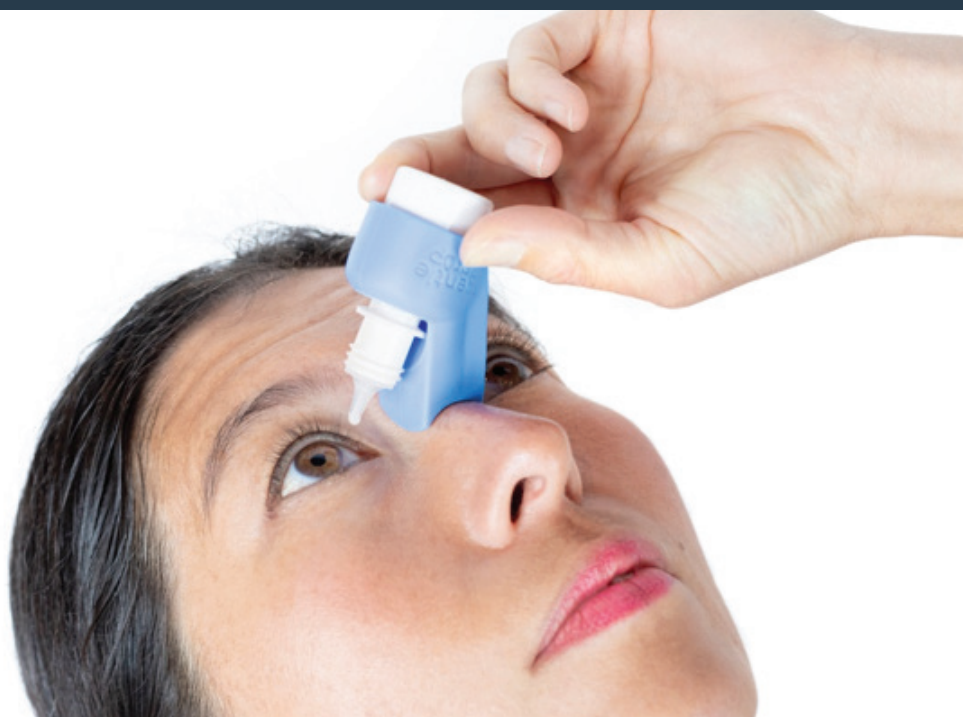
DROP AIDS

Several solutions may help to increase the accuracy of self-administration and minimize effects on the ocular surface.



GENTLEDROP

The GentleDrop (Bedo Solutions) is a multiuse, silicone eye drop delivery device designed to help patients position their eye drop bottle to minimize discomfort and increase success. The device expands to fit most eye drop bottles, optimizes bottle position, and helps prevent bottle tip contact against the eye, according to the company. The GentleDrop was developed by ophthalmologists Robert Kinast, MD, and Ashley Hayden, MD.

In a study published in *Ophthalmology Glaucoma*, investigators compared the GentleDrop nose-pivoted drop delivery device (NPDD) with traditional eye drop delivery in 50 patients with glaucoma (100 eyes) who reported difficulty self-administering drops. They compared the NPDD against traditional delivery techniques at baseline (baseline traditional) and after standardized teaching (postteaching traditional). Patients used a scale of 1 to 10 (10 being easiest) to rate the ease of delivery with each technique and completed a satisfaction survey. Two graders used digital video to independently review eye drop delivery and recorded (1) accurate placement, meaning the eye drop reached the ocular surface; (2) no contact, meaning the bottle tip did not touch the ocular or periocular surface; and (3) number of eye drops dispensed. Primary success was defined as accurate placement and no contact; secondary success was defined as primary success with only one drop dispensed.

The investigators found that 47 of 50 patients preferred the NPDD over traditional eye drop delivery. The mean score for ease of use was higher for the NPDD (8.9 ±1.1) than baseline traditional (6.7 ±2.1; $P < .001$) and postteaching traditional (7.0 ±2.0; $P < .001$). Forty-nine of 50 patients thought the NPDD was comfortable to use and would recommend the device. The eye drop reached the ocular surface in a similar percentage of eyes with each method. The bottle tip contacted fewer eyes with the NPDD (10 eyes) than baseline traditional (33 eyes; $P < .001$) and postteaching traditional (25 eyes; $P = .009$). The number of drops dispensed was lower with the NPDD (1.7 ±1.2) than baseline traditional (2.2 ±1.6; $P = .017$) and postteaching traditional (2.4 ±1.8; $P = .006$). The NPDD increased primary and secondary success of eye drop delivery (86% and 54%, respectively) compared to baseline traditional (66% [$P = .001$] and 28% [$P < .001$]) and postteaching traditional (70% [$P = .005$] and 40% [$P = .018$]).

"The GentleDrop improved success, reduced eye trauma, and decreased drops wasted, but we were most impressed with the high satisfaction rates," Dr. Kinast told *GT*. "Overall, 94% of patients preferred the GentleDrop, and the ease-of-use score was 8.9 out of 10. Patients can improve adherence by using eye drop aids, but they will only use an aid if they like it."

1. Sanchez FG, Mansberger SL, Kung Y, et al. Novel eye drop delivery aid improves outcomes and satisfaction. *Ophthalmol Glaucoma*. 2021;4(5):440-446.

MINDING THE OCULAR SURFACE

I. Paul Singh, MD, and Ahmad Fahmy, OD, FAAO, Dipl ABO, discuss glaucoma and ocular surface disease.

Watch at bit.ly/GTosd

NANODROPPER

The Nanodropper (Nanodropper) is an eye drop bottle adapter made of a soft and flexible medical-grade silicone. It features an elongated tip to allow the user to hold the bottle farther from the eye and better aim the drops. The Nanodropper fits most medicated eye drop bottles. To use, patients remove the original bottle cap and attach the Nanodropper. According to the company, use of the Nanodropper can reduce drop size by more than 60%, potentially minimizing waste, side effects, and costs associated with drop use.[1] Several investigations are underway to evaluate the safety, efficacy, and usability of the adapter.

1. Nanodropper. Accessed May 1, 2022. https://nanodropper.com

OPTEJET

The Optejet dispenser (Eyenovia) with Microdose Array Print technology is a horizontal topical drug delivery system for the eye. The device delivers medication as a directional mist in a microdroplet array that coats the ocular surface. Whereas traditional eye drops that are approximately 40 µL in volume exceed the absorption capacity (8 µL) of the eye, the Optejet dispenses an 8-µL dose of medication onto the cornea with 80% less exposure to drug and preservative toxicity.[1]

According to the company website, Eyenovia is developing smart electronics inside the Optejet and mobile technology to provide real-time monitoring and compliance data for a more intelligent and personalized therapeutic paradigm. Optejet is being investigated for several indications, including myopia, presbyopia, and mydriasis ■

1. Wouldn't it be great if eyedrops didn't spill out of your eyes? ScienceDaily. November 13, 2017. Accessed May 1, 2022. www.sciencedaily.com/releases/2017/11/171113162658.htm