Treatment Options for Myopia Management

In-Depth Exploration of Myopia Management Solutions: From Lenses to Pharmaceuticals

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1 hour
General Optometry
OD Education

Course Description:

Novel treatment and management devices for myopia progression are emerging every few months in the areas of glasses, contact lenses, pharmaceuticals, and photobiomodulation. This course describes new research on myopia progression. It also discusses latest contact lens and ophthalmic lens technology. We will present a summary on new pharmaceutical research and how to incorporate this information into clinical practice. We will discuss the controversies in red light therapy. Finally, we will describe the latest tools and devices used to monitor and diagnose myopia progression.

Learning objectives

1) To provide a brief introduction on the current state of myopia
2) To introduce current and new designs in contact lens technology
3) To briefly discuss current and new ophthalmic lens technology for myopia management.
4) To discuss latest research on pharmaceutical control including atropine, 7-methylxanthine and combination therapy
5) To discuss how red-light therapy can be used to treat myopia
6) How to treat the high risk pre-myope?
7) To introduce new diagnostic and management tools available to manage myopia

Course Outline

Provide brief summary of the current state of myopia and myopia management worldwide

a. Discuss new data on myopia and near work
b. Discuss new data on myopia and inflammation
c. Discuss the benefits of having so many devices accessible to us
d. How do we choose which device is best for each patient

Contact Lens Technology

1. Describe soft contact lenses that are on the market
    a. Provide a brief description of the designs and features that help with myopia control
    b. Efficacy reported for each design

2. What do we need in myopia control soft CL technology
    a. Toric
    b. Better distance vision

3. Describe new orthokeratology technology
    a. Toric designs
    b. New design software
    c. Scleral ortho k lenses

Ophthalmic Lens Technology

1. Introduction of current and new lens designs
    a. Design
    b. Current Research
    c. Efficacy to reduce axial length and refractive error

Pharmaceutical Control of Myopia

1. New Atropine 0.01% Studies
        a. PEDIG
            i. Key Findings
            ii. Duration
        b. CHAMP
            i. Key Findings
            ii. Duration
        c. APPLE
            i. Key Findings
            ii. Duration
        d. WA-ATOM
            i. Key Findings
            ii. Duration
        e. MOSAIC
            i. Key Findings
            ii. Duration

    2. LAMP study

a. Discuss 5-year data
b. How do we apply this to patient care

3. 0.03% atropine
    a. Discuss efficacy of 0.03%
    b. Any safety issues with this concentration
    c. What is the need for 0.03%

4. Weekly Dose of 1% atropine
    a. Efficacy of this treatment
    b. Is this a viable treatment clinically?
    c. Side effects to children

5. 7-methylxanthine
    a. Is this a viable treatment?

6. Combination atropine therapy
    a. What concentration should we use now?
    b. Will race affect the clinical decision-making
    c. How do we use atropine effectively in clinic

<u>Red Light Therapy</u>

1. What is red light therapy?
    a. Wavelengths
    b. Laser vs LED
    c. Effective or a hoax?

2. What is the mechanism of action for myopia control
    a. What do we know?

3. What are the risks?
    a. Rebound as reported in studies
    b. Reported side effects

<u>How to treat the high-risk premyope?</u>

1. Atropine
    a. What dosage?
    b. When do we start?
2. Spectacles
    a. How do we treat pre-myopes?
    b. What design would you choose?

Other Diagnostic and Management Tools

1. Choroidal Thickness (CT) and Retinal Activity (RA)
    a. Is CT a repeatable measure of myopia control

    b. How do early CT changes predict myopia control efficacy?

    c. Summarize what effects different myopia control treatments have on CT

        i. Effects on CT with myopia control glasses
        ii. Effects on CT with myopia control soft contact lenses and ortho-k lenses
        iii. Effects on Ct with various contcentrations of atropine
        iv.

2. Introduction of new tracking technology
    a. Discuss apps used to monitor AL and SRE and how they compare to age-related norms

3. What effect will AI have on myopia management
    a. Data accumulation
    b. Individualized myopia control
    c. More precise prognosis prediction
    d. Are there risks?