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Improving Methods of Treatment of Accommodation Spasms in Children

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ABSTRACT

In this study, for the treatment of spasm of accommodation in the consultative polyclinic of the Bukhara branch of RICMIATM, the apparatus MACDEL-09 "Speckle" was used and its result was studied. Checked 30 children. Based on complaints and clinical and instrumental examination, a diagnosis of accommodation spasm was made. The children underwent standard examinations and were divided into groups, and on an outpatient basis they used irifrin 2.5% eye drops and laser stimulation methods. The results before and after treatment were analyzed and the effectiveness of the treatment was evaluated.

RELEVANCE

Spasm of accommodation is a vision disorder in which distance vision deteriorates and the eyes tire quickly when working at a close distance. This is due to the hypertonicity of the ciliary muscles. Normally, they should relax compared to distant objects, but with a spasm, they become tense. The diagnosis of the disease is made by an ophthalmologist. Accommodation is the ability of the eyes to see images at different distances. When we look at a long distance, discomfort appears - the ciliary muscles relax and the eyeball flattens. Due to this, we can see distant objects without strain. However, as the spasm progresses, the ciliary muscles continue to contract. Therefore, distant images are blurred. The diagnosis is made only by a doctor, because spasm of accommodation must be distinguished from true myopia, just like other eye diseases.

The generally accepted theory describing the work of accommodation is German von Helmholtz's theory, according to which the following changes occur in order to clearly see close objects: the ciliary muscles contract, the pupil narrows, the depth of the anterior chamber decreases, the pupil moves forward, the strength of the retinal ligaments weakens, the pupil anterior and posterior decreases the curvature of its surfaces, which leads to an increase in its refractive power [Duane's Ophthalmology Editor Tasman, William; Jaeger, Edward A, 2013 Ed]. The ciliary muscle of the eye is conventionally divided into 3 parts: a) the meridianally located Bryocke muscle, sometimes called the choroidal tensor. Its length is 7 mm, it joins in the region of the corneoscleral trabecula and the scleral spur, and then goes to the dentate line in the choroid. b) Radial muscle - Ivanova's muscle connects to the ciliated and non-ciliated flanges of the ciliary body from the protein membrane. During narrowing, pulling on the place of

attachment, the ciliary body changes the configuration of the crown and moves it towards the root of the colored veil. s) circular muscle - Müller's muscle is located in the upper part of the ciliary body in the form of a ring. When the upper part of the crown narrows, the protrusions of the ciliary body approach the equator of the gem. Muscles of three different directions in the ciliary body contract one by one and perform an accommodative function.

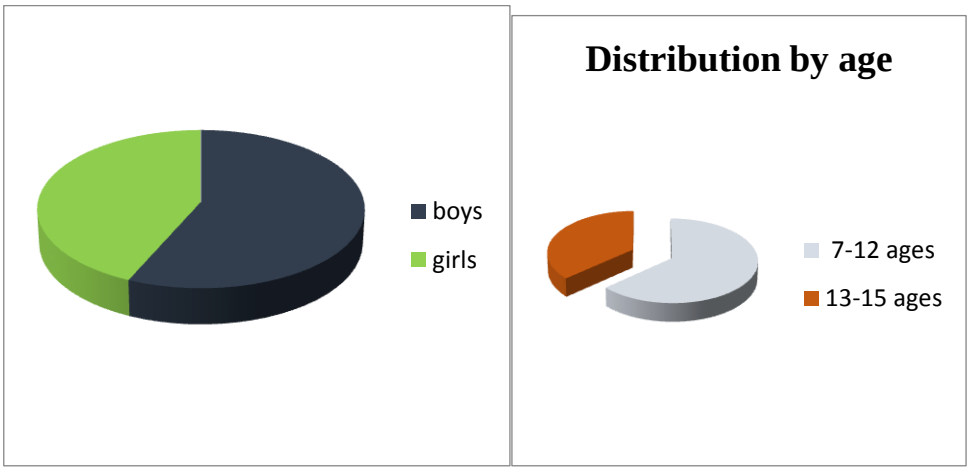
Spasm of accommodation is also called false myopia or tired eye syndrome[Avetisov E.S. Blizorukost. Moscow, "Meditsina" 1999. – C. 91-96.] The main reason for this is the spasm of accommodation as a result of impaired function of the ciliary muscles as a result of long-term eye strain. That is, watching TV for a long time at a close distance, working a lot on the computer and working with small details are the reasons for this. Often the disease is observed in children. Adults are less likely to get sick. The reasons for the development of the disease in children are as follows: eye strain; poorly lit workplace; incorrect position during reading; eye and head injuries; overwork caused by improper sleep and rest; stress; vitamin deficiency; disordered eating; infectious diseases; neurological diseases. Accommodative spasm in children should be treated quickly, otherwise there is a high risk of developing true myopia.

Accommodative spasm in adults can be affected by; improperly selected lenses, incorrect vision correction, exposure to ultraviolet radiation, hormonal disorders, neurological diseases. After about 40 years of age, everyone experiences changes in vision, which means that near vision decreases. To restore the clarity of images, the specialist prescribes glasses or contact lenses. If they are not worn, the likelihood of developing accommodation spasm increases. For the purpose of prevention, following simple recommendations will help prevent the disease: reduce eye strain, i.e. take a break while working at the computer; ensure good lighting in the workplace; performing exercises for the eyes; following a daily routine - rest and enough sleep; wear glasses or contact lenses if you have low vision; engage in physical activity and frequent outdoor walks; annual visit to the ophthalmologist.

Purpose: To study the result of using Irifrin eye drops and MAKDEL-09 "Spekl" device in the treatment of accommodation spasm in children.

Material and style.

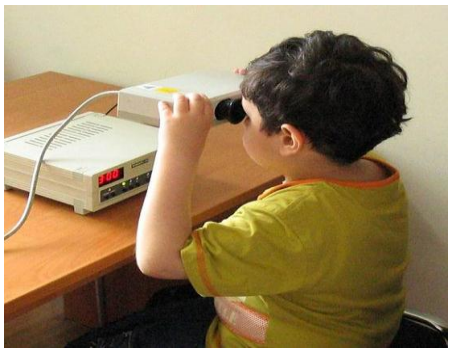
30 patients and children were examined in the hospital consultation polyclinic. The children's age ranged from 7 to 15 years, of which 17 (56%) were boys and 13 (44%) were girls. The age distribution was as follows. Children aged 7-12 made up 19 (63%), children aged 13-15 made up 11 (37%).



All children underwent an ophthalmological examination. The scope of the ophthalmological examination includes the determination of central visual acuity. At the same time, children underwent standard ophthalmological examinations (biomicroscopy, visiometry, refractometry,

pneumotonometry, A-Vscan). When the children were asked subjectively, a medical examination was conducted at school 6 months ago, and visual acuity was checked by a pediatric ophthalmologist, and emmetropic refraction was detected. Visual strain was detected in all children (working on the computer, reading a lot, using mobile phones during the educational process). Children came with the following complaints: a feeling of fatigue in the eyes, rapid fatigue, blurred vision, tearing and redness of the eyes. When visual acuity was checked on the Sevtseva table, a decrease from 0.1-0.2 to 0.5-0.6 was noted. Visual acuity was corrected to 1.0 when corrected with negative lenses (-0.5 to -1.5Dp). Average refractometry values are 1.25 ± 0.05Dp.

Children who applied received treatment methods (Sol Irifrin 2.5% and laser stimulation) in outpatient conditions. Irifrin 2.5% eye drops 1 drop 3 times a day for 7-14 days (the maximum effect starts after 20 minutes and lasts up to 6-9 hours) was prescribed. Laser stimulation using the MAKDEL-09 device took 5-10 minutes.



Results and their discussion.

In 9 children (30%) who underwent a course of treatment, visual acuity was equal to 0.1-0.2 before treatment, and after treatment it was equal to 0.4-0.5. In the remaining 21 (70.%), visual acuity was equal to 0.5-0.6 before treatment, and after 1 course of treatment, visual acuity was equal to 1.0, this effect was maintained for 8-9 months. Before treatment, visual acuity was reduced to 0.1-0.2 in some children, while in some it was noted that visual acuity decreased to 0.5-0.6. Visual acuity was corrected to 1.0 when corrected with negative lenses (-0.5 to -1.5Dp). Average refractometry values are 1.25 ± 0.05Dp. After treatment, visiometry, ophthalmoscopy, refractometry methods were repeated in children, the average value was 0.75 ± 0.05Dp, statistically significant difference ($p<0.0005$). This reading showed that some of the children's eyes (9) had mild myopia, i.e., myopic refraction, and some (21) had spasm, i.e., emmetropic refraction. The effectiveness of the treatment was maintained for 8-9 months. **The state of visual acuity**

Group	**Number of patients**		
	Eyes	**9 patients**	**21 patients**
Before treatment	OD	0,1(-)1,0Д 1,0	0,5(-)0,5Д 1,0
	OS	0,2(-)1,25Д 1,0	0,6(-)0,5Д 1,0
After treatment	OD	0,4(-)0,75Д 1,0	1,0
	OS	0,5(-)0,5Д 1,0	1,0

Summary

1. Laser stimulation using the MAKDEL-09 device together with Irifrin 2.5% eye drops in the treatment of accommodation spasm in outpatients at the clinic has achieved very positive results.

2. None of the patients who took part in the treatment had any side effects, all the patients who took part in the treatment had a positive result and the visual acuity improved significantly.
3. As a result of using the MAKDEL-09 device, the regenerating properties of eyeball tissues were further improved, the strength of the retina and blood vessel wall was further improved, and the visual functions were improved.

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