

What's in the Bottle? New Rx Therapies

Instructor - Damon Dierker OD, FAAO

1 hour

Course Description

This course reviews new topical therapies for presbyopia and dry eye disease, including pilocarpine 0.4%, aceclidine, and TRPM8 agonists. Mechanisms of action, clinical trial outcomes, safety profiles, and patient selection strategies will be discussed to help clinicians integrate these therapies into contemporary anterior segment care.

Course Learning Objectives

- Describe the mechanisms of action and clinical trial outcomes of new topical miotics for presbyopia, including pilocarpine 0.4% and aceclidine.
- Evaluate the role of neuromodulation in dry eye therapy, with emphasis on investigational TRPM8 agonists such as acoltremon.
- Identify appropriate patient selection criteria, contraindications, and risk factors when prescribing emerging anterior segment therapies.

Outline

I. Introduction

II. Presbyopia: New Miotic Therapies

A. Pilocarpine 0.4%

- Mechanism:
 - Cholinergic agonist → pupillary miosis → “pinhole effect” improves depth of focus
- Dosing:
 - Twice daily
 - approximately 2-3 hours apart
- Efficacy:
 - NEAR-1 and NEAR-2 trials showed significant improvement in DCNVA without loss of CDVA
- Duration:
 - Up to 8 hours of functional near vision
- Safety considerations:
 - Blurred vision and headaches most common
 - Rare but serious risk of retinal detachment (especially in high myopes or post-refractive surgery)

- Contraindicated in uveitis

B. Aceclidine (LNZ100)

- Unique mechanism:
 - Selective for iris sphincter > ciliary body (>20:1 ratio)
- Effect:
 - Achieves <2 mm pupil diameter with minimal myopic shift
- Phase 3 CLARITY trials:
 - Rapid onset (0.5 hr), long duration (10 hr)
 - **70–90% achieved ≥2–3 line gain in near VA**
 - Well tolerated, low discontinuation rate

III. Dry Eye Disease: New Mechanistic Targets

A. Acoltremon (AR-15512) – TRPM8 Agonist

- Mechanism:
 - Stimulates corneal cold receptors (TRPM8) → activates lacrimal functional unit → basal tear production
- COMET-2 and COMET-3 trials:
 - Improved Schirmer scores and SANDE symptom scores
 - Favorable ocular staining outcomes
- Safety:
 - Well tolerated
 - no serious ocular AEs reported
- Unmet need addressed:
 - Neuromodulation offers novel pathway beyond anti-inflammatory/anti-evaporative approaches

IV. Clinical Application and Patient Selection

- Presbyopia drops:
 - Good candidates:
 - Mild to moderate presbyopes
 - post-LASIK
 - pseudophakes seeking reduced dependence on readers
 - Careful screening for retinal risk
 - high myopia
 - lattice degeneration
 - prior RD
- Dry eye neuromodulators:
 - Appropriate for patients with inadequate response to conventional anti-inflammatory or tear substitutes
 - Consider role in patients with neural dysfunction of LFU

V. Other Therapeutic Considerations (Emerging/Adjunctive)

- Qualified Serum tears (ocular surface disease) – how is this different?
- Topical corticosteroids (e.g., clobetasol for inflammation/pain in specific scenarios)
- Pipeline updates and evolving drug classes

VI. Summary & Future Outlook

VII. Q&A / Discussion