DED: CAPITAL INVESTMENTS TO *Improve the Patient Experience*

Invest in dry eye diagnostics to direct treatment appropriately and enhance the patient experience.

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Until recently, older individuals and women experiencing menopause were the most likely to present with symptoms of dry eye disease (DED).[1] Today, DED is prevalent among people of all ages, likely owing to an increase in the time they spend on digital devices while working remotely and socially isolating during the COVID-19 pandemic.[2] It is therefore important to provide patients with centers dedicated to the diagnosis and treatment of DED. This article discusses some of the steps your practice can take to begin serving patients with DED.

DIAGNOSING DED: THE VITALS

In most cases, DED can be diagnosed by staining the ocular surface with a vital dye (fluorescein or lissamine green). The patient's symptoms and history must also be taken into consideration. For example, the presence of rosacea in addition to DED symptoms suggests a diagnosis of blepharitis.

Fluorescein. Staining of the ocular surface with fluorescein dye can reveal areas of cellular degeneration or death by the quantity and location of the stain. This vital dye can also be used to measure tear breakup time and tear meniscus height; both of these parameters are of value when diagnosing DED.

Lissamine green. Staining with lissamine green dye can reveal dead and damaged cells as well as ocular surface epithelial cells that are unprotected by mucin or glycocalyx. A recent study found a correlation between lissamine green staining and ocular surface inflammation.[3] Additionally, liquid lissamine green, which provides better staining than lissamine green strips, was recently made available in the European Union.

THE NEXT LEVEL

Patients with DED are often dissatisfied because neither their diagnosis nor their treatment is specific to their condition and needs. Treatment is typically a matter of trial and error, which many patients find frustrating and confusing.

Additional tests (see *Investing in DED*) can provide further information about the condition of the ocular surface and guidance on how to direct treatment. These tests evaluate the following:

- Tear meniscus height;
- Tear film dynamics;
- Tear film lipid layer spread;
- Noninvasive tear breakup time;
- Tear film osmolarity;
- Tear matrix metalloproteinase 9; and
- Meibomian gland function and structure.

CONCLUSION

The more precise the DED diagnosis is, the more effective treatment is likely to be. The use of multiple DED diagnostic tools facilitates more specific diagnosis and customized treatment, which can improve patients' outcomes and their experiences. ■

INVESTING IN DED

Using devices that expand DED diagnostic capabilities can improve treatment decision-making and optimize the patient experience. Examples include but are not limited to the following.

- **CA-800 Corneal Analyzer (Topcon)**
  - This device can perform meibomian gland imaging, tear meniscus analysis, fluorescein imaging, pupillometry, white-to-white measurements, and Zernike analysis. It also includes contact lens fitting software.
- **Idra Ocular Surface Analyser (Clarion Medical Technologies)**
  - This device can perform automatic interferometry, 3D meibography, automated noninvasive tear breakup time, and tear meniscus height measurement.
- **InflammaDry (Quidel)**
  - This device tests for elevated levels of tear matrix metalloproteinase 9.
- **I-Pen Tear Osmolarity System (I-Med Pharma)**
  - This device tests tear film osmolarity.
- **Keratograph 5M (Oculus Optikgeräte)**
  - This device evaluates the meibomian glands and noninvasively measures tear breakup time, tear meniscus height, and the lipid layer.
- **LipiView II Ocular Surface Interferometer (Johnson & Johnson Vision)**
  - This device measures lipid layer thickness, evaluates blink dynamics, and images the meibomian glands.
- **TearLab Osmolarity System (TearLab)**
  - This device tests tear film osmolarity.

*For an overview of more technologies, scan the QR code in *Read It Now*

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