

# Lid hygiene product helps reduce blepharitis, MGD symptoms

Some patients are able to resume contact lens wear after period of intolerance

November 15, 2015

By Alice T Epitropoulos, MD, FACS By Alice T Epitropoulos, MD, FACS

Patients with dry eye complicated with meibomian gland dysfunction and blepharitis, ocular rosacea, as well as contact lens intolerance, now have an alternative therapy to address these common and often disabling conditions. Blepharitis and dry eye are the most common reasons why patients see their eye doctor.

Avenova™ by NovaBay (Emeryville, CA) is a prescription eyelid daily hygiene product for use in managing the symptoms associated with anterior and posterior blepharitis. The product contains Neutrox™, which is **pure 0.01% hypochlorous acid** in a normal saline solution. **Hypochlorous acid** is a naturally occurring substance produced by our white blood cells.<sup>1</sup> Avenova™ is manufactured without impurities that can cause ocular irritation.<sup>2</sup>

The **0.01% hypochlorous** eyelid cleanser is indicated for the removal of debris from the lid margin. It is a non-detergent-based product that is suitable for daily eyelid and eyelash hygiene. This eyelid cleanser does not contain surfactants, which can strip oils and dry the skin<sup>3</sup> and cause a dermatitis.<sup>4</sup> Avenova is non-toxic and non-sensitizing to the skin.<sup>2</sup> The product is packaged in a spray bottle and is designed to be applied onto a cotton pad or cotton-tipped applicator, which is wiped along the eyelashes, eyelids, and the periocular skin, as needed.

In vitro testing shows that hypochlorous acid in solution is not only effective against a wide variety of bacteria, but also neutralizes the toxins produced by bacteria,<sup>5</sup> known to cause ocular irritation.<sup>6</sup> It potentially reduces the bacterial load on the eyelids and has shown broad spectrum anti-microbial activity in vitro, against several species including: *Acinetobacter*, *C. albicans*, *E. coli*, *P. aeruginosa*, Methicillin-resistant *S. aureus*, *S. epidermidis*, and Vancomycin-resistant *Enterococcus*.<sup>2</sup> Avenova™ in solution rapidly kills >99.99% of each of these bacterial species in vitro within 60 seconds.

Blepharitis has become more difficult to manage because of the resistance bacteria build against traditional antibiotics used for this condition. Hypochlorous acid utilizes a different mechanism of kill from traditional antibiotics and may therefore be less likely to promote bacterial resistance.<sup>7</sup> The same bacteria that are associated with blepharitis also can cause endophthalmitis, one of the most serious and feared complications associated with cataract surgery. Avenova can be used to cleanse the lids prior to cataract surgery to help prevent the conditions that can lead to this dreaded complication. The product, in lab testing, also has been shown effective against *Demodex*-associated blepharitis.<sup>8,9</sup>

Patients with chronic blepharitis and meibomian gland dysfunction (MGD) have experienced positive results with a twice-daily regimen of Avenova, even after failure with antibiotics, traditional lid scrubs, baby shampoo, and other products.<sup>8,9</sup> Resolution of symptoms in many patients occurs within two weeks of starting therapy with the 0.01% hypochlorous acid cleanser.<sup>6</sup> Many patients who have become contact lens intolerant are able to get back into their lenses.<sup>9</sup>

## Patient case

A 53-year-old male patient with a history of keratoconus and who is very dependent on scleral contact lenses had been experiencing excessive mucous discharge, resulting in discomfort, reduced vision, and difficulty wearing his contact lenses over the past year. Various treatments such as lid scrubs, topical azithromycin, and mucomyst were tried, with no improvement in his symptoms. Recently, his condition worsened to the point where he would need to remove, clean, and re-insert his lenses 6 to 7 times per day, only to have the mucous film begin to develop again within 30 minutes.

The patient called my office last month, at which time I prescribed Avenova lid cleanser. He noticed an immediate improvement (within an hour) in his symptoms. The patient is currently using Avenova morning and evening. He has experienced resolution of the mucous discharge and is now able to wear his contact lenses all day without the discomfort or blurred vision.

Avenova appears to be a valuable addition to the treatment armamentarium for the management of dry eye disease and blepharitis. The product is safe and effective for cleaning the lids, lashes and periocular skin of debris and microorganisms. It provides not only symptomatic relief but appears to help manage some of the

underlying causes of blepharitis and MGD. The use of Avenova provided a means of helping my patient address his contact lens intolerance, thus increasing his visual function and improving his overall ocular health.

## References

1. Wang L, Bassiri M, Najafi R, et al. Hypochlorous acid as a potential wound care agent: part I. Stabilized hypochlorous acid: a component of the inorganic armamentarium of innate immunity. *J Burns Wounds* 2007;6:e5.
2. Avenova™ with Neutrox™ [Package Insert]. Emeryville, CA. NovaBay Pharmaceuticals, Inc.; 2014.
3. Sindt CW. Wash away your old hygiene strategy. Lens care insights. *Rev Cornea Contact Lenses*. May 2014.
4. Welling JD, Mauger TF, Schoenfield LR, Hendershot AJ. Chronic eyelid dermatitis secondary to cocamidopropyl betaine allergy in a patient using baby shampoo eyelid scrubs. *JAMA Ophthalmol* 2014;132:357-9.
5. Crew JR, Varilla R, Rocas TAI, et al. Treatment of acute necrotizing fasciitis using negative pressure wound therapy and adjunctive neutrophase irrigation under the foam. *Wounds* 2013;25:272-7.
6. Krader CG. Hypochlorous acid lid cleanser provides novel advantages. *Ophthal Times* 2014.
7. Debabov D. Antibiotic resistance: origins, mechanisms, approaches to counter. *Appl Biochem Microbiol* 2013;49:1-7.
8. Najafi-Tagol K. Pure hypochlorous acid cleanser for treating Demodex blepharitis in a patient with glaucoma. Submitted.
9. Crider J. Rx lid cleanser aids blepharitis, MGD. *Optom Times*. September 29, 2014.