Therapy for Treatment of Amblyopia. Initial Evaluation of the Novel Eyetronix Flicker Glass

PLEASE NOTE: Data from this study will be presented that make consistent therapy progressively more difficult with while wearing a patch along with social, cosmetic, and comfort issues compliant. However compliance, particularly in older children, is

Patching is an effective therapy for amblyopia when patients are compliant. However compliance, particularly in older children, is difficult primarily due to the debilitating effects of decreased vision while wearing a patch along with social, cosmetic, and comfort issues that make consistent therapy progressively more difficult with increasing age.

Methods

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Results

Compliance

20 of 24 subjects were considered compliant and had only mild, and for the most part transient issues, symptoms, or concerns with the use of the Eyetronix Flicker Glass.

None of the subjects reported discomfort or inability to perform near activities while wearing the Eyetronix Flicker Glass, and there were no significant adverse effects reported.

Quality of Life

20 of the 24 subjects reported that they did not mind wearing the Eyetronix Flicker Glass, and 2 of the subjects who initially did mind wearing the EFG improved over the 12 weeks of wear.

20 of the 24 subjects parents reported no or only infrequent tension or conflict with their child over wearing the Eyetronix Flicker Glass.

18 of the 24 subjects reported no or only occasional headaches from the use of the Eyetronix Flicker Glass.

“Real World” Anecdotes

One 17 year old female field hockey player reported at her 6-week visit she suddenly noticed a much improved ability during practice to accurately bounce a ball on her field hockey stick than before. Previously, this had been a real problem for her. Global stereopsis improved from none to 125 sec. of arc (the maximum measurable on the Random Dot 2 test used in the study).

Several subjects who went to sleep-away summer camp mentioned that they had to keep their bunkmates from using the Eyetronix Flicker Glass, who often thought they were “really cool”, “Google Glasses”, and fun to wear. Adjacent is a letter from a summer camp mentioned that they had to keep their bunkmates from using the Eyetronix Flicker Glass.

Conclusions

All but 4 subjects were considered compliant with the use of their Eyetronix Flicker Glass. Most subjects and parents reported a high level of enthusiasm for the Eyetronix Flicker Glass daily use and had few and only transient issues with wear. Many asked to wear them longer per day and were reluctant to give them up at the conclusion of the study.

Compliance and quality of life are major confounding factors in the treatment of amblyopia and they generally get worse with age. An ATS/ PEIDG study (1) concluded that “For patients 13 to 17 years, . . . appears to be of little benefit if amblyopia was previously treated with patching.” A recent study (MOTUS)(2) using monitored patching methods concluded “compliance with patching treatment averages less than 50% . . .”

The excellent compliance and improved quality of life with the Eyetronix Flicker Glass therapy gives hope this novel technique of amblyopia treatment may significantly improve our overall ability to treat this very prevalent and significant disorder in children.

Visual outcome measures are reported in a related talk by Dr. Vera-Diaz titled: Initial Evaluation of the Novel Eyetronix Flicker Glass Therapy for Treatment of Amblyopia. Session #144 Presentation # 815 4:15PM Room S 230GH

References


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Therapy for Treatment of Amblyopia.

Eyetronix Flicker Glass (EFG)

Methods

Study Design:

- Open-label
- Multi-center (n=4) study
- 12 weeks treatment (1-2h/day for 6-7 days/week)
- Historical control (patching and spectacles)

Subjects: 24 children (10.8 ± 3.9 years; range 5 to 17); anisometropic amblyopic; unsuccessfully treated in the past

Inclusion Criteria:

1. Mild/moderate anisometropic amblyopia:
   - BCVA 0.2 logMAR or better in non-amblyopic eye
   - Amblyopic eye BCVA –0.2/–0.7 logMAR
   - Anisometropia >1.00DS or >1.50DC
2. Full-time best-correction >8 weeks prior to EFG
3. No amblyopia treatment 1 month prior

Eyetronix Flicker Glass:

- Spectacle frames with LCD lens/electronic shutter
- Accurate, rapid alternating occlusion rate
  - 7Hz
  - 50% cycle

Eyetronix Flicker Glass regimen:

- Daily (6-7 days/week)
- 1-2 hours/day
- Near vision tasks (open):
  - Reading
  - Homework
  - Computer
  - Video games

Outcome Measures:

- LogMAR VA (ETDRS procedure)
- Stereopsis (Random Dot 2)
- Fusion (Worth-4 dot with Bangerter foil filters)

Questionnaire: modified version of the Amblyopia Treatment Index was given to subjects and parents on each visit to assess compliance and quality of life related to wear.

Results cont’d

The mom of a 6 year old said: “I hope this study is 100% successful. My son would rather wear the flicker glasses instead of patching. My son does not feel embarrassed or discouraged about the flicker glasses as he does with patching. It has been a pleasure taking part in this study. My son feels so cool because he thought the flicker glasses were really awesome.”

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Eyetronix Flicker Glass (EFG)