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ATROPINE AND SPECTACLE LENS COMBINATION TREATMENT (ASPECT): 12-MONTH RESULTS OF A RANDOMISED CONTROLLED TRIAL FOR MYOPIA CONTROL

LONG TITLE: Atropine and Spectacle Lens Combination Treatment (ASPECT): 12-month results of a randomised controlled trial for myopia control using a combination of Defocus Incorporated Multiple Segment Lenses (DIMS) and 0.025% atropine

Aim: To evaluate and compare the efficacy of combination treatment using 0.025% atropine and DIMS lenses to 0.025% atropine and single vision (SV) lenses in slowing myopia progression in myopic children.

Methods: Randomised controlled trial conducted on children aged 4-16 years with myopia between -1.00 and -6.00D and astigmatism ≤2.00D. Children were randomly allocated in two groups: 0.025% atropine and SV lenses treatment group (group A) or 0.025% atropine and DIMS spectacle lenses treatment group (group B). Cycloplegic spherical equivalent refraction (SER) and axial length (AL) were measured at baseline, 6 and 12 months.

Results: 102 patients completed the 12-month follow-up: n=49 in group A, mean age 9.50 ± 2.78 years, and n=53 in group B, mean age 9.90 ± 2.47 years. At 12 months, mean AL±SD change was 0.18 ± 0.16 mm in group A and 0.07 ± 0.16 mm in group B (mean difference: 0.11, 95% CI: 0.05 to 0.17; p=<0.001). Mean SER ±SD progression was -0.19±0.42D and -0.09±0.35D in group A and B at 12 months, respectively (p=0.13). 39.6% of children in group B had no axial elongation over 12 months, compared to 12.2% of the children in group A (p=0.002).

Conclusions: Combination treatment with 0.025% atropine and DIMS spectacle lenses is more effective in controlling axial elongation than 0.025% atropine with SV lenses. Although not significant, SER differences between groups were lower in group B. These findings support a potential additive effect of the two treatments.

Keywords: Atropine; axial elongation; defocus incorporated multiple segments; DIMS; Myopia control.