

# PUNCTAL OCCLUSION AND OCULAR NUTRITION

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In the chatter about new technologies for diagnosing and treating ocular surface disease, two therapies seem to be underdiscussed: punctal occlusion and nutritional supplementation.



## KEEPING TEARS ON THE EYE

The popularity of punctal occlusion has seemingly declined. Some eye care providers have voiced concern about maintaining inflamed tears on the ocular surface, but we have not seen published or clinical support of this worry. A recent report by the American Academy of Ophthalmology found that plugs were an effective way to reduce the effects of dry eye disease (DED) and that serious complications were infrequent. Averaging the results of 15 studies that reported metrics on improvement, the investigators found that placing punctal plugs resulted in an improvement of 50% or more in symptoms, ocular surface health, and contact lens comfort, with a similar reduction in artificial tear use.<sup>1</sup>

In our own practices, we have obtained excellent results from inserting medium-term dissolvable plugs such as the Comfortear Lacrisolve 180 (Paragon BioTeck). These plugs can be inserted directly into the canaliculi, they have been well tolerated by our patients, and the plugs can provide sustained relief from DED symptoms for months at a time. Although it does not resolve inflammation flagged with a positive matrix metalloproteinase-9 test result (InflammaDry; RPS), punctal occlusion dilutes the tear film, including the concentration of inflammatory components. The inflammatory cells are not trapped on the surface of the eye, because there is still outflow through the unobstructed canaliculus.

## OCULAR NUTRITION

It remains unknown if ocular dryness is the cause or the result of inflammation, but DED seems invariably to be associated with chronic inflammation of the ocular surface.<sup>2</sup> One option validated by impression cytology to reduce inflammation and improve goblet cell function is the nutritional supplement HydroEye (ScienceBased Health). It contains gamma linolenic acid (GLA) as well as omega-3 fatty acids (eicosapentaenoic and docosahexaenoic acids). A double-blind randomized trial found that this supplement decreased the production of disease-relevant inflammatory mediators.<sup>3</sup> Evaluated over 6 months of use in 38 patients randomized to HydroEye supplementation or placebo, treatment significantly improved patients' Ocular Surface Disease Index score and corneal surface asymmetry, and it reduced levels of the ocular surface inflammation markers HLA-DR and CD11c.

GLA, an omega-6 from black currant seed oil, is a precursor for the anti-inflammatory prostaglandin PGE1, which has been

found to stimulate tear production.<sup>4</sup> In multiple clinical trials, GLA has improved DED signs and symptoms for a variety of dry eye types.<sup>4-6</sup>

## CLINICAL APPLICATION

Over-the-counter topical eye drops are simple and inexpensive, and in most cases, their use is a necessary precursor to insurance coverage of other DED treatment. Thus, we usually instruct our patients to start with drops after explaining that DED treatment is a process with multiple steps. When drops are not sufficient, we insert punctal plugs, a cost-efficient modality that works around the clock. We treat any inflammation that is present. Occasionally, it is so acute as to merit a topical steroid. In routine cases, however, we use HydroEye, cyclosporine ophthalmic emulsion 0.05% (Restasis; Allergan), or both; deciding which of these anti-inflammatory products to use first depends on patients' individual circumstances and preferences.

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