages, presbyopia can interfere with daily routines.

Our role, and the role of our staff, is not only to offer solutions but also to show compassion and help patients feel understood and seen (pun intended). Patients may forget the details of their spectacle prescription and our fancy OCT images, but they will remember how we made them feel. This is why it is essential to communicate that we understand their concerns, we are knowledgeable about new technologies, and we are considering all available options for their unique needs. I tell patients, if they can think of three times per month that it would be nice not to depend on glasses or contact lenses for up-close reading, we should consider our newer options. Here is what we have to offer them.

THE EXPANDING TOOLBOX

All the approved presbyopia drops aim to reduce the pupil size to produce a pinhole effect that improves clarity at near—miosis is the name of the game. Most eye drops boast randomized, double-masked, multicenter, placebo-controlled clinical trials with patients achieving 2 to 3 lines of vision at intermediate and near.[3,4] Notable and relatively consistent side effects include dim vision, headaches, eye irritation and redness, and retinal detachments.[3,4] Each new drug on the market and in the pipeline aims to refine efficacy and duration of action while minimizing side effect profiles. So far, we see similar price points and no insurance coverage (which is at least convenient for our staff time).

Pilocarpine HCl ophthalmic solution 1.25% (Vuity, AbbVie), the first FDA-approved drop for presbyopia, was launched in October 2022. Although it generated excitement, adoption has been limited. Pilocarpine has been used for glaucoma since 1974,[5] but its association with rare risks of retinal detachment made patients and practitioners cautious. Several consistent uses were required for neural adaptation to see best results. Redness, dimming of vision, and headaches are also common reports that could have led to a tapering of prescriptions after the initial launch. Anecdotally, I saw hesitation among my peers at the product's launch, but I also saw a lot of demand and excitement from my patients. Vuity costs around $79 for 70 drops.

Pilocarpine HCl 0.4% (Qlosi, Orasis Pharmaceuticals), approved in October 2023, is preservative-free and designed for use once or twice daily. It acts within 20 minutes and lasts up to 8 hours. Clinical trials (NEAR-1 and NEAR-2) showed that, by day 8, nearly half of patients achieved at least a 2-line improvement in near vision within 1 hour of dosing. Reported side effects include mild eye pain or headache (5% to 8%), blurred vision, and impaired night driving.[4]

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A retinal examination is advised before prescribing. In theory, the lower concentration of pilocarpine should reduce risks and unwanted side effects. Pricing starts at $79 for 30 vials or $99 for a 60-day supply.

The FDA approved aceclidine 1.44% (Vizz, Lenz Therapeutics) was in July, with its formal launch anticipated later this year.[6] Unlike pilocarpine, aceclidine (a cholinergic muscarinic receptor used for glaucoma management in Europe for decades) selectively targets the pupil without significantly affecting the ciliary muscle—reducing near blur while preserving distance vision.[6] In theory, this should reduce the risk of visual disturbance due to accommodative spasm, myopic shift, and retinal detachment. In phase 3 trials, 71% of participants experienced an improvement in near vision by at least 3 lines within 30 minutes, with effects lasting up to 10 hours.[7] Side effects included eye irritation, dim vision, and headaches.[7] Pricing is anticipated to be $79 for 25 doses or $198 for 75 doses.

Monovision LASIK or cataract surgery, multifocal IOLs, and the Light Adjustable Lens (RxSight) are also options I regularly discuss with my patients. Even if they are not ready for surgical intervention, it sets up an easier conversation in the future and reminds them that turning their head a little in their progressive glasses might not be so bad after all. People gossip about their health care just like anything else nowadays, so you do not want them hearing from their neighbor about options you did not even mention.

AT A GLANCE

- It is essential to communicate that we empathize with patients' concerns regarding presbyopia and we are considering all available options for their unique needs.
- Several new eye drops have entered the market for presbyopia, including Vuity (AbbVie), Qlosi (Orasis Pharmaceuticals), and Vizz (Lenz Therapeutics).
- The robust pipeline for presbyopia correction includes Nyxol (Ocuphire/Opus Genetics), MicroLine (Eyenovia), Dioptin (Novartis), Brimochol PF (Tenpoint Therapeutics), and laser scleral microporation (Ace Vision Group).

A CASE CLOSE TO HOME

I have twin brothers, who are both engineers, and they are turning 48 years of age this year. What a great case study! One of them complained about his near vision and need to wear glasses and contacts at his annual examination and asked about a drop he had read about. I did what any good optometrist would do: performed a dilated comprehensive examination, sold him updated progressive glasses and multifocal contact lenses, and prescribed a drop to help with his near vision. We discussed the risks, benefits, and potential side effects of the drop as well as the circumstances when the drop might be helpful and when it might not be the best choice. For example, he might want to avoid using the drop on the weekends, when he reads extra bedtime stories to the kids, when he drives long distances, and when he is playing poker in dim lighting. The drops might be a secret weapon, however, when he works in his lab with small details and after lunch when he needs an extra boost with his progressives.

A few months after this appointment, my other brother, who had had no complaints at his recent eye examination, asked why I had not offered him the "magic eye drop" that helped boost productivity at work. Turns out he wanted to use it for reading books on the airplane and working late at night from home. Embarrassed, I pleaded my case and then quickly remembered that it is our job to consider things that could improve the quality and efficiency of people's vision, not just address their complaints.

A LOOK AT THE PIPELINE

Phentolamine 0.75% with low-dose pilocarpine (Nyxol, Ocuphire/Opus Genetics) is in a phase 3 trial (Vega-3). This formulation is designed to reduce side effects by blocking alpha-1 receptors in the iris dilator muscle.[8] Early data from more than 500 participants look promising, with FDA submission targeted for late 2025. Ocuphire is also investigating applications of this formulation for night vision disturbances and post–refractive surgery patients.[9]

Eyenovia's MicroLine includes a proprietary 2% pilocarpine formulation with a unique microdosing spray dispenser, the Optejet device. The phase 3 VISION-2 trial met its primary endpoint with a statistically significant proportion of treated patients experiencing an improvement of 15 or more letters in distance corrected near visual acuity versus placebo in low light 2 hours after treatment.[10] Despite the positive findings, the product remains in development.

UNR844-Cl (Dioptin, Novartis), a lipoic acid choline ester, can limit disulfide bonds in the lens, which may lead to ciliary muscle relaxation and contraction to prevent changes in lens shape.[11] Research showed that, with twice-daily dosing, patients' bilateral distance corrected near visual acuity improved, with 53.1% of treated patients versus 21.7% of placebo patients gaining at least 10 letters.[12,13] The company has not pursued further development.[14]

The FDA recently accepted the New Drug Application for carbachol with brimonidine tartrate (Brimochol PF, Tenpoint Therapeutics), with a Prescription Drug User Fee Act date of January 28, 2026.[15] In the phase 3 BRIO-2 trial, patients who instilled the study drug once daily experienced a statistically significant improvement in near vision over 8 hours.[16]

Laser Scleral Microporation (Ace Vision Group) aims to rejuvenate the elasticity of the sclera by uncrosslinking fibers while avoiding the visual axis (to protect distance vision). The company is conducting ongoing clinical trials to further evaluate safety, efficacy, and duration of results.[17,18] We all know convenience is king, and there are those who like a more lasting effect and not having to fuss with instilled a drop in every day.

EDUCATION AND EXPECTATIONS

As exciting as these innovations are, it Is important to frame them realistically and manage expectations. There

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is no magic bullet for presbyopia. Instead, we should view emerging therapies as valuable additions to the toolbox—giving us more options to meet each patient's unique visual needs. To help educate my patients, I share marketing materials from various companies showing presbyopia treatments. I also provide them with an unbranded summary handout that explains the pinhole effect (with a schematic of the eye), potential side effects, and cost.

Our approach to presbyopia will continue to evolve, but a few things will remain constant, including the need for a refractive evaluation, comprehensive dilated retinal evaluation, and complete ocular health examination. Just as important is getting to know the patient and their visual needs and sharing all the treatment options.

Ultimately, our responsibility goes beyond prescribing. It is about making patients feel seen, respected, and empowered. Consider each individual and the multitude of visual needs they face. With more presbyopia treatments entering the mainstream, the future of vision care is not just near—it is here. ■

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NEENA JAMES, OD
- Optometrist and Owner, 20/20 Eye Care, Huntsville, Alabama
- drj@2020eyecarehsv.com; Instagram @neenasjames
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