Dry Eye Symptoms Correlate with Non-ocular Conditions

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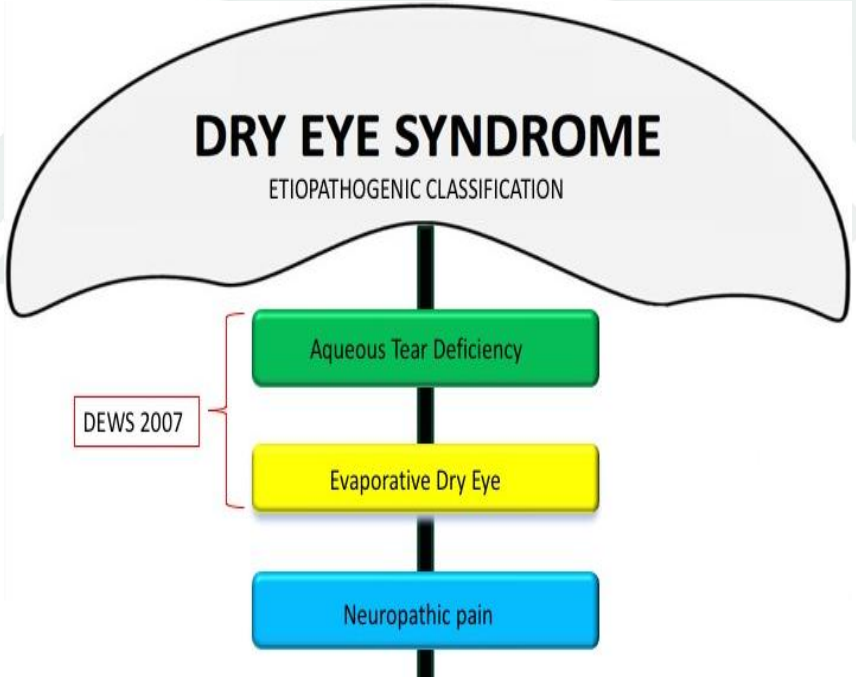
BACKGROUND

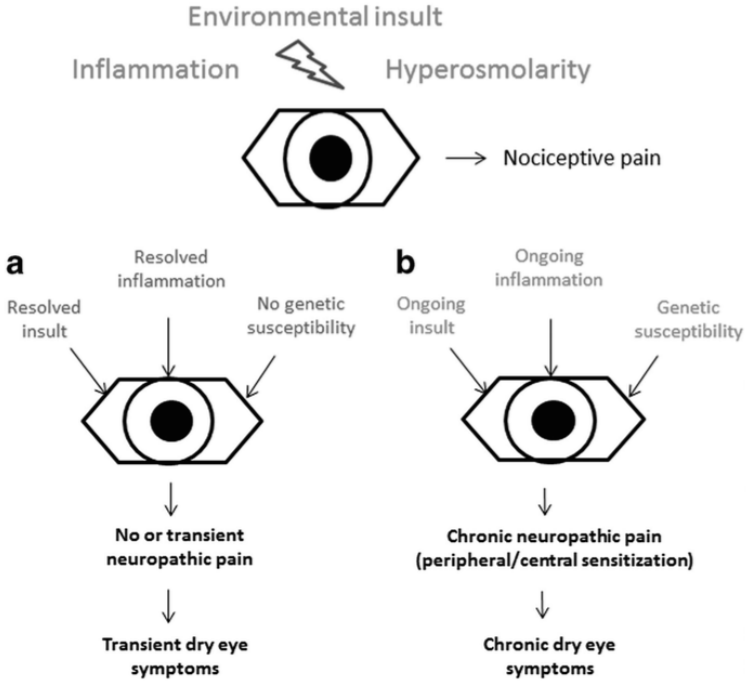
- There is often a discrepancy between clinical signs & symptoms of DE
- Factors beyond the tear film & ocular surface disturbances may underlie at least a subset of “DE” patients
- Neuropathic- like ocular pain (NOP), such as burning pain and evoked pain to wind & light, has been associated with a more severe & chronic DE course in a population of predominantly older, Caucasian males
- Incomplete response to artificial tears & hypersensitivity to stimuli in areas outside the eye imply the presence of central sensitization
- The differentiation of DE patients by somatosensory status may have significant therapeutic implications

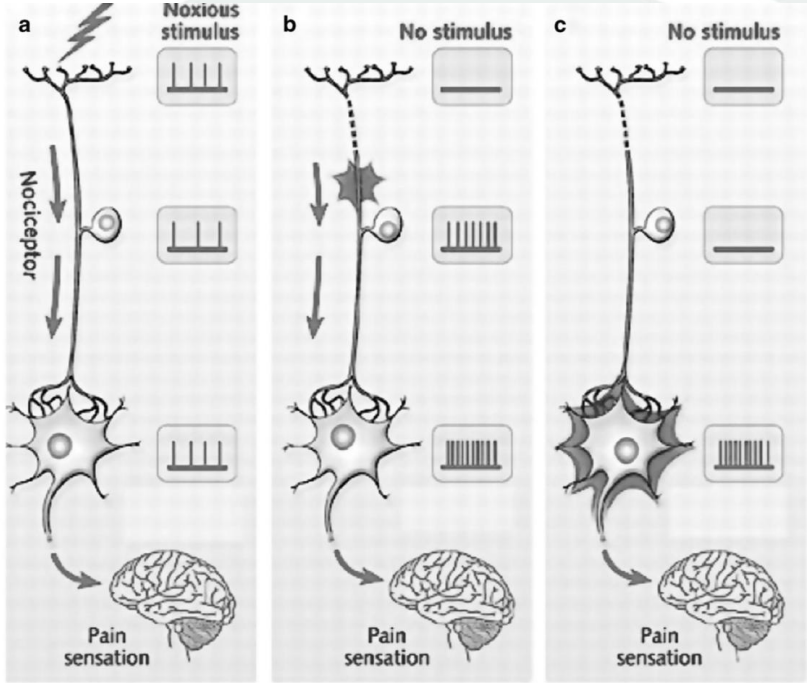


DEWS= Dry Eye WorkShop. *Ocul Surf*. 2007;5(2):93-107.

NEUROPATHIC OCULAR PAIN

CENTRAL SENSITIZATION?





Galor A, Levitt RC, Felix ER, et al. Neuropathic ocular pain: an important yet underevaluated feature of dry eye. Eye 2014;29:301–312.

PURPOSE

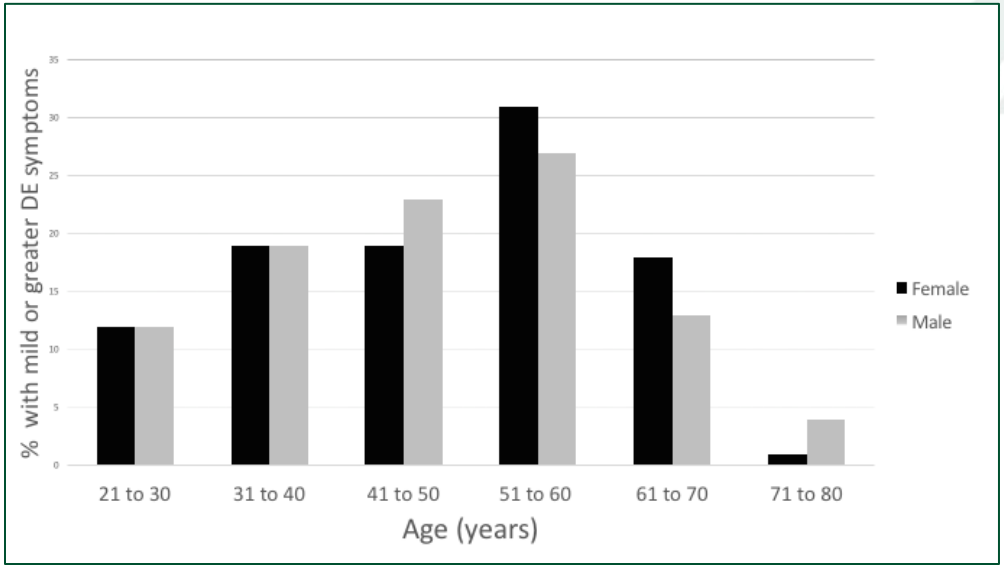
To study DE symptoms & their association with neuropathic-like ocular pain (NOP) features, chronic pain conditions, depression, & anxiety in a *healthy, young* population presenting for routine ophthalmic screenings.

METHODS

- **Study Design:** Cross- sectional study
- **Study Design & Population:**
  - 233 consecutive patients ≥ 18 years of age
  - A comprehensive eye clinic at Bascom Palmer Eye Institute between January to August 2016 were included in this study
  - Information on demographics, chronic pain conditions, medication use, DE symptoms (dry eye questionnaire, DEQ5), NOP complaints (burning; wind, light, and temperature sensitivity), & mental health indices (patient health 9, PHQ9 and symptom checklist 90-revised, SCL-90-R) were collected for each individual via standardized questionnaires
- **Data Analysis & Main outcome measures:**
  - Correlations between DE symptoms & neuropathic-like ocular pain features, non-ocular pain phenotypes, & mental health indices
  - Pearson's correlation was used to evaluate strengths of association
  - Logistic regression analysis examined risk factors for any (DEQ5≥6) and severe (DEQ5≥12) DE symptoms

RESULTS: STUDY POPULATION

Percentage of patients (n=94) with mild or greater dry eye (DE) symptoms (DEQ5≥ 6) in a comprehensive eye clinic by gender and age

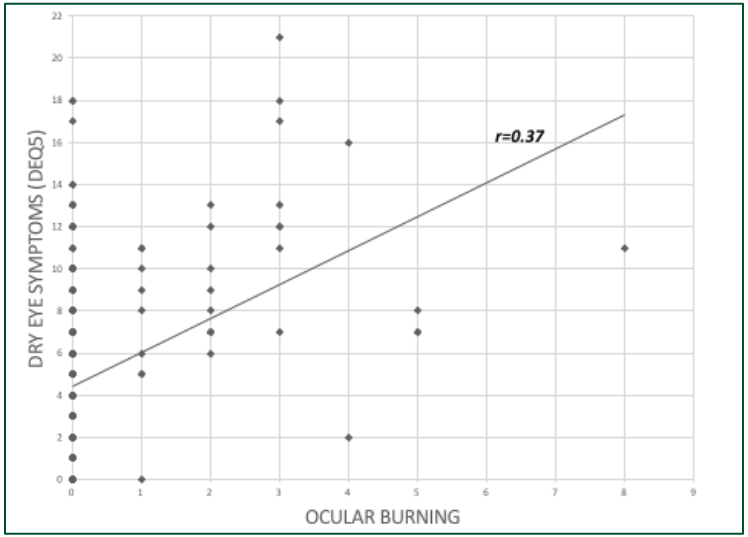


- 40.3% had mild or greater DE symptoms (DEQ5≥6)
- 12% had severe symptoms (DEQ5≥12)

- Mean age= 46.3 years (±13.0)
- 67.8% were female
- 75.5% were Caucasian
- 51.5% were Hispanic
- 89.3% were non- smokers

Gender, race, & ethnicity were not significant risk factors for DE symptoms.

DE SYMPTOMS & NEUROPATHIC- LIKE OCULAR PAIN



Correlation between dry eye symptoms (dry eye questionnaire 5, DEQ5) and ocular burning. (r= Pearson's correlation)

25.8% reported DE symptoms as a chief complaint.

DE symptoms correlated w/ NOP complaints.

- Burning (r=0.37, p<0.001)
- Sensitivity to wind (r=0.37, p<0.001)
- Sensitivity to light (r=0.34, p<0.001)
- Sensitivity to temperature (r=0.30, p<0.001)

NON-OCULAR ASSOCIATION WITH DE SYMPTOMS

Correlation between dry eye symptoms (DEQ5) and depression (patient health questionnaire 9, PHQ-9)

Risk factors for mild or greater DE symptoms

- Greater # of chronic non-ocular pain conditions (OR= 1.38, p<0.001)
- Arthritic pain (OR=6.34, p<0.001)
- Back pain (OR= 2.47, p= 0.004)
- Headaches (OR= 2.14, p= 0.02)
- Depression (OR= 1.17, p<0.001)
- Anxiety (OR=1.13, p=0.02)

LIMITATIONS

- South Florida is a unique population, with a large proportion of Hispanics.
- The focus was on DE symptoms, and objective findings were not recorded.
- Not possible to capture all confounders (e.g. diet, environmental factors) in one intake form.
- Each subject was surveyed once on a single day.

CONCLUSIONS & RECOMMENDATIONS

- DE symptoms are frequently encountered in a comprehensive eye clinic, even in a healthy young population.
- Symptom severity positively associated with NOP complaints, comorbid pain disorders, & abnormal mental health indices.
- In suspected cases of NOP, it is important to examine the patient holistically, incorporating both ocular and non- ocular co- morbidities when developing a treatment plan for DE.

FUTURE DIRECTIONS

- Study different populations
- Investigate the efficacy of personalized, targeted therapies
  - Neuromodulating therapies (i.e. gabapentin, pregabalin, SSRI)
  - Lacosamide
  - NMDA receptor inhibitors
  - Neurostimulation

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QUESTIONS

Please contact Victoria Chang (vchang@med.miami.edu) with any inquiries.

Thank you!