Top 10 Tips from TFOS DEWS II

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TFOS DEWS II: 12 Subcommittees: 10 Reports

Definition and Classification

TFOS DEWS II revised definition

"Dry eye is a multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles."
What Are the Top 10 Clinical Pearls from TFOS DEWS II?

1. DED is a subset of OSD; need differential diagnosis

   - How severe is the eye discomfort?
   - Do you have any mouth dryness or swollen glands?
   - How long have your symptoms lasted & was there any triggering event?
   - Is your vision affected and does it clear on blinking?
   - Are the symptoms or any redness much worse in one eye than the other?
   - Do the eyes itch, are swollen, crusty, or have given off any discharge?
   - Do you wear contact lenses?
   - Have you been diagnosed with any general health conditions (including recent respiratory infections) or are you taking any medications?
   - + detailed anterior eye examination differential diagnosis where indicated by answers

   - Abnormal lipid
   - MG D
   - Aqueous Deficiency
   - Low volume
   - Risk Factor Analysis
   - Screening Homeostasis Markers
   - Symptomology (DEQ-5 ≥ 6 or OSDI ≥13)
   - Non-Invasive [fluorescein]*
   - Tear Breakup Time <10s
   - Osmolarity ≥308mOsm/L in either eye or interocular difference >8 mOsm/L
   - Ocular Surface Staining >5 corneal spots, >9 conjunctival spots, or lid margin [≥2mm length & ≥25% width]

   - 1 of Triaging Questions

   - Suspect dry eye

   - Aqueous / Evaporative Spectrum

   - e.g. certain medications, contact lens wear

   - TMH 0.2mm
   - 0.1mm
   - 0.0mm

   - MG D lid margin drop-out, displacement, secretion ≥13, expressibility 3 + lipid absent / globular / abnormal colored fringes plugging, vascularity, secretion 8‐12, expressibility 2 + lipid meshwork secretion 4‐7, expressibility 1 + lipid wave (flow) / color fringes

   - Symptomology

   - Function

   - Conduct an evidence-based review of current dry eye therapies and management options
   - peer-reviewed literature where possible
   - rather than abstracts
   - Use results to produce a staged management algorithm that presents a step-wise approach to implementing the various management and therapeutic options according to disease severity

   - Management

   - Diagnosis

   - What Are the Top 10 Clinical Pearls from TFOS DEWS II?
#2: Symptoms assessment essential

Wolffsohn et al.: TFOS DEWS II Diagnostic Methodology report. Ocul Surf 2017; 15;3: 539-574

Validated DED Questionnaire: OSDI

Validated DED Questionnaire: DEQ-5

• Over the past month
• Self-administered
• 5 questions
• Assesses frequency of watery eyes, discomfort, and increased intensity of dryness during day
• Score ≥6 indicates suspicion of DED
• Score ≥12 may indicate Sjögren syndrome
• High sensitivity (90%) and specificity (81%)

#3: Mismatch of symptoms vs signs

• Severe ‘dry eye’ symptoms may be neuropathic
• Signs without symptoms not dry eyes, but may still need management if ocular challenge

#4. Spectrum exists between EDE & ADDE

DEWSII Classification Emphasizes That There is Mixed Form of Disease


Aqueous Deficiency
- Low Volume
- Ocular Surface Staining > 5 corneal spots; > 9 conjunctival spots; or lid margin (≥ 2 mm length & ≥ 25% width)

Osmolarity
- ≥308 mOsm/L in either eye or interocular difference > 8 mOsm/L

Non-Invasive Tear Break-up Time
- < 10 s (fluorescein)*

Symptomatology
- (DEQ-5 ≥ 6 or OSDI ≥ 13) + 1 of Screening Homeostasis Markers Subtype Classification Tests

Evaporative
- Abnormal lipid
- MGD

NaFl Tear Break-up Time (TBUT)
- With fluorescein (F-TBUT)
  - minimize variability by using standardized methodology1
  - wet fluorescein strip with sterile saline; shake off excess2
  - tap lower tarsal palpebral conjunctiva and deliver small volume2
  - use a wide beam illumination, low intensity

ADE: Tear Volume/Flow Measurement Methods
- Tear meniscus height (TMH)
  - Subjective at the slit lamp (< 0.2 mm)
  - Computer caliper measurements2
- Cotton thread test (CTT)3
  - 25% sensitivity, 93% specificity
  - Suspect: < 10 mm/15 sec
- Schirmer I test1
  - 85% sensitivity, 83% specificity for values < 5.5 mm/5 min
  - Suspect: < 10 mm/5 min

#6. Majority of DED is Evaporative

Distribution of symptomatic dry eye by subtype (n=224)
Subtype Classification Tests

EDE: Meibomian Gland Expression Techniques

Meibum Quality

#7: DED Pathology: Vicious Circle Theory

#8. Lubricants Remain a Mainstay of Treatment

#9. Traditional Preservatives are Bad!
#10. Treatments Work: Optimal Treatments Hard to Prove

• Advice is complicated due to:
  • multifactorial etiology
  • level 1 studies missing
  • Not rigid step-wise approach
  • Begin with simple therapies and progress to more complex
  • One or more options within each category can be considered concurrently within that step of the dry eye disease state
  • How do you map treatment to subtype and severity?
  • How do you decide on best combination of treatments?

Staged Management of DED

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<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
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<tbody>
<tr>
<td>Education</td>
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<tr>
<td>Environment/dietary modifications</td>
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<td>Eliminate offending systemic medications</td>
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<td>Artificial tear substitutes, gels/ointments</td>
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<td>Eyelid therapy</td>
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If Stage 1 options are inadequate, consider:

• Nonpreserved ocular lubricants to minimize preservative-induced toxicity
• Tear laxative treatment for Dry eye (Dry eye)
• Tear conservation
• Overnight treatments (such as ointment or moisture chamber devices)
• In-office, physical heating and expression of the meibomian glands (including device-assisted therapies)

Step 2: Staged Management of DED

<table>
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<tr>
<td>Oral secretagogues</td>
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<td>Autologous/allogeneic serum eye drops</td>
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<td>Therapeutic contact lens options (soft bandage lenses; rigid scleral lenses)</td>
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If Stage 2 treatments are inadequate, consider:

• Topical corticosteroid for longer duration
• Amniotic membrane grafts
• Surgical punctal occlusion
• Other surgical approaches (e.g., tarsorrhaphy, salivary gland transplantation)

Summary

• TFOS DEWS II substantial improvement over DEWS I
• More clinical than research-based
• Important reports for clinical practice
  • Definition & classification
  • Diagnosis
  • Management and therapy
• Mapping optimal management to presentation of cases requires much further work

THANK YOU