



DROPS, DROPS, DROPS!



New pharmaceutical agents allow clinicians to rethink the way patients are treated.

BY JENNIFER WADEMAN, OD

Some of the pharmaceuticals trending in eye care sound almost too good to be true: nonsurgical eyelid lifts, a nasal spray to treat dry eye, and a drop to improve the near vision of patients with presbyopia. If you had told me 5 years ago that such options would exist in eye care, I would have thought you were living in a science fiction movie. But here we are, and these treatment options are available for us to prescribe to our patients and represent a new way of delivering drugs to treat the functional issues that affect our patients' lives.

Losing the ability to focus near, always looking tired or fatigued, and struggling to self-administer eye drops that do little to address chronic symptoms are all relevant issues that affect the daily lives of our patients. Although we may dismiss some of these annoyances because

we hear about them every day (eg, presbyopia), or even overlook the cosmetic component of mild acquired ptosis, we need to pay attention to the functional effect these conditions can have on a patient's daily life (aka their quality of life). We may have an easier time connecting the concept of

quality of life with, say, a chronic dry eye patient; however, when other, less painful symptoms affect daily activities, leading to lifestyle modifications, convenient solutions offering relief can be a game-changer for patients.

New, innovative, and convenient pharmaceutical agents are changing the discussion we have with patients in positive ways and are bringing forth optimistic expectations in how we treat these patients who have, until now, had few options. Let's take a look at these new pharmaceutical trends that we have been seeing in eye care.

A DROP TO MANAGE PRESBYOPIA

By now, you have likely seen a commercial, read a barrage of comments on optometry social media threads,

AT A GLANCE

- New, innovative, and convenient pharmaceutical agents are changing the discussion we have with patients in positive ways.
- Acquired ptosis is often the most overlooked and undertreated condition, and until now, our only treatment option was surgical intervention.
- Topical drops have been the primary route of administration for most pharmaceutical agents designed to treat ocular conditions, especially dry eye disease, but a novel nasal spray has broken the mold.

and had patients ask you a few hundred times about pilocarpine HCL ophthalmic solution 1.25% (Vuity, Allergan/AbbVie). As if the legendary fountain of youth had been discovered, these drops entered the spotlight as the first of its kind to treat presbyopia, approved by the FDA in October. For many patients with presbyopia, the thought of leaving behind corrective lenses, or of no longer compromising vision in their multifocal or monovision contact lenses, is an appealing and practical solution.

The mechanism of action behind this drop works to constrict the pupil and contract the ciliary muscle, increasing the crystalline lens thickness and providing an increased depth of focus and field similar to that of a pinhole effect.^{1,2} In layman's terms, pilocarpine eye drops shift the eye's ability to focus, improving vision at near in patients with presbyopia. Dosage is one drop in each eye, once per day. Your patients can expect to see an improvement in near vision for 6 to 8 hours and should anticipate onset within 15 minutes.³ One bottle, if used daily, should last about 1 month.

Headaches and conjunctival hyperemia were seen in < 5% of patients; these numbers are based on data from two phase 3 clinical studies, GEMINI 1 and GEMINI 2, which evaluated the efficacy, safety, and tolerability of pilocarpine eye drops.⁴ Prescribing information advises caution with night driving and notes rare cases of retinal detachment that have been reported in other miotic agents when used in susceptible patients.³

Use of pilocarpine eye drops can be customized to an individual patient's needs, whether they are a contact lens wearer who can't adapt to multifocal or monovision modalities, or an emerging presbyope who relies on "good lighting" and a smartphone with zoom to see. In clinical practice, I find that pilocarpine eye drops work surprisingly well for some patients but have little to no effect for others.

Results depend on the patient's degree of presbyopia; not every patient will not get the improvement in near vision that is adequate for their daily visual demands.^{3,4}

A NONSURGICAL OPTION FOR PTOSIS

Oxymetazoline HCL ophthalmic solution 0.1% (Upneeq, RVL Pharmaceuticals) is another pharmaceutical agent that can be customized to a patient's needs whether for daily use or infrequently for special events or engagements. Oxymetazoline is a convenient nonsurgical treatment for acquired blepharoptosis. It was approved in 2020 and is the first eye drop used to lift a ptotic eyelid or eyelids 1 mm to 1.3 mm.⁵

Acquired ptosis is often the most overlooked and undertreated conditions, and until now, our only treatment option was surgical intervention, which frustrated patients because they often didn't meet the qualifications. With the introduction of oxymetazoline, we can expect to yield positive outcomes and have treatments be well-tolerated based on the studies provided.⁶

Oxymetazoline works to stimulate alpha-adrenergic receptors on the Müller muscle, resulting in contraction and eyelid elevation.⁷ Early stages of acquired ptosis usually involve cosmetic concerns; however, moderate to severe stages of acquired ptosis can involve more functional symptoms such as fatigue, eye strain, brow ache, headache, and visual impairment.⁸ Adverse events were reported in 1% to 5% of study participants, including discomfort, irritation at the instillation site, headache, punctate keratitis, and conjunctival hyperemia. Caution is advised in patients with cardiovascular disease and uncontrolled hypertension or hypotension, and worsening of any of these systemic conditions would require further monitoring.⁸

Peak effect of oxymetazoline occurs at 2 hours post instillation. However, a patient should notice an effect after

15 minutes of use. Duration of effect is 8 hours.⁸ Because a noticeable effect can be seen after 15 minutes post instillation, it is an ideal eye drop to trial in the office, allowing patients to appreciate the effect of this eye drop to help with their eyelid asymmetry or eyelid ptosis.

TREATING DRY EYE THROUGH THE NOSE

Breaking from the mold is varenicline solution nasal spray 0.03% (Tyrvaya, Oyster Point Pharma), which employs a different route for treating the signs and symptoms of dry eye disease (DED). Varenicline is the first and only nasal spray for DED, FDA-approved in October.

The drug activates the trigeminal parasympathetic pathway via the nose, which in turn regulates the structures responsible for producing the components of the basal tear film (the lacrimal glands, the meibomian glands, and the goblet cells).^{9,10} The *Cliffs Notes* version (and what I like to tell patients), is that varenicline works by activating nerve endings in the nose, triggering the glands around the eyes to increase the production of tears. The most common adverse reaction reported in clinical trials was sneezing (82%).¹⁰⁻¹³ Other adverse events reported in 5% to 16% of patients included cough, throat irritation, and instillation site irritation.¹⁰⁻¹³ In my clinical experience, sneezing is common, but tends to improve over time. Clinical studies show improved Schirmer test scores at 4 weeks.^{12,13}

In terms of education, Oyster Point Pharma offers both patient and doctor support, ranging from instructions on how to use the nasal spray to information about insurance coverage and benefits. I find the varenicline tear-off patient instruction sheets to be helpful and beneficial for patients. I recommend reviewing how to instill this nasal spray with your patients and giving them this step-by-step

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handout, which guides them on how to prime the bottle with first use and how to properly angle the spray into the nose for an effective dose.

KEEPING UP WITH NEW TRICKS

There is more on the horizon when it comes to pharmaceutical agents for treating a variety of ocular conditions. From the first potential pharmaceutical agent to treat *Demodex* blepharitis to novel therapies using cold-sensitive thermoreceptors and tear film homeostasis to treat DED, the sky is the limit when it comes to innovative ways we can help our patients and improve their quality-of-life index.^{14,15}

These new treatment applications in eye care are disproving the adage

“You can’t teach an old dog new tricks.” These old dogs are learning all sorts of new tricks and are rethinking the way we treat our patients. ■

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