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World’s first study to prove myopia prevention in children by low-concentration atropine drops

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Myopia is a worldwide public health threat, with the highest prevalence in East Asia

The Chinese University of Hong Kong (CUHK)’s Faculty of Medicine (CU Medicine) conducted a randomised, placebo-controlled, double-masked trial of low-concentration atropine eyedrops to evaluate their effectiveness in preventing myopia.

Results show that among children aged four to nine years without myopia, compared with placebo, nightly use of low-concentration 0.05% atropine eyedrops resulted in a significant reduction in the incidence of myopia over two years, from 53.0% to 28.4% (a relative reduction of 46.4%). This is the first study in the world to prove that low-concentration atropine eyedrops can prevent the onset of myopia.

The CU Medicine research team recruited 474 nonmyopic children aged four to nine years at the CUHK Eye Centre to join the randomised, placebo-controlled, double-masked “Low-Concentration Atropine for Myopia Prevention (LAMP2)” trial from 2017 to 2020. The participants had at least one parent who is myopic.

“Our previous LAMP1 study proved that low-concentration atropine eyedrops can reduce myopia progression and a 0.05% concentration appeared to achieve the best balance between maximising efficacy and minimising side effects. The current LAMP2 study has further shown their potential in preventing myopia onset. As our younger generation becomes more reliant on digital devices and we are facing a surge in myopia in the future, our findings suggest low-concentration atropine eyedrops is an effective preventive strategy for myopia onset among high-risk children and reduce their risk of suffering from sight-threatening diseases”, said the researchers.

The team plans to launch a LAMP3 study to investigate the efficacy and safety of combining atropine eyedrops with red light therapy.