Randomized Clinical Trial of Treatments for Symptomatic Convergence Insufficiency in Children

Convergence Insufficiency Treatment Trial Study Group*
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Objective To compare home-based pencil push-ups (HBPP), home-based computer vergence/accommodative therapy and pencil push-ups (HBCVAT+), office-based vergence/accommodative therapy with home reinforcement (OBVAT), and office-based placebo therapy with home reinforcement (OBPT) as treatments for symptomatic convergence insufficiency.

Methods In a randomized clinical trial, 221 children aged 9 to 17 years with symptomatic convergence insufficiency were assigned to 1 of 4 treatments.

Main Outcome Measures Convergence Insufficiency Symptom Survey score after 12 weeks of treatment. Secondary outcomes were near point of convergence and positive fusional vergence at near.

Results After 12 weeks of treatment, the OBVAT group's mean Convergence Insufficiency Symptom Survey score (15.1) was statistically significantly lower than those of 21.3, 24.7, and 21.9 in the HBCVAT+, HBPP, and OBPT groups, respectively ($P < .001$). The OBVAT group also demonstrated a significantly improved near point of convergence and positive fusional vergence at near compared with the other groups ($P \leq .005$ for all comparisons). A successful or improved outcome was found in 73%, 43%, 33%, and 35% of patients in the OBVAT, HBPP, HBCVAT+, and OBPT groups, respectively.

Conclusions Twelve weeks of OBVAT results in a significantly greater improvement in symptoms and clinical measures of near point of convergence and positive fusional vergence and a greater percentage of patients reaching the predetermined criteria of success compared with HBPP, HBCVAT+, and OBPT.

Application to Clinical Practice Office-based vergence accommodative therapy is an effective treatment for children with symptomatic convergence insufficiency.