PO 26

PREVENTION OF MYOPIA PROGRESSION WITH 0,05% TOPICAL ATROPINE: FIRST YEAR RESULTS IN A PORTUGUESE COHORT

Margarida Brízido[1], Florence Aerts[1], Filipa Ching[1], Ana Rita Azevedo[1], Ana C. Almeida[1]

([1]Hospital Beatriz Ângelo)

Background: Myopia has been an increasing worldwide health concern over the last decades, with half the global population predicted to be affected by 2050. Atropine, a nonselective muscarinic antagonist, has been studied widely as an option for myopia control. Latest data on this subject show that 0,05% atropine is the most beneficial concentration as assessed for overall myopia progression.

Purpose: Our study aimed to evaluate the efficacy and safety of low-concentration atropine eye drops at 0,05% in slowing the progression of myopia in a cohort of Portuguese children.

Materials and Methods: We performed a prospective non-randomized interventional study among young myopic children aged 4 to 16 years with myopia at least -1,00 diopter (D) and myopia progression ≥0,50D/year. Participants were prescribed 0,05% atropine eye drops once nightly to both eyes. Cycloplegic refraction, axial length (AL) and best-corrected visual acuity were measured at baseline and every 6 months thereafter.
The main efficacy outcome measures were change in spherical equivalent (SE) as measured by cycloplegic autorefraction and change in ocular AL as measured by optical biometry. The primary safety outcome measure was the occurrence of adverse events.

Results: A total of 45 children (90 eyes) were enrolled in the study. Of these, 24 have completed 12 months of follow-up, 11 have completed 6 months of follow-up and 5 have a follow-up of less than 6 months. The remaining 5 children have withdrawn from the study (dropout rate 11%).
Our analysis will focus on the 24 children (48 eyes) that have completed the first-year follow-up. Of these, 50% were female (12 children), with a mean age at the start of the treatment of 10,83 years (range 6-16). At baseline, mean (SD) SE was -5,91(±3,85)D and mean (SD) AL was 25,21(±1,45)mm.
After 1 year of treatment, mean (SD) SE was -6,09(±3,88)D with a mean (SD) SE change of -0,17(±0,51)D. Axial length increased to a mean (SD) of 25,33(±1,45)mm, revealing a mean (SD) increase of 0,12(±0,13)mm.
Regarding safety outcomes, only 1 patient reported adverse events possibly related to atropine administration (headaches). Other 4 patients withdrew from the study for difficulties to attend the hospital pharmacy monthly or to comply with the follow-up appointments.

Discussion: Our results reveal lower rates of myopia progression than previously described in large scale clinical trials, such as the LAMP study. Change in SE and AL over 1 year showed a strong negative correlation (correlation coefficient (r)=-0.68).
Patients from our sample were older (mean age at the start of the treatment of 10,83 years vs 8,45 years in LAMP1) and had higher grades of baseline myopia (mean baseline SE of -5,91D vs -3,98D, -3,93D and -4,49D, and mean baseline AL of 25,21mm vs 24,85mm, 24,88mm and 25,13mm, in LAMP1, LAMP2 and LAMP3, respectively), which might help to explain the differences found. Finally, the size of our sample might also have influenced the results.

Conclusions: Low-dose atropine has gained popularity for the treatment of myopic children, mainly based on studies with high percentages of Asian participants. Our study, despite its limitations, is the first real-world study that provides an analysis of the efficacy of 0,05% topical atropine in Portuguese children. Further evaluations, with longer follow-up periods and larger samples, are needed and will be performed to confirm these findings.