

Today's Strategies for Managing Ocular Surface Disease

Four leading ophthalmologists
take a closer look at blepharitis
and meibomitis.



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Roundtable Participants

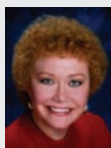


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Today's Strategies for Managing Ocular Surface Disease



Dry eye is the most common reason why patients come to an ophthalmologist's office. In fact, the prevalence has been reported to have increased from just over 8 percent in those under the age of 60 to almost 20 percent of patients over the age of 80.¹ We see dry eye in our practices every day and it is estimated that about one in four patients who present to an ophthalmologist has dry eye.² The incidence of posterior blepharitis or meibomitis is the same or higher.

At the 2009 annual American Society of Cataract and Refractive Surgery meeting in San Francisco, the four highly regarded ophthalmologists listed above sat on the panel of a roundtable to discuss the management of ocular surface disease. The content of their discussion is presented in the following pages in the hope that those who read this monograph are better informed on how to initiate therapy and improve patient care in their practices.

Eric D. Donnenfeld, MD, FACS:

Over the past decade, we have seen a renewed interest in the ocular surface with the knowledge that the tear film is responsible for maintaining the health and integrity of the refracting surface of the eye and the cornea. By paying attention to the tear film, we can treat symptoms and improve comfort as well as quality of vision in patients—especially those following cataract and refractive surgery.

We have learned so much about dry eye and about inflammation as a mediator for this disease, but I think we are just beginning to understand the importance of blepharitis in the ocular surface. I believe the coming decade will be one in which we understand and

treat blepharitis more aggressively to improve patient outcomes. With that said, I would like to ask the panel: what is blepharitis?

BLEPHARITIS BRIEFING

Edward J. Holland, MD: I think of blepharitis in two categories that I divide by eyelid anatomy:

1) Anterior blepharitis, which is typically bacterial, in which we see loss of lashes and scurf or debris at the base of the lash. It tends to be more of an acute presentation and patients complain of crusting of the lashes and irritation at the lid margin. The other two types of anterior blepharitis are seborrheic, that goes along with seborrhea and is associated with redness and flaking of the skin,

and demodex, the least common of the two.

2) Posterior blepharitis or meibomitis is a chronic, long-term inflammatory disease in which patients have telangiectatic blood vessels crossing the lid margins, stenosis or closure of the meibomian gland orifices, and, with increasing inflammation, inspissation of the meibomian gland oils. With moderate to severe inflammation, these patients can have a rapid tear break-up time (TBUT), which can cause fluctuation in vision. Meibomitis leads to meibomian gland dysfunction and deficiency of the lipid layer of the tear film that result in evaporative dry eye.

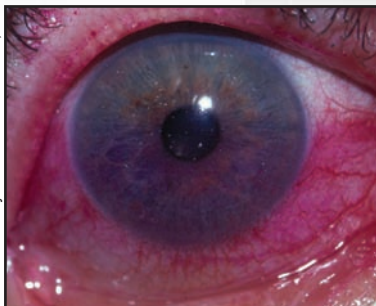
Dr. Donnenfeld: I have been impressed that as awareness is

increasing, we are learning more about just how commonly blepharitis, as Dr. Holland said, meibomitis—is misdiagnosed as dry eye. Patients often have symptoms of dry eye in addition to symptoms of meibomitis. Treating the dry eye alone is not completely effective in patients suffering from both conditions. In those instances, having a clear understanding of the differences and various treatment options for these ocular surface diseases has been a big help in providing patient satisfaction.

Marguerite B. McDonald, MD, FACS: Not only is posterior blepharitis often misdiagnosed as dry eye, but many patients actually have both conditions. Clinicians are just now becoming aware of the importance of diagnosing the *type* of blepharitis present and whether there is also concomitant dry eye.

Dr. Donnenfeld: The symptoms of blepharitis can vary just as the symptoms of dry eye can. Both patients with dry eye and meibomitis commonly complain of sandy-gritty eye irritation; however, there is one symptom that I find so diagnostic that when I hear it, it alerts me that this is most likely meibomitis, and that symptom is burning. I do not commonly see burning with traditional dry eye, but we do see it all the time in patients who have posterior blepharitis. There is a diurnal variation of the burning that differentiates meibomitis from dry eye.

Photo courtesy of Eric D. Donnenfeld, MD



Inferior rose bengal staining in a patient with blepharitis.

Kerry D. Solomon, MD: The basic aqueous deficient dry eye tends to have symptoms that get worse as the day goes on, whereas with meibomitis, patients tend to wake up with symptoms of sandy-gritty irritation or burning, with or without redness, which usually improves relatively quickly and then, if they have developed meibomian gland dysfunction and the associated lipid deficiency, they can develop a second symptom peak toward the end of the day.

Dr. Donnenfeld: Any time you hear a patient who is more symptomatic upon awakening, it is almost always meibomitis.

Dr. McDonald, how commonly are anterior and posterior blepharitis seen together? Also, in your estimation, what percentage of patients who present with dry eye also have meibomian gland disease?

Dr. McDonald: Anterior and posterior blepharitis are usually separate diseases. A recent study found that about 40 percent of aqueous dry eye patients also present with meibomian gland disease—meibomitis with or without meibomian gland dysfunction.³

Also, one last point about burning in the morning: patients with nocturnal lagophthalmos commonly experience symptoms in the morning. The distinguishing finding is that these patients will have a sharply

demarcated diagonal band of staining where the ocular surface has been exposed all evening; they may have a little ocular discomfort, but very little burning.

Dr. Donnenfeld: What systemic diseases should we look for in patients who have meibomitis?

THE PATHOGENESIS OF MEIBOMIAN GLAND DYSFUNCTION

Dr. Solomon: Most of us are familiar with the long-standing association with rosacea—facial telangiectasias with or without central facial flushing. But it can affect eyelids exclusively. In all of these patients, it is probably a systemic disease.

Dr. Donnenfeld: Why do the meibomian gland secretions in patients with meibomitis become inflamed?

Dr. McDonald: Patients with meibomitis have bacterial overgrowth on their eyelids and these bacteria produce lipases and esterases that hydrolyze the meibomian oils, changing their chemical composition and making them pro-inflammatory.

Dr. Donnenfeld: So part of the pathogenesis of meibomitis, and the secondary meibomian gland dysfunction that results is bacterial overgrowth on the lid margin with bacteria producing lipases and esterases that break down the normal long-chain meibomian gland secretions, which are lipids, to inflammatory short-chain soaps and fatty acids. We can treat that mechanism of action by controlling the bacterial overgrowth of the lids.

What is one of the classic physical findings in patients who have meibomitis that shows that the patient does have a breakdown of the normal lipids to soaps and fatty acids?

Dr. McDonald: Foamy tears. The

Photo courtesy of Eric D. Donnenfeld, MD



In anterior blepharitis (shown above), patients complain of crusting of the lashes as well as irritation.

tear meniscus has bubbles because the process by which the bacteria break down the meibomian gland oils results in free fatty acids and soap, so it is saponification of the meibomian gland oils.

Dr. Donnenfeld: I use this as a diagnostic finding even though most patients with meibomitis will not have it—it has low sensitivity, but high specificity. So now we have symptoms (sandy-gritty irritation or burning upon eye opening) and a sign (the soap in the tear film), which gives us 100 percent diagnostic criteria that this patient has meibomitis.

Many clinicians use the Schirmer test to differentiate aqueous deficiency dry eye from evaporative dry eye from meibomian gland dysfunction. What does it tell you when a patient who is very symptomatic comes in with a high Schirmer score?

GETTING YOUR DIAGNOSTIC SKILLS IN CHECK

Dr. McDonald: It leans you toward a diagnosis of evaporative dry eye. The quality, not the quantity, of the tears is lacking. Without a healthy, normal lipid layer, the tear film evaporates away rapidly.

Dr. Donnenfeld: I don't put much stock in Schirmer's test, but when patients have extremely high Schirmer's and are very symptomatic, I start thinking evaporative dry eye from meibomian gland dysfunction.

Dr. Solomon, how do you use vital dyes? Do you find lissamine green and rose Bengal to be superior to fluorescein?

Dr. Solomon: There is no question which is superior. While fluorescein can be helpful in examining the quantity and quality of the tear film, I do not believe fluorescein is a helpful instrument for picking up

dry eye surface disease, and rose Bengal is more uncomfortable for patients, so I prefer lissamine green, which will pick up conjunctival staining. The conjunctiva stains before the cornea in dry eye disease, so by the time you see corneal staining, which is what you pick up with fluorescein, you have an advanced ocular surface problem.

Dr. Holland: Listening to a patient describe his symptoms can help us think about whether this is aqueous tear deficiency versus evaporative dry eye with meibomitis and meibomian gland dysfunction. Patients with aqueous tear deficiency will have sandy-gritty irritation that gets worse as the day goes on,



Photo courtesy of Jeffrey P. Gilbard, MD

A classic case of meibomian gland dysfunction.

patients with meibomitis will have sandy-gritty irritation or burning that is worse upon eye opening and patients with meibomian gland dysfunction will also have symptoms toward the end of the day. The exam differentiates aqueous deficient dry eye from meibomian gland dysfunction-based evaporative dry eye. These later patients will have normal tear volume, but stenosis or closure of the meibomian gland orifices. We have to examine the eyelids before looking right at the cornea or ocular surface.

As Dr. Solomon said, super vital dyes—and especially lissamine green—are extremely valuable. It is important that the clinician put enough of the dye in to get the staining. With lissamine green, we can see

interpalpebral staining of the conjunctiva that may be quite dramatic in a patient with absolutely no fluorescein stain.

Dr. Donnenfeld: Most clinicians are knowledgeable of the appearance of super vital staining in aqueous deficiency dry eye—limited to the exposure zones, with the nasal conjunctiva staining more than the temporal conjunctiva, and the conjunctiva always staining more than the cornea. But the staining patterns seen in meibomitis can often be very different, and something that clinicians can use to differentiate between the two diseases.

Dr. McDonald, could you tell us about the difference in staining patterns between aqueous deficiency dry eye and meibomitis?

Dr. McDonald: The staining tends to affect the inferior cornea in meibomitis. You can get a little staining superiorly, too, where the eyelid sits, because these inflammatory cytokines are just sitting there on the cornea. But gravity pulls most of them down, so you get a heavier staining pattern inferiorly. The cornea and conjunctiva tend to stain equivalently in meibomitis, whereas in dry eye, the conjunctiva stains more than the cornea, and the staining is limited to the interpalpebral zone.

Dr. Donnenfeld: I find that to be a very diagnostic pattern. Again, the inferior conjunctiva acts as a sponge absorbing the inflammatory mediators and the bacteria, which causes an immune reaction with inferior corneal staining that we see only later in the disease with aqueous deficiency dry eye. Also, the corneal staining in meibomitis can extend below where the lid margin sits, below the exposure zone.

Dr. Solomon: As surgical infec-

tions are becoming more of a problem, it becomes incredibly important, not only for our surgical patients, but for all of our patients, that we really take the time to listen to their signs, symptoms and history, and to be on the lookout for meibomitis where we know there is bacterial overgrowth.

Dr. Donnenfeld: I truly believe that the diagnosis of meibomitis may be the most important diagnosis we make because it impacts so many patients.

Additionally, the sequella to lid margin disease can have significantly untoward effects on a patient's ocular health. We know that it causes evaporative dry eye and we also know that when patients have meibomitis, their lid margins are colonized with bacteria and the risk of surgical infection becomes more significant. When I see a patient who is ready for cataract or refractive surgery, I put a lot of effort into decreasing the eyelid bacterial colonization that accompanies meibomitis, making certain that the lid margins are treated prior to surgery to reduce the risk of infection.

TREATMENT TALK

Dr. Donnenfeld: Three basic principles need to be evaluated and treated in patients who have meibomitis: inflammation, bacterial overgrowth and thickened meibomian gland secretions. We know that this is a disease of bacterial overgrowth of the anterior and posterior lid margins. We know that these bacteria produce lipases and esterases that produce inflammation, so we need to control inflammation. And we also know that as a result of the inflammation, the meibomian gland secretions become thickened and inspissated in patients with meibomitis, so we need to find some way to thin these

meibomian gland secretions. So any treatment or protocol that we develop needs to address all three of these important criteria.

Dr. Holland: I think the cornerstone of treatment is heat therapy, in which we want to help melt and thin the meibomian gland oils, and we can do this in a variety of ways with warm compresses, at the sink, in the shower or some of the new devices that can deliver heat to the eyelid.

ANTIBACTERIAL HYGIENE HELP

Dr. Solomon: One way to decrease bacterial colonization is with lid hygiene. Years ago, we used to recommend people use Johnson's baby shampoo because it didn't burn or sting, but I think there has been some recent evidence to suggest that that is probably not all that effective. In fact, I have seen a number of patients develop terrible dryness of their eyelid skin after using baby shampoo. A product I have actually used myself is called SteriLid Eyelid Cleanser. It comes in a little bottle and almost dispenses like shaving cream. It is a terrific moisturizing cleanser of the eyelid margins and has antibacterial components. It is easy to use, effective at cleaning up the lid margins and has antibacterial properties.

I know many surgeons who will often send patients home with Betadine preps and ask them to use those for two or three days before cataract surgery. Quite honestly, given the antibacterial properties and given the methicillin-resistant *Staphylococcus aureus* (MRSA) bactericidal properties that SteriLid has, it is probably a better idea for people to be using a product such as SteriLid as opposed to Betadine as part of their preoperation regimen.

Dr. Donnenfeld: How common

is MRSA seen in patients having routine cataract surgery and how good is SteriLid at treating these organisms?

Dr. Solomon: I think most clinicians believe that between 1 in 5 patients having cataract surgery are colonized with MRSA. But the truth is, MRSA is very common and practitioners need to be aware of its presence. SteriLid is very effective and has terrific efficacy against MRSA and other bacteria, provided it is used properly.

Dr. Donnenfeld: Plus, it kills almost instantly, not like an antibiotic that takes hours for the cells to cycle. This is a very rapid bactericidal effect.

HEAT THERAPY

Dr. Donnenfeld: I find hot compresses extremely important, but tedious and time-consuming. I don't know of any patient who religiously uses hot compresses. For the past five years, I have been recommending putting a potato in the microwave and wrapping a wet washcloth around it. The problem is that sometimes the temperature is too hot. Now, I have something better.

All you need to do is get the temperature over 100 degrees for a prolonged period of time. That is why I find the iHeat Warm Compress System to be so effective. It contains a reusable eye mask that has little pockets on top, into which you insert single-use warming units that are activated by just pressing on them. It maintains an evidence-based temperature of 105 degrees, which is well below the temperature that will cause damage to the skin (usually around 110 degrees), and it can maintain that temperature for a prolonged period of time.

We do, however, also have to treat the infectious component of

blepharitis internally because surface treatments don't always penetrate the tissues as effectively as topical therapy, which is why many doctors like to use an oral antibiotic.

Photo courtesy of Eric D. Donnemfeld, MD



Inspissated meibomian gland oils.

ORAL ANTIBIOTICS

Dr. Solomon: In very low peridontal doses, the tetracycline family has anti-inflammatory properties. We can use it systemically to treat inflammation around blepharitis and lid margin inflammation, but this is not an antibacterial dose. Using a slightly higher dose of doxycycline has antibacterial properties, so that you are now treating inflammation as well as some of the deeper bacterial loads in the meibomian glands and on the ocular surface. I have had good success with 75 mg a day of doxycycline monohydrate (NutriDox, Advanced Vision Research).

We have also had some very good success treating it topically with azithromycin, which has terrific properties of tissue penetration. While it doesn't penetrate the eye very well, it does a good job of penetrating soft tissues.

Dr. Holland: I frequently see a problem in the amount of medication prescribed, and I think it is important that we don't recommend the higher doses (100 mg bid of doxycycline or tetracycline 250 mg q.i.d.) because half of patients will have GI side effects. We don't need doses that high to get an antibacterial effect. A dose of 75 mg a day of

doxycycline will have both anti-inflammatory properties and antibacterial properties while almost completely eliminating the side effects seen with higher doses of these medications. And there is a higher likelihood that the patient will tolerate these medications.

Dr. Solomon: The dose of 75 mg is going to be better for both compliance as well as the ability to be tolerated from a GI standpoint.

Dr. Donnemfeld: The tetracycline family of antibiotics act fairly rapidly (generally within a week or two). And I agree with Dr. Holland—as clinicians, we use too much antibiotic and lower doses are very well tolerated. In the past, we used tetracycline, but we have learned that doxycycline is a much better tolerated medication. It doesn't have nearly the GI upset of tetracycline and it has more of an anti-inflammatory effect than tetracycline. Also, it can be taken with food and milk products and it is not chelated by calcium like tetracycline, which can be inactivated, so that you can use this more conveniently and not have to worry about taking it with or without meals.

I also like the monohydrate form of doxycycline because you will not see the GI side effects and esophagitis that you see with the hyclate form of doxycycline and again, 75 mg a day is very nice for the initiation therapy.

Furthermore, I have found that once we get past the first month or so, when we have TheraTears Nutrition (Advanced Vision Research) on board to suppress inflammation and thin meibomian gland oils, we can stop the doxycycline, bacterial colonization has been controlled on the skin, in the meibomian glands and on the ocular surface, and switch the patient to topical anti-bacterial control with

SteriLid. SteriLid can then address, on a chronic basis, the eyelid skin that is the source of the bacterial overgrowth.

NUTRITIONAL SUPPLEMENTS

Dr. McDonald: There are quite a few good papers in the literature now to support the fact that long-chain omega-3 fatty acids have anti-inflammatory effects.⁴ They have a host of beneficial effects in the human body, including their usefulness in suppressing lid inflammation.

When the omega-3s are obtained from two separate sources (flax and fish), you get a combination of short- and long-chain omega-3s. You get the benefit of an anti-inflammatory effect from the long-chain omega-3s from fish oil and also the benefit of the thinning effect of the short-chain omega-3s from flaxseed oil on these thickened, inspissated meibomian gland oils that plug the meibomian glands—the biochemical structure of the meibum begins to return to normal and become more liquid.

Dr. Donnemfeld: Flaxseed oil, which supplies short-chain omega-3s, has been shown to thin the meibomian gland secretions and is very effective in that end, while fish oils have a profound anti-inflammatory effect.⁵ So the combination of both fish oil and flaxseed oil works better than either of these oils individually.

It is important to remember that there are some concerns with using fish oil for long periods of time, so we want to make sure patients are using medical-grade fish oil.

Dr. Holland: We do try to recommend to our patients a medical-grade type fish oil. I think the combination of the flaxseed and fish oil that TheraTears Nutrition provides is very effective and it is very convenient for

the patient to take soft gels with both omega-3s.

Dr. Donnenfeld: I am one of the most nutritionally challenged individuals that I've ever met. But the one thing that I do for myself is take TheraTears Nutrition because I really believe in the health and anti-inflammatory effects of flax and fish oil.

The fish oil in TheraTears Nutrition is concentrated, and is derived from anchovies, rather than from larger game fish, which have high mercury content. Fish oils and flaxseed oils are great for the dry eye and meibomitis, and even dry mouth, but they do a lot of other good things for the body.

Dr. McDonald: I always tell patients that I would like them to use this particular formulation as it has been exhaustively studied. I tell them they are likely to experience a 30 to 40 point drop in their cholesterol and an improvement in their triglyceride profile. Though this is very anecdotal, some of my patients come back and volunteer that their arthritic joints feel better and that their skin has improved—rosacea patients have less telangiectasia and flushing.

Dr. Donnenfeld: Now that we have a better understanding of the pathogenesis of meibomitis, meibomian gland dysfunction and dry eye, and we understand the different treatment options, I would like to hear from the panel how they initiate therapy and what they tell patients to use to treat their lid margin disease.

GETTING STARTED WITH THERAPY

Dr. Holland: I think it makes sense to address bacterial overgrowth, inflammation and thickening of meibomian gland oils in every patient with meibomitis—to get them comfortable as soon as possible,


and to help preserve meibomian gland anatomy and function. We can pull back once we have the patient comfortable. And I have been finding that the NutriDox Kit makes it easy for the patient by providing the 75 mg a day of doxycycline, TheraTears Nutrition and the iHeat Warm Compress System in a single package. The convenience of the NutriDox Kit makes the patient's life simpler. By making things simpler, I think they are more likely to do it.

Most patients are comfortable after a month of this program, but if the patient comes back and is still symp-

every patient with meibomian gland disease and with dry eye.

Like Dr. Holland, when I have a patient who comes in who has irritation on eye opening in the morning with rosacea or significant telangiectasia crossing the lid margins, I will almost always start them on doxycycline with initial therapy, as I find it to be a systemic disease that really requires systemic therapy. Probably at least one-half of my patients who come in with meibomitis have some systemic form of rosacea that needs the oral therapy.

I like SteriLid for sterilizing the lid



TARGETING MEIBOMITIS

A quick reference for treating this common condition.

- 75 mg a day of doxycycline to decrease bacterial overgrowth and inflammation
- Combined flaxseed and fish oil supplementation to thin meibomian gland oils and decrease inflammation
- Warm compresses to thin meibomian gland oils and decrease inflammation
- Antibacterial lid hygiene replaces doxycycline when patient is asymptomatic.

omatic, I will continue the NutriDox Kit program for another month. If they are comfortable, I maintain TheraTears Nutrition and the warm compresses, and replace the doxycycline with SteriLid.

Some patients may relapse. I can always pulse these patients with a month of the NutriDox Kit program. So the doxycycline component is dependent on the patient's response to the treatment.

Dr. Donnenfeld: I do similar therapy. I think that every patient who has meibomian gland disease needs to be on hot compresses, and the iHeat System is a wonderful therapy. Hot compresses are my mainstay of therapy. And I believe flaxseed and fish oil nutritional therapy should be used on

margin, treating anterior blepharitis, as well as patients who are pre-surgical with posterior blepharitis. And I like to use topical azithromycin in patients who have inflammatory lid margin disease. I use it once a day at night and have the patient rub it into the lid margin.

Dr. Solomon: I do similar to what Dr. Donnenfeld described, but perhaps a little more stepped approach in that if someone has very mild symptoms, I go for maintenance therapy on heat, lid hygiene and oral nutritional. But in the patient who has rosacea, many of whom may have a systemic disease, or more advanced symptoms, I tell them to stay on a full month of doxycycline as well as a full month of azithromycin topically,

then we evaluate them in a month. They may not be completely resolved but are almost always better, at which time we will taper or really discontinue and see how they do on maintenance with heat, anti-bacterial lid hygiene and oral nutritional. And oftentimes, patients can go two or three months without needing an antibiotic (occasionally they need to be intermittently pulsed again with either some topical azithromycin and/or oral doxycycline).

Lastly, for symptomatic patients, I will often use a low-dose steroid such as loteprednol, and find that it will provide a more immediate anti-inflammatory effect. I use it twice a day for two weeks and then once a day for two weeks and stop it. I often find that it provides more immediate symptomatic relief for the patients, whereas getting deeper tissue responses for anti-inflammatory and antibacterial loads of the azithromycin and the doxycycline are more effective long term.

Dr. Holland: I would like to emphasize that point. We don't often think about using corticosteroids for the management of this chronic disease, but I think two groups of patients are important. First is the patient who is extremely symptomatic. Most of the maintenance therapies we talked about take some time to take effect, but you are going to get an immediate effect with topical steroids for the patient who is very symptomatic and is coming to you as the fourth or fifth eye care provider because of their chronic pain. So think of steroids for the patient with significant discomfort.

Secondly, any patient with significant corneal findings is a candidate for corticosteroids. If we see infiltrates in the peripheral cornea or neovascularization, then that patient should be treated with corticosteroids until the

corneal findings have been resolved.

Dr. McDonald: I use a similar pattern; with mild cases of blepharitis, I recommend flaxseed and fish oil nutritional supplementation, antibacterial lid hygiene and warm compresses twice daily. Then there are the moderate to severe patients who need a short course of topical steroids for flare-ups; it may need to be dosed occasionally for flare-ups throughout the rest of their lives. Usually these cases also need the addition of topical azithromycin and oral doxycycline in a pulsed fashion as well.

Dr. Solomon: Again, it really parallels the treatment for dry eye very nicely. Many of us have had terrific success with cyclosporine-type products for treating dry eye in the long term, but we combine it with a steroid to get more immediate symptomatic relief for the steroid short term and more effective relief with cyclosporine in the long term.

I think blepharitis is very much the same. These treatments have been very effective in my practice for patients who are symptomatic.

Dr. Donnenfeld: NutriDox is a good starter kit that combines a lot of the most advantageous therapies in one package. Many times, patients find it difficult to initiate therapy, and this gives patients a clear and easy-to-follow therapeutic approach to meibomitis. The NutriDox Kit contains doxycycline 75 mg with 30 pills, which is the perfect starting dose. It also contains the iHeat system for applying warm compresses and 90 TheraTears Nutrition soft gels. We have the patients take three TheraTears soft gels every morning, so 90 is good for one month of therapy.

And the nice thing about it is that it is available by prescription so the patients go to the pharmacy with a

"NutriDox" prescription, and the nutritional supplements and the iHeat system are contained within the prescription so the patient actually with their co-pay saves a significant amount of money by using the system. So not only do they get an efficacious system, they also find it economically advantageous to purchase it this way. I would recommend that clinicians consider starting patients with this system. It makes it very easy to initiate therapy.

Dr. Solomon: Writing NutriDox Kit with one refill provides the patient with the ability to continue the doxycycline an extra month if they are still symptomatic, and once they are asymptomatic, they need to be encouraged to continue with the nutritional supplement, heat therapy and the antibacterial eyelid cleanser.

PUTTING OCULAR SURFACE DISEASE INTO CHECKMATE

Dr. Donnenfeld: Blepharitis and specifically meibomitis is one of the most common diseases patients present with in our offices. These lid disorders impact on quality of life, quality of vision and surgery. A systematic treatment protocol to manage lid disease is extremely helpful in improving patient outcomes. **2**

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