Contemporary non-pharmacologic approach to Meibomian Gland Dysfunction management

Duration of workshop: TWO HOURS; Target Audience: Optometrists
Category = Anterior Segment Disease
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COPE-ID: 57733-AS
Workshop description: This two hour presentation is an interactive, workshop format where doctors will have the opportunity to use some of the current technologies available to manage MGD. A ten-minute didactic presentation will demonstrate the devices and indicate their advantages and disadvantages. A live demonstration of how to use several of the technologies / devices will occur prior to hands-on use by the participants.

Workshop Outline:

1) Definition of MGD
   a) MGD Workshop definition
   b) Updates

2) Lipid layer in the tear film
   a) Anatomy
   b) Functions of the lipid layer
   c) Tear Evaporation

3) Aqueous and mucin layers in the tear film
   a) Relationship to eyelid inflammation and MGD

4) Role of bacteria in MGD
   a) Staphylococcus Aureus
   b) Bacterial lipases
   c) Metalloproteinases
5) Role of inflammation in MGD
   a) How does inflammation affect the anatomy of the lid margin?
   b) MGD and Blepharitis
   c) Demonstration of the InflammaDry test – Simple in-office test to
detect the presence or absence of inflammatory marker MMP-9 in the
tear fluid.

6) Meibomian gland dropout
   a) Pictorial description of the process
   b) What does dropout mean for the patient and the management of the disease?

7) Diagnostics – Meibography

8) Contemporary MGD management
   a) Warmth based treatments
      i) Mechanism of action
      ii) Currently available warmth based treatment options
      iii) MiboFlo device: The MiBoFlo (MiBo Medical Systems) is a hand-held device that
           provides heat to the upper and lower eyelid. It is designed to be used in the office under the
           guidance of a medical practitioner. This dual head device delivers heat at approximately
           42°C using a thermoelectric process. The hand-held device is placed against the outer aspect
           of the both eyelids. Typical therapy consists of three treatments each separated by one week.
           Each treatment lasts 8 minutes in the current version of the equipment.
      iv) Heated Eye Pad: This device has been recently released with FDA approval includes
the Heated Eye Pad (Digital Heat Corporation) which has two models. One model is available to patients over-the-counter and the second is used in a medical office environment. It delivers heat (40 °C) to the upper and lower eyelid. As with other heat applications, this device is meant to warm the meibum and promote secretion. Little additional information is available regarding its effectiveness in promoting MG patency or its effect on a patient’s symptoms at this time.

v) Mibo Heatpads – Designed for home therapy of MGD. This device is USB powered and provides far infrared heat.

b) Lid margin debridement / exfoliation
   i) Mechanism of action
   ii) How to perform lid margin debridement?
   iii) Why does lid margin debridement help with MGD?
   iv) Manual debridement: The line of Marx (LOM) is a narrow line at the junction of the palpebral conjunctiva and the keratinized skin, i.e. at the mucocutaneous junction, and is located on the conjunctival side of the MG orifices. Change in the location of the LOM has been strongly correlated with MG function and morphology such that more anterior location was associated with greater loss of function. Korb and Blackie demonstrated that manual debridement of the LOM using a golf spud, improved MG function as well as relieved dry eye symptoms.
   v) BlephEx: BlephEx™, which stands for blepharoexfoliation, was developed by Rysurg (Lake Worth, FL). The BlephEx provides a method of accomplishing lid debridement without using a surgical instrument. The instrument has a medical grade disposable micro-
sponge that spins along the edge of eyelids and lashes, exfoliating the eyelid margins. In order to dissolve accumulated oil and dirt from the eyelid structures and expose any bacterial biofilm, the sponge is pre-soaked in a commercial lid cleanser. This procedure produces a reduction of scurf, bacterial debris, and biofilm (per manufacturer).

9) Neurostimulation - True-Tear (Allergan, Irvine, CA) – The True Tear device uses energy pulses to help patients produce their own tears. The workshop will address the proper use of this novel device.

10) Hands-on use of devices:
   a) Station 1: Inflammadry test; Meibography (Oculus Keratograph);
   b) Station 2: True Tear; Heated Eye Pad; MiboFlo
   c) Station 3: BlephEx
   d) Station 4: Manual lid debridement; Manual MG expression

10) Conclusion

a) What is the future of MGD management?