Treatment of Accommodative Dysfunction in Children: Results from a Randomized Clinical Trial

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Purpose. To report the effectiveness of various forms of vision therapy/orthoptics in improving accommodative amplitude and facility in children with symptomatic convergence insufficiency (CI) and co-existing accommodative dysfunction.

Methods. In a randomized clinical trial, 221 children aged 9 to 17 years with symptomatic CI were assigned to one of four treatments. Of the enrolled children, 164 (74%) had accommodative dysfunction; 63 (29%) had a decreased amplitude of accommodation with respect to age, 43 (19%) had decreased accommodative facility, and 58 (26%) had both. Analysis of variance models were used to compare mean accommodative amplitude and accommodative facility for each treatment group after 4, 8, and 12 weeks of treatment.

Results. After 12 weeks of treatment, the increases in amplitude of accommodation [office-based vergence/accommodative therapy with home reinforcement group (OBVAT) 9.9 D, home-based computer vergence/accommodative therapy group (HBCVAT□) 6.7 D, and home-based pencil push-up therapy group (HBPP) 5.8 D] were significantly greater than in the office-based placebo therapy (OBPT) group (2.2 D) (p-values □0.010). Significant increases in accommodative facility were found in all groups (OBVAT: 9 cpm, HBCVAT□: 7 cpm, HBPP: 5 cpm, OBPT: 5.5 cpm); only the improvement in the OBVAT group was significantly greater than that found in the OBPT group (p □ 0.016). One year after completion of therapy, reoccurrence of decreased accommodative amplitude was present in only 12.5% and accommodative facility in only 11%.

Conclusions. Vision therapy/orthoptics is effective in improving accommodative amplitude and accommodative facility in school-aged children with symptomatic CI and accommodative dysfunction.