Study of refractive change induced by patient age group between 5 to 17.

Young FA, Leary GA, Baldwin WR, West DC, Box RA, Harris E, Johnson C. Comparison of emmetropia, myopia, and hyperopic as well as refractive state in pre-school children: a comparison of two methods of measuring refractive error, where accommodation is controlled by paralyzing the muscles that aid in focusing the eye.

In this study, we compared spherical refractive error results measured at baseline with or without non-cycloplegic accommodation control methods. Comparison was done between ST and MBDT, the mean difference was 1.66±1.44, CYCLO (2.02±1.48) and the total RE (0.16±1.77) was equal to 0.052. The result shows that there is no significant difference between MBDT and CYCLO compared to other two groups.

Comparison of Accommodation control techniques during subjective refraction.

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INTRODUCTION

Non-cycloplegic measurements using either autorefractometer or dry retinoscopy, have been shown to underestimate the hyperopic referred to as latent error; many studies have measured latent error and reports value ranging from 0.1 to 2.0. High latent errors have shown to be associated with higher levels of hyperopia and also vary according to the target and instrument design selected for the measurement of refractive error.

Different techniques of accommodation control in children can be used for measuring refractive error, which eliminates the side effect of accommodative convergence. Cycloplegic retinoscopy as a means of accommodation control in children. It can be used for measuring refractive error by temporarily paralyzing the muscles that aid in focusing the eye.

To check reliability of borish delayed refraction test and modified fogging technique to that of cycloplegic refraction

MATERIALS AND METHODS

A prospective Cross Sectional, observational based study

- Study Place: Rotary eye institute, Navsari, from September 2019 to February 2020
- Total of fifty four children (108 eyes) aged between 5 to 16 years. Myopic and hyperopic as well as ametropic eyes were selected based on inclusion criteria and agreement with consents. Subjective acceptance was initially done based on dry retinoscopy and auto-refractometer.

Over it Borish delayed test was performed to rule out overcorrected myopia or under corrected hyperopia and to control maximum accommodation. Followed by that NRA values were put over subjective acceptance and child was asked to read or look around in waiting area for half an hour. After that both acceptance and NRA values were removed and immediate objective refraction was done with retinoscopy. These two values were recorded. Post these method cyclopentolate(1%) eye drops were instilled. And after 45 minutes again objective refraction was performed. First two values and post cyclopentolate values were compared in all type of refractive status.

Inclusion criteria:

- Age group between 5 to 17.
- Emmetropia and Ametropia.
- Willing patient to participate.

Exclusion criteria:

- Age above 17 years.
- Patient having any ocular pathology.
- Patient having manifest squint

EXCLUSION CRITERIA:

- Having any ocular pathology.
- Patient having manifest squint

RESULTS

In overall 108 eyes of 54 patients were analysed. The mean difference for myopia it was ST (1.71±1.36), MBDT (1.66±1.44), CYCLO (2.02±1.48) and total RE was (1.79±1.42), for hypermetropia it was in ST (2.67±2.44), MBDT (2.13±2.02), CYCLO (2.31±1.6) and the total RE (0.16±2.06) respectively. Comparison was done between ST and MBDT, the mean difference was ±0.42 and the p value was <0.023. MBDT and CYCLO the mean difference was ±0.21 and the p value was <0.293. ST and CYCLO the mean difference ±0.21 and the p value was equal to 0.052. So, the result shows that there is no significant difference between MBDT and CYCLO compared to other two groups.

AIM

To check reliability of borish delayed refraction test and modified fogging technique to that of cycloplegic refraction

EMMETROPIA MYOPIA HYPERMETROPIA TOTAL

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DISCUSSION

All patient were examine with subjective refraction, modified borish delayed test, and cycloplegic refraction. In this study, it was found that the mean difference for emmetropia was (0.00) in all test group ST, MBDT, CYCLOPECIG. For myopia it was in ST (1.71±1.36), MBDT (1.66±1.44), CYCLO (2.02±1.48) and total RE was (1.79±1.42), for hypermetropia it was in ST (2.67±2.44), MBDT (2.13±2.02), CYCLO (2.31±1.6) and the total RE (0.16±2.06).

In study it was observed that comparison of all test with refractive error were 1. ST and MBDT the mean difference was (0.42) and the p value was <0.023. 2. ST and CYCLO the mean difference was ±0.21 and the p value was <0.293. 3. ST and CYCLO the mean difference ±0.21 and the p value was equal to 0.052. A similar study was done by shelly Hopkins et al on refraction in children: a comparison of two methodology of accommodation control. A significant interaction was demonstrated between measurement technique and accommodation control method (p=0.036), with significant difference in spherical power evident between accommodation control method for each of the measurement technique (p=0.05).

CONCLUSIONS

A modified borish delayed test can be applied to relive accommodation for patient through optical means and it can be the alternative technique with cycloplegic refraction as a means of accommodation control in children. It can eliminate the side effect of cycloplegic drug in paediatric age group.

REFERENCES


Abstract No: EHCWOP78

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