Adaptive bioresonance and multiresonance therapy in the rehabilitation of children and adolescents with congenital diseases of the retina and optic nerve

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More than 4,000 children are diagnosed with visual disabilities in the Russian Federation every year. The leading place in its structure is occupied by refractive errors (26.4% of the total number of disabled people); congenital cataracts (17.3%), as a result of which obscuration amblyopia develops; retinopathy of prematurity (ROP) and other retinal diseases (16.6%); dysplasia and optic nerve atrophy (PASN) (12%). Primary disability is highest in the age group of children from 4 to 7 years old [1]. Considering that disability is a multifactorial problem, as well as the presence of concomitant somatic, most often neurological, pathology in children of these groups, it is necessary to use complex treatment aimed not only at improving visual functions, but also at improving the body's adaptive capabilities to the social environment.

The experience of the department with the above groups of patients showed that it is advisable to use bioresonance therapy (BRT) to improve visual functions and social rehabilitation in this situation.

Materials and methods

We observed 70 people (112 eyes) with congenital atrophy of the optic nerve, 62 people (124 eyes) - with varying degrees of cicatricial or regressive ROP, and in the same patient the ROP level in two eyes could be different, 46 people (61 eyes) - with refractive and dysbinocular amblyopia. The age of children is from 5 months to 15 years.

BRT was prescribed on an outpatient basis, 2-3 times a week, a total of 8-10 procedures, on an apparatus for adaptive bioresonance therapy using BAP and BAZ "IMEDIS-BRT-A". Multiresonance therapy was carried out on the apparatus "MINI-EXPERT-DT" using specific fixed frequencies taken from the databases of R. Voll, P. Schmidt, R. Rife and affecting the organ of vision. The intensity of the impact did not exceed 50. The session lasted up to 40 minutes. Energy-informational impact was recorded during the session on homeopathic grits and on solutions (Taufon 4%, Emoxipin 1%, Balarpan, Semax 0.1%). Acceptance of crumbs and instillation of drops were carried out after completion of the course of treatment as maintenance therapy. In addition, targeted programs of injection therapy with the frequencies of brain rhythms were used [2, 3, 4].

Evaluation of the effectiveness of treatment was carried out immediately after treatment, as well as 2 and 6 months after its completion according to the data of visometry, computer perimetry, electrophysiological studies (EPI), a number of patients underwent Doppler ultrasonography of the vessels of the brain and eye. In schoolchildren, given that the main visual work is performed by them at a finite distance, ophthalmoergonomics methods were used to study the results of treatment, assessing visual work at close range [5–9]. Maximum reading speed (MSC), bandwidth (PS), visual productivity (RF), quality of visual perception (CV) were investigated according to "Test cards". Among the ergonomic tests, methods were selected that are easy to understand and do not require much time.

Treatment results

In patients with congenital PAD after treatment, an increase in visual acuity was noted by 83 (74%) eyes by 0.09 ± 0.02. In some cases, the increase in visual acuity was 0.2–0.4. Of the 25 examined, 19 showed an increase in the photosensitivity of the retina and optic nerve according to the data of computer perimetry by an average of 34%, and according to the EPI data, 14 people (25 eyes) showed an increase in the amplitude and a decrease in the latency of the P100 VEP component per flash.

In patients with grade 1–3 PH after BRT in the eyes, increased visual acuity

was noted in 13 (52%) eyes from 0.06 to 0.125.

Electrophysiological studies were performed in 19 patients (38 eyes) with a pH of 1-3 degrees. The analysis of the conducted EPI showed that in 10 people (20 eyes) there was an increase in the amplitude and a decrease in the latency of the P100 component of the VEP to a flash. In ¼ of the examined patients, the indices of the total ERG improved.

BRT was the method of choice for stimulating visual functions in patients with 4 and 5 degrees of pH, when stimulation with intense physical factors (transcutaneous electrical stimulation, electrophoresis, etc.) is contraindicated. The use of BRT made it possible to increase the residual vision in patients with grade 4 pH from 0.01 to 0.05 in 4 eyes (66.6%), and in patients with grade 5 pH, to preserve light perception and correct light projection. There were no dynamics from the ERG and fundus at grade 5.

The dynamics of visual functions in patients with amblyopia was assessed according to visometry data and was positive in 49 (80.3%) eyes.

When performing Doppler sonography, all subjects showed an improvement in blood flow in the vessels of the brain and in the system of the posterior long and short ciliary arteries.

It should be noted the persistence of the results obtained. When repeated studies 2 and 6 months after the end of the course of treatment, the data of visometry, computer perimetry, Doppler ultrasonography remained the same as immediately after the course of treatment, and in 70% of the examined patients there was a phenomenon of aftereffect (improvement of visual functions within 2-3 months after the course therapy).

To conduct ergonomic tests, 45 people (90 eyes) were selected who did not have mental and chronic somatic diseases. The study took into account the state of visual functions, the accommodative apparatus of the eye, the degree of refractive disorders and the nature of eye pathology. The studies were carried out before and after treatment.

The data are presented in table. 1.

Table 1

Dynamics of ergonomic indicators after the BRT course
(all indicators are statistically significant, p = 0.005)

Ophthalmopathology	Optic nerve atrophy (M ± σ ± m)		Amblyopia (M ± σ ± m)	
	Before treatment	After treatment	Before treatment	After treatment
MSCH (zn / min.)	221 ± 41.3	275 ± 47.2	537 ± 36.1	664 ± 46.5
Degree of change	↑ 24.4%		↑ 23.6%	
KChSM, (Hz) on red stimulus	28.8 ± 1.5	32.8 ± 1.8	38.7 ± 1.39	42.9 ± 1.16
Degree of change	↑ 13.9%		↑ 11.1%	
PS (zn / sec.)	3.02 ± 0.32	3.36 ± 0.21	3.74 ± 0.21	4.20 ± 0.29
Degree of change	↑ 11.6%		↑ 12.3%	
Salary (conventional units)	2.57 ± 0.43	3.05 ± 0.51	3.30 ± 0.31	3.91 ± 0.61
Degree of change	↑ 18.7%		↑ 18.5%	
KZV (%)	85.1	90.8	88.2	93.1

conclusions

The use of bioresonance therapy is advisable in the rehabilitation of children and adolescents with congenital diseases of the retina and optic nerve. It is often the method of choice in cases with severe ocular pathology and in the presence of contraindications to the use of other methods of treatment. It helps to improve visual functions, improve hemodynamics and social rehabilitation of patients.

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T.A. Malinovskaya, A.V. Tarakanovsky, L.O. Bolotova, A.N. Ivanov, T.S. Egorova Adaptive bioresonance and multiresonance therapy in the rehabilitation of children and adolescents with congenital diseases of the retina and optic nerve // - M .: "IMEDIS", 2014, v.1 - P.246-251

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