Home use of Binocular Dichoptic Video Content Device

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Purpose: To evaluate the Binovision™ home system efficacy as measured by improvement of visual acuity (VA) in the patient's amblyopic eye.

Methods: An open label prospective pilot-trial of amblyopic children aged 4-8 years, conducted at the pediatric ophthalmology unit, Tel-Aviv Medical Center between January 2014 to October 2015. Participants were assigned to the study or sham group for treatment with BinoVision™ for 8 or 12 weeks. Patients were instructed to watch animated TV shows and videos at home, using the BinoVision™ device, for 60 minutes, 6 days a week. The BinoVision™ program incorporates elements as different contrast and brightness levels for both eyes, weak eye tracking training by superimposed screen images, and weak eye flicker stimuli with alerting sound manipulations. Patients were followed at 4, 8, 12, 24 and 36 weeks.

Results: 27 children (14 boys, 13 girls) were recruited, 19 in treatment group and 8 in sham group. Median age was 5 years (range 4-8 years). Mean VA improved significantly in treatment group, from baseline to 12th week appointment in 0.26 logMAR lines. VA was proved to be significantly improved compared to baseline during all study and follow up appointments ($P<0.01$) with stabilization of VA after cessation of treatment. The sham group completed 4 weeks of sham protocol with no change in VA ($P=0.285$). The average compliance rate was 88% ±16% (50% to 100%) in treatment group.

Conclusions: This pilot trial on treatment of amblyopia for 12 weeks with the BinoVision™ home system demonstrated significant improvement in patients' VA.