DOI: https://doi.org/10.57231/j.ao.2024.10.4.001

УДК: 616.314-089.28-008.1-07

EFFECTIVENESS OF LOW-CONCENTRATION ATROPINE EYE DROPS FOR MYOPIA PROGRESSION

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Abstract. Relevance. One of the biggest medical and social problems around the world is progressive myopia. The occurrence of myopia among the population of European countries and the United States is estimated at 20-50%, whereas in Asian countries it amounts to 60-90%. **Purpose of the study.** To evaluate changes in ocular biometrics in groups with myopic progression and receiving 0.01% atropine. **Material and methods.** In a clinical trial, 35 children (18 (51.4%) girls and 17 (48.6%) boys) aged 4–15 years with progressive myopia in both eyes were enrolled. 20 (57.2%) patients had one parent being myopic and 2 patients had (5.7%) both parents myopic. The Progressive Myopia was defined as a spherical equivalent (in diopters) and axial elongation, after 8 months, respectively. **Results.** Introduction of topical 0.01% atropine for one year, implemented in 4 courses of 1.5 months each was well tolerated and stabilizes the myopia in children with progressive myopia. **Conclusion.** This method of treatment is an effective and acceptable method of controlling myopia in children of pre-school and school age.

Key words: 0.01% atropine; axial length; progressive myopia; spherical equivalent.

For citation:

Aysel Galbinur Effectiveness of low-concentration atropine eye drops for myopia progression. Advanced ophthalmology. 2024; 10(4):8-9

ЭФФЕКТИВНОСТЬ ГЛАЗНЫХ КАПЕЛЬ С НИЗКОЙ КОНЦЕНТРАЦИЕЙ АТРОПИНА ПРИ ПРОГРЕССИРОВАНИИ БЛИЗОРУКОСТИ

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Аннотация. Актуальность. Одной из самых больших медицинских и социальных проблем во всем мире является прогрессирующая миопия. Распространенность миопии среди населения европейских стран и США оценивается в 20–50%, тогда как в странах Азии она составляет 60–90%. **Цель исследования.** Оценить изменения биометрических показателей глаза в группах с прогрессирующей миопией, получавших 0,01% атропин. **Материалы и методы**. В клиническом исследовании приняли участие 35 детей (18 (51,4%) девочек и 17 (48,6%) мальчиков) в возрасте от 4 до 15 лет с прогрессирующей миопией обоих глаз. У 20 (57,2%) пациентов один из родителей был миопом, а у 2 пациентов (5,7%) оба родителя были миопами. Прогрессирующая миопия определялась как сферический эквивалент (в диоптриях) и осевое удлинение через 8 месяцев соответственно. **Результаты и заключение.** 0,01% атропин вводился по одной капле в каждый глаз каждый вечер. Продолжительность курса составила 1,5 месяца, всего было проведено 4 курса. Этот метод лечения является эффективным и приемлемым методом борьбы с близорукостью у детей дошкольного и школьного возраста.

Ключевые слова: 0,01% атропин; аксиальная длина; прогрессирующая миопия; сферический эквивалент.

Для цитирования:

Айсель Галбинур Эффективность глазных капель с низкой концентрацией атропина при прогрессировании близорукости. Передовая офтальмология. 2024; 10(4):8-9

MIYOPI RIVOJLANISHIDA KONSENTRATSIYASI PAST BO'LGAN ATROPIN KO'Z TOMCHILARINING SAMARADORLIGI

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Annotatsiya. Dolzarbligi. Dunyo bo'ylab eng katta tibbiy va ijtimoiy muammolardan biri bu progressiv miyopiya. Yevropa mamlakatlari va AQSh aholisi orasida miyopiyaning tarqalishi 20-50%, Osiyo mamlakatlarida esa 60-90% ni tashkil qiladi. **Tadqiqot maqsadi.** 0,01% atropin bilan davolangan progressiv miyopiya bo'lgan guruhlarda ko'zning biometrik ko'rsatkichlaridagi o'zgarishlarni baholash. **Material va usullari.** Klinik tadqiqotda 4 yoshdan 15 yoshgacha bo'lgan 35 nafar bola (18 (51,4%) qiz va 17 (48,6%) o'g'il bolalar) ikkala ko'zida progressiv miyopiya bo'lgan. 20 (57,2%) bemorda ota-onalardan biri miyopiya, 2 bemorda (5,7%) ikkala ota-ona ham miyopiya bilan kasallangan edi. Progressiv miyopiya mos ravishda 8 oydan keyin sferik ekvivalent (diopterlarda) va cho'zilish sifatida aniqlandi. **Natijalar va xulosa.** 0,01% atropin har kuni kechqurun har bir ko'zga bir tomchi yuborildi. Kursning davomiyligi 1,5 oyni tashkil etdi, jami 4 ta kurs o'tka-

zildi. Ushbu davolash usuli maktabgacha va maktab yoshidagi bolalarda miyopiaga qarshi kurashning samarali va maqbul usuli hisoblanadi.

Kalit so'zlar: 0,01% atropin; eksenel uzunlik; progressiv miyopi; sferik ekvivalent.

Iqtibos uchun:

Isel Galbinur Miyopi rivojlanishida konsentratsiyasi past bo'lgan atropin ko'z tomchilarining samaradorligi. Ilg'or Oftalmologiya. 2024; 10(4):8-9

Background. One of the biggest medical and social problems around the world is progressive myopia. The occurrence of myopia among the population of European countries and the United States is estimated at 20-50%, whereas in Asian countries it amounts to 60-90%.

Purpose of the study. To evaluate changes in ocular biometrics in groups with myopic progression and receiving 0.01% atropine.

Material and methods. In a clinical trial, a total of 35 children (18 (51.4%) girls and 17 (48.6%) boys) aged 4–15 years with progressive myopia in both eyes were enrolled. 20 (57.2%) patients had one parent being myopic and 2 patients had (5.7%) both parents myopic. The Progressive Myopia was defined as a spherical equivalent (in diopters) and axial elongation, after 8 months, respectively. The participants were divided into 4 groups: Group I of the primary examination; Group II examined after 8 months without treatment; Group III examined 12 months after treatment; Group IV examined 6 months after cessation of treatment. 0,01% atropine was introduced as a single drop in each eye every evening. The duration of the course was 1.5 months and total 4 courses took place. The observation period was 12 months. All patients had a cylindrical power. Main Outcome: Outcome measures were axial length (AL), spherical equivalent (SE) during the 12 months.

Results. The rate of myopic progression significantly decreased in almost all children in group II. In this group, there was a statistically significant increase in the SE in 63 eyes (90%) by an average of 0.70 diopters (Pw=0.000) (Pw<0.001). The same dynamics were observed in the AL parameters with significantly greater results 0.35±0.09 mm (Pw=0.000) (Pw<0.001). In group III, the dynamics show stability in terms of both refractive SE and AL. On average, the difference between groups II and III in terms of SE (- (0.08) diopters) was not statistically significant (Pw=0.127) (Pw<0.050). 0.01% atropine also revealed a significant inhibitory effect on AL growth (0.04 mm) (Pw=0.034) (Pw<0.050). 6 months after stopping treatment (in group IV) with 0.01% atropine demonstrated stable values in SE. There were no significant differences between groups III and IV in terms of SE (- (0.01) diopters) (Pw = 0.012).

Conclusion. Introduction of topical 0.01% atropine for one year, implemented in 4 courses of 1.5 months each was well tolerated and stabilizes the myopia in children with progressive myopia. This method of treatment is an effective and acceptable method of controlling myopia in children of pre-school and school age.

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