

**EXPERIMENTAL ANALYSIS OF LASER TREATMENT OF HYPERMETROPIA IN
ADOLESCENT CHILDREN**

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ABSTRACT: Patients with hypermetropic refraction have difficulties at all stages of their management: from the moment of correct assessment of refraction, determining the possibility of performing CR and choosing the optimal technology, planning correction parameters, technical aspects of its implementation to the long-term observation period, accompanied by a higher risk of regression of the achieved refractive result [1]. The widespread use of refractive surgery in children is associated with the presence of concomitant conditions such as anisometropia, amblyopia, high degrees of astigmatism with the impossibility of spectacle correction. But patients with hypermetropia without the above concomitant conditions, as a rule, are still operated on after the age of 18 years. A special place in this group is occupied by patients who did not use glasses correction until adolescence for various reasons - reluctance to wear glasses, previously unidentified hypermetropia. And with age, their need for higher visual acuity increases [2].

Key words: Farsightedness, hyperopia, strabismus, latent hyperopia.

ANNOTATION: Farsightedness, or scientifically hypermetropia, is a defect in visual perception during which the visibility of objects located both near and far is reduced. Farsightedness is present in all newborn children, which is due to the physiological characteristics of the optical system of the eyes and is a normal variant.

But in some cases, the pathology persists in the future; additional symptoms arise in the form of burning and rapid eye fatigue, headaches, decreased vision, and strabismus. Hypermetropia is a rather dangerous disease, because only very attentive parents can notice hidden symptoms, and only an ophthalmologist can make a final diagnosis. Timely treatment in children allows you to get rid of the pathology forever.

Hypermetropia is normally present in young children (1-3 years old), does not cause concern and does not require treatment. During the period of development between infancy and school age (up to 6-7 years), active growth occurs, the child's body weight increases, and internal organs and systems develop. Particularly active development occurs in the visual system - an exact ratio of the functionality of different parts of the eyeball is developed [4].

In children by the age of four, this defect in visual perception disappears. Experts believe that it is possible to detect the disease and distinguish it from the norm from the first months of life [5]. If farsightedness is detected in children above the age-normal value, treatment is required.

It is very important to begin therapy immediately after diagnosis, as school-age children are subject to increased eye strain. In the future, in the absence of eye correction, the symptoms of hypermetropia intensify.

Target. Consider the possibility of laser correction of hypermetropia without prior spectacle correction in patients under the age of 18 years.

Material and methods. Refractive excimer laser surgery was performed on 4 patients (7 eyes) aged 14 to 17 years. All patients had not previously used glasses or contact correction. Excimer laser correction was performed using the generally accepted technology of laser in situ keratomileusis (LASIK) using the M2 microkeratome from Moria and the Allegretto excimer laser unit. The operation was performed under local anesthesia (0.4% Solnocaini). A keratome with a 130 μ m vacuum ring was used. The diameter of the corneal valve was 8.5-9.5 mm. The optical zone was 6.0 mm. The volume of ablation was about 80-85% of the value of hypermetropia in conditions of cycloplegia and, on average, exceeded the maximum tolerated correction. The observation period was 6 months.

Result and observations: 1. Girl A., 15 years old. Diagnosis: high degree hypermetropia, low degree amblyopia in both eyes. 2 weeks after laser correction, visual acuity of 1.0 was achieved in both eyes.

2. Girl P., 17 years old. Diagnosis: moderate hypermetropia, complex hypermetropic astigmatism, mild amblyopia in both eyes. 2 weeks after laser correction, visual acuity of 0.9 was achieved in both eyes.

3. Boy A., 15 years old. Diagnosis: moderate hypermetropia in both eyes. Complex hypermetropic astigmatism, mild amblyopia in the left eye. The next day after surgery, visual acuity of 1.0 was achieved in the right eye. After 2 weeks - on the left eye.

4. Girl C, 14 years old. Diagnosis: mild hypermetropia in both eyes. Complex hypermetropic astigmatism, moderate amblyopia in the left eye. After 1 month After surgery, visual acuity of 1.0 was achieved in the left eye.

No complications were observed during the surgical interventions. In the postoperative period, all patients received antibacterial and anti-inflammatory therapy. No complications were identified in the postoperative period. The amount of laser ablation exceeding the maximum corrective lens level did not have a negative effect. In all cases, upon examination the day after surgery, an improvement in visual function was noted, regardless of the initial degree of hypermetropia and the degree of amblyopia. When examined after 2 weeks, the patients' visual acuity was within normal limits; after a month, stabilization of visual functions was noted. When examined after 6 months. There was no decrease in visual acuity (Fig.). All four patients achieved long-lasting, lasting results. These results indicate the possibility of using laser correction of hypermetropia without prior spectacle correction in patients under the age of 18 years.

Conclusion. If it is impossible to use optical correction means for one reason or another, thanks to the achievements of modern ophthalmology, there is currently no need to postpone refractive surgery until the patient reaches 18-20 years of age, as was previously accepted at the dawn of the development of refractive surgery. Improvement of equipment, tools and technologies, as well as positive experience gained from application [4]. The dynamics of visual acuity before and after LASIK surgical correction methods in adults, namely: low trauma, well-predicted results and ease of operation, have significantly lowered the age limit of the operated population and allowed us to increasingly use the Lasik method for the correction of hypermetropia in childhood and adolescence, since in many cases, refractive surgery is the only radical solution to the problem of amblyopia.

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