0.05 percent atropine eye drops result in lower incidence of myopia

February 14 2023, by Elana Gotkine

Nightly use of 0.05 percent atropine eye drops compared with placebo

results in a significantly lower incidence of myopia and a lower percentage of patients with fast myopic shift at two years among children aged 4 to 9 years without myopia at baseline, according to a study published in the Feb. 14 issue of the *Journal of the American Medical Association*.

Jason C. Yam, M.P.H., from The Chinese University of Hong Kong, and colleagues examined the efficacy of low concentration atropine eye drops for delaying onset of myopia in a randomized trial enrolling 474 nonmyopic children aged 4 through 9 years with cycloplegic spherical equivalent between +1.00 D to 0.00 D and astigmatism less than −1.00 D. Participants were randomly assigned to 0.05 percent atropine, 0.01 percent atropine, or placebo (160, 159, and 155 children, respectively) and had eye drops applied in both eyes once nightly over two years.

The researchers found that the two-year cumulative incidence of myopia was 28.4, 45.9, and 53.0 percent in the 0.05 percent atropine, 0.01 percent atropine, and placebo groups, respectively; at two years, the percentages of participants with fast myopic shift were 25.0, 45.1, and 53.9 percent, respectively. Two-year cumulative myopia incidence and percentage of patients with fast myopic shift were significantly lower for the 0.05 percent atropine group versus the placebo group (difference, 24.6 and 28.9 percent, respectively) and compared with the 0.01 percent atropine group (differences, 17.5 and 20.1 percent, respectively). No significant difference was seen for the 0.01 percent atropine and placebo groups.

"Further research is needed to replicate the findings, to understand whether this represents a delay or prevention of myopia, and to assess longer-term safety," the authors write.

Several authors have applied for a patent for 0.05 percent low-concentration atropine for delaying myopia onset.

More information: Jason C. Yam et al, Effect of Low-Concentration Atropine Eyedrops vs Placebo on Myopia Incidence in Children, *JAMA* (2023). DOI: 10.1001/jama.2022.24162

David C. Musch et al, Can We Prevent or Delay the Onset of Myopia?, *JAMA Ophthalmology* (2023). DOI: 10.1001/jamaophthalmol.2023.0446

David A. Berntsen et al, Delaying the Onset of Nearsightedness, *JAMA* (2023). DOI: 10.1001/jama.2022.24386