View Abstract

CONTROL ID: 4266319
SUBMISSION ROLE: Abstract Submission

AUTHORS

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Study Group: (none)

ABSTRACT

TITLE: Detection of premyopic and early myopic levels of refractive error in children using QuickSee wavefront autorefraction

ABSTRACT BODY:
Purpose: Myopia has a high prevalence. Children with hyperopia that is below age-normal have been shown to be at risk for development of myopia. Wavefront autorefraction has been shown to be effective in the detection of myopia, but the ability to detect low levels of hyperopia which may have applications for screening for pre-myopia is unknown. The purpose of this study is to investigate the ability of wavefront autorefraction (QuickSee [PlenOptika, QS]) to detect low hyperopia and low myopia which may have applications for screening for pre-myopia and early myopia.

Methods: Children ages 3 to 12 years presenting for comprehensive eye exams were enrolled. Noncycloplegic QS refraction was measured. Based on prior literature, levels of refractive error (RE) which have applications for detection of pre-myopia were defined as >-0.50 diopters (D) to <+0.75D in the most myopic meridian (in either eye) (based on cycloplegic retinoscopy). Myopia was defined as ≤ -0.50 D in the most myopic meridian based on cycloplegic retinoscopy. Ability of QS autorefraction to detect levels of refractive error consistent with 1) pre-myopia, 2) myopia, and 3) pre-myopia and myopia combined was summarized by area under the Receiver Operating Characteristic (ROC) curve (AUC). Because children with hyperopia > +2.00 D have low risk of becoming myopic, only children with RE >-0.50D to ≤ +2.00D were included in the ROC analysis for detecting children with pre-myopic levels of RE.

Results: Mean age was 8.15 (± 2.52) years (n=177). RE ranged from -9.25D to +8D sphere. 44 children had RE >-0.50D to <+0.75D. 99 children had RE >-0.50D to =<+2.00D. AUC for detection of levels of RE consistent with pre- and early-myopia was 0.73, AUC for detection of myopia ≤-0.50 D was 0.95, and detection of pre-myopic to myopic levels of RE was 0.88.

Conclusions: Wavefront autorefraction using QuickSee has good to high discriminatory power for detecting low hyperopia and low myopia which may have applications for screening for pre-myopia and early myopia, as well as myopia.

(No Image Selected)

DETAILS

PRESENTATION TYPE - PLEASE NOTE, IF YOU CHANGE YOUR PRESENTATION TYPE AFTER APPLYING FOR AN AWARD (BELOW), YOU MUST GO BACK AND RESELECT THE APPLY BUTTON.: #1 Poster, #2 Paper
CURRENT REVIEWING CODE: 2650 Myopia & refractive errors: Interventions and clinical trials

CURRENT SECTION/GROUP: Clinical/Epidemiologic Research
Clinical Trial Registration (Abstract): No
Other Registry Site (Abstract): (none)
Registration Number (Abstract): (none)
Date Trial was Registered (MM/DD/YYYY) (Abstract): (none)
Date Trial Began (MM/DD/YYYY) (Abstract): (none)
Grant Support (Abstract): No
Support Detail (Abstract): None

TRAVEL GRANTS and AWARDS APPLICATIONS
AWARDS: ARVO and ARVO Foundation Travel Grants|ARVO Foundation Early Career Clinician-Scientist Research Award

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