DRUG DELIVERY: PEARLS AND PROJECTIONS

Contributors comment on the present use and future potential of this treatment approach.

MALIK Y. KAHOOK, MD

- Vice Chair of Translational Research, Slater Family Endowed Chair in Ophthalmology, Chief of the Glaucoma Service, and Codirector of the Glaucoma Fellowship, University of Colorado Sue Anschutz-Rodgers Eye Center, Aurora, Colorado
- Financial disclosure: Owner and patent royalties (SpyGlass Pharma); Consultant and patent royalties (New World Medical); Patent royalties (Alcon)

PEARL

It is not enough for a sustained-release drug delivery platform to deliver medication over a short period of time. In order to replace the topical drop paradigm, a successful drug delivery platform must function over a period longer than 1 year, preferably 2 years or more, with sustained efficacy and safety.

PROJECTION

I believe that we will soon see, in the next few years, commercially available drug delivery platforms that target glaucoma with sustained-release treatment for multiple years and with efficacy and safety profiles that lead to wide adoption and a new standard of care.

JASON BACHARACH, MD

- Founding Partner and Medical Director, North Bay Eye Associates, Sonoma County, California
- Co-director of Glaucoma Services, California Pacific Medical Center, San Francisco
- Financial disclosure: Consultant and research funding (AbbVie, Glaukos)

PROJECTION

The clinical trial data for and physicians' experience with sustained drug delivery options are compelling. The phase 3 ARTEMIS 2 study demonstrated visual field stability in patients treated with the bimatoprost implant (Durysta, AbbVie).[1] The phase 4 Morpheus data showed 24-hour IOP stability with the bimatoprost implant.[2] Phase 2b data on the sustained-release travoprost implant (iDose, Glaukos) demonstrated excellent efficacy and safety of a stable delivery platform with up to 3 years of benefit.[3]

Physicians and industry partners have worked at length to bring these treatment options to patients. Sustained drug delivery represents a great opportunity to change the glaucoma treatment paradigm, and I predict that this space will continue to grow, allowing us to improve compliance and satisfaction in the appropriate patients.

1. Bacharach J, Tatham A, Ferguson G, et al; ARTEMIS 2 Study Group. Phase 3, randomized, 20-month study of the efficacy and safety of bimatoprost implant in patients with open-angle glaucoma and ocular hypertension (ARTEMIS 2). *Drugs*. 2021;81(17):2017-2033.
2. Weinreb RN, Christie WC, Medeiros FA, et al. Single administration of bimatoprost implant effects on 24-hour intraocular pressure and 1-year outcomes. *Ophthalmol Glaucoma*. 2023;6(6):599-608.
3. Berdahl JP, Sarkisian SR, Ang RE, et al; Travoprost Intraocular Implant Study Group. Efficacy and safety of the travoprost intraocular implant in reducing topical IOP-lowering medication burden in patients with open-angle glaucoma or ocular hypertension. *Drugs*. 2024;84(1):83-97.

COURTNEY BOVEE, MD

- Founder, Bovee Eye, Tampa Bay, Florida
- Consultant (AbbVie)

PROJECTION

Sustained-release drug delivery will continue to revolutionize the landscape of how we view glaucoma at all stages of the disease, from ocular hypertension to refractory glaucoma. This approach not only provides IOP control but also enhances and changes patients' quality of life via improvements in the ocular surface and cosmesis, lessened financial burden, and increased peace of mind in disease stability. The LIGHT trial showed not just that we can perform selective laser trabeculoplasty but that we *should*, particularly as a first-line treatment.[1] As we combine this interventional approach with sustained-release drug delivery, we can and should act to improve both clinical outcomes and quality-of-life metrics.

1. Gazzard G, Konstantakopoulou E, Garway-Heath D, et al; LiGHT Trial Study Group. Laser in Glaucoma and Ocular Hypertension (LiGHT) trial: six-year results of primary selective laser trabeculoplasty versus eye drops for the treatment of glaucoma and ocular hypertension. *Ophthalmology*. 2023;130(2):139-151.

SAVAK TEYMOORIAN, MD, MBA
- Cataract and glaucoma surgery specialist, Harvard Eye Associates, Laguna Hills, California
- Founder and President, Powerupdoc Medical Corporation
- Financial disclosure: Consultant (AbbVie)

PEARL

Do not wait too long after initiating topical drop therapy to consider sustained drug delivery systems. Even if the patient's IOP appears to be controlled, other factors such as side effects and cost can affect quality of life and should therefore be considered. These issues could be remedied by initiating sustained-release therapy earlier in the treatment algorithm.

PROJECTION

The introduction of sustained drug release will continue to occur earlier in the treatment algorithm. Combined with selective laser trabeculoplasty, the use of sustained-release drug delivery will be seen more as a first-line therapy, subsequently moving the use of traditional topical drop therapy into more of an adjunctive position.

JOHN P. BERDAHL, MD
- Clinician and researcher, Vance Thompson Vision, Sioux Falls, South Dakota
- Financial disclosure: Consultant (AbbVie, Glaukos)

PEARL

Don't underestimate the power of a drop holiday with drug delivery.

PROJECTION

I predict that drug delivery will elevate every aspect of patient-centered glaucoma care. We take better care of patients by doing more selective laser trabeculoplasty, more MIGS, more drug delivery, and fewer drops.

CONSTANCE OKEKE, MD, MSCE
- Glaucoma and cataract surgeon, Virginia Eye Consultants/CVP, Norfolk, Virginia
- Assistant Professor of Ophthalmology, Eastern Virginia Medical School, Norfolk, Virginia
- Financial disclosure: Consultant (AbbVie, Glaukos)

PEARL

As we approach concepts of sustained drug delivery for our patients, we should closely consider their perspective. Glaucoma is like a desert–it's a long, hot, uncomfortable, tiring, and relentless journey. As a patient on that journey, if you were given a glass of cold, refreshing water, would you pass it up because it may last only for a short while? We should make patients aware of the choices available to them as it may alleviate burdens that are high on their priority list and help them help themselves to keep seeing.

PROJECTION

Just as the MIGS explosion showed exponential growth over the past decade, I think we are in for a similar ride with sustained drug delivery. With now FDA-approved surgical implants (iDose) having longevity for multiple years, medicated extended-wear contact lenses moving quickly through the pipeline, and the rapid adoption of Durysta, we are getting primed to meet the needs and demands of patients. Preserve sight with less plight.

STEVEN R. SARKISIAN JR, MD
- Founder and CEO, Oklahoma Eye Surgeons, Oklahoma City, Oklahoma
- Financial disclosure: Consultant and grant support (AbbVie, Glaukos)

PEARL

If you believe that glaucoma medications are contributing to a patient's ocular surface disease, give them a holiday from their drops by implanting a bimatoprost implant and take the time to manage their dry eye more aggressively.

PROJECTION

With the approval and release of the iDose, the MIGS dream may finally come true, where we can get a majority of patients with mild to moderate glaucoma–and many with severe disease–off topical glaucoma medications. This could be achieved by combining angle-based MIGS with iDose insertion or, in many cases, iDose alone. After being involved in phase 2 and phase 3 clinical trials of the iDose, I feel like a decade of hard work has reached its zenith to prevent glaucoma-related blindness. ■