

Eye Disorders

Vestn Oftalmol. 2000 Jul-Aug;116(4):3-5.

[Differentiated approaches to the treatment of nonstabilized primary open-angle glaucoma with normalized intraocular pressure considering its pathogenic features]

[Article in Russian]

[Egorov VV](#), [Sorokin EL](#), [Smoliakova GP](#).

Clinical efficiency of dedystrophic treatments for nonstabilized primary open-angle glaucoma (POAG) in the presence of normalized intraocular pressure is compared in 168 patients (246 eyes). In one group of patients ischemic angiopathy and hyperreactivity of optic vessel adrenoreceptors associated with hypokinetic central hemodynamics and constitutional metabolic status of the organism was corrected by cinnarisin and riboxin. Patients with predominating congestive angiopathy symptoms, hyper- or eukinetic circulation and "slow" acetylation were treated by pantothenic acid, endotelon, and hyperbaric oxygenation. In both groups epithalamine, eiconol, and magnetic laser therapy were used, if indicated. This helped stabilize the process in 91% patients with initial POAG, in 87.5% with well-developed condition vs. 66.1% and 38.2% patients treated by traditional therapy (period of observation 3 years).

Vestn Oftalmol. 2002 May-Jun;118(3):15-7.

[Laser magnetotherapy after cataract extraction with implantation of intraocular lens]

[Article in Russian]

[Maksimov VIu](#), [Zakharova NV](#), [Maksimova IS](#), [Golushkov GA](#), [Evseev SIu](#).

Effects of low-intensive laser and alternating magnetic field on the course of the postoperative period were studied in patients with exudative reaction after extracapsular cataract extraction with implantation of intraocular lens (IOL). The results are analyzed for 148 eyes with early exudative reaction after IOL implantation (136 patients aged 42-75 years). The patients were observed for up to 6 months. The treatment efficiency was evaluated by the clinical picture of inflammatory reaction, visual acuity, and results of biochemical analysis of the lacrimal fluid (the ratio of lipid peroxidation products to

antioxidants in cell membrane). The course of the postoperative period was more benign and recovery sooner in patients of the main group in comparison with the control.

Eur J Ophthalmol. 1998 Oct-Dec;8(4):253-7.

The effect of pulsed electromagnetic field on patients with endocrine ophthalmopathy.

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PURPOSE: To evaluate eye signs, proptosis and ocular movements in patients with endocrine ophthalmopathy under the influence of pulsed electromagnetic field therapy. **METHODS:** We examined 14 patients (9 women, 5 men) with endocrine ophthalmopathy and evaluated eye signs, proptosis and ocular movements before and after the course of pulsed electromagnetic field therapy, and 12 controls. Their age ranged from 29 to 57 years. Visual sensitivity was investigated with a static automatic perimeter (Allergan Humphrey Field Analyzer). The score was calculated by rating the severity of involvement of soft tissue, proptosis, extraocular movements, corneal state and optic nerve function on a scale from 0 to 3. The pulsed electromagnetic field procedures were carried out with the help of electromagnetic spectacles. **RESULTS:** Pulsed electromagnetic field therapy reduced the score for soft tissue and proptosis in patients who suffered from endocrine ophthalmopathy. There was fall in the mean score for ocular movements, corneal and optic nerve function but it did not reach significance after treatment. Electromagnetic field therapy has no useful effect on visual signs and eye movements in two patients who had had the illness more than two years. **CONCLUSIONS:** Localised pulsed electromagnetic field procedures can be recommended, together with other methods of conservative treatment of endocrine ophthalmopathy.

Int J Neurosci. 1998 Apr;93(3-4):239-50.

Treatment with AC pulsed electromagnetic fields normalizes the latency of the visual evoked response in a multiple sclerosis patient with optic atrophy.

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Visual evoked response (VER) studies have been utilized as supportive information for the diagnosis of multiple sclerosis (MS) and may be useful in objectively monitoring the effects of various therapeutic modalities. Delayed latency of the VER, which reflects slowed impulse transmission in the optic pathways, is the most characteristic abnormality associated with the disease. Brief transcranial applications of AC pulsed electromagnetic fields (EMFs) in the picotesla flux density are efficacious in the symptomatic treatment of MS and may also reestablish impulse transmission in the optic pathways. A 36 year old man developed an attack of right sided optic neuritis at the age of 30. On presentation he had blurring of vision with reduced acuity on the right and fundoscopic examination revealed pallor of the optic disc. A checkerboard pattern reversal VER showed a delayed latency to right eye stimulation (P100 = 132 ms; normal range: 95-115 ms). After he received two successive applications of AC pulsed EMFs of 7.5 picotesla flux density each of 20 minutes duration administered transcranially, there was a dramatic improvement in vision and the VER latency reverted to normal (P100= 107 ms). The rapid improvement in vision coupled with the normalization of the VER latency despite the presence of optic atrophy, which reflects chronic demyelination of the optic nerve, cannot be explained on the basis of partial or full reformation of myelin. It is proposed that in MS synaptic neurotransmitter deficiency is associated with the visual impairment and delayed VER latency following optic neuritis and that the recovery of the VER latency by treatment with pulsed EMFs is related to enhancement of synaptic neurotransmitter functions in the retina and central optic pathways. Recovery of the VER latency in MS patients may have important implications with respect to the treatment of visual impairment and prevention of visual loss. Specifically, repeated pulsed applications of EMFs may maintain impulse transmission in the optic nerve and thus potentially sustain its viability.

Vestn Oftalmol. 2005 Jan-Feb;121(1):35-7.

[Quantum therapy and the composition of the moister of the eye anterior chamber (an experimental study)]

[Article in Russian]

[Pavliuk Elu](#), [Sherkhoeva DTs](#), [Pavliuk AIu](#), [Khristoforov VN](#).

We examined 12 rabbits, 6 of whom (12 eyes) were exposed to magneto-infrared laser radiation (MILR) and another 6 (12 eyes) were controls. The parameters of pulse and continuous infrared LED radiation were as follows: wavelength--860 nm, pulse capacity--2 W, mean radiation capacity--10 mW, magnetic field strength--up to 17 mTl. A study of the moister of the anterior chamber showed a MILR-induced activated metabolism, i.e. a better acid-base balance (ABB), more intense oxygenation in the ocular tissues and decreased acidosis. Higher concentrations of buffer bases (ABEe and SBEc) cause shifts in ABB towards metabolic alkalosis. A lower concentration of glucose denotes intensified processes related with its utilization. A lack of changes in the quantity of salts in the moister of the anterior chamber rules out the possibility of that the content of

glucose would go down due to its dissolution with a big volume of newly produced moisture. A lack of an increase in the concentration of whole protein, as observed after MILR, can be regarded as indirect evidence to absence of any adverse effect on the vascular wall.

Oftalmol Zh. 1990;(3):154-7.

[The effect of a pulsed electromagnetic field on the hemodynamics of eyes with glaucoma]

[Article in Russian]

[Tsisel'skii IuV, Kashintseva LT, Skrinnik AV.](#)

The influence of pulse electromagnetic field (PEMF) on hemodynamics of the eye in open-angle glaucoma has been studied by means of a method and a device proposed at the Filatov Institute. The PEMF characteristics are: impulse frequency--50 Hz, exposition--0,02 sec., impulse shape--square, rate of impulse rise--4.10(4) c rate of magnetic induction rise--2.10(4) mT/c, amplitude value of magnetic induction at the impulse height--9.0--8.5 mT, duration of the procedure--7 min., a course--10 sessions. Observations over 150 patients (283 eyes) with latent, initial and advanced glaucoma have shown a positive influence of PEMF on hemodynamics of a glaucomatous eye: a rise of rheographic coefficient and relative volume pulse in 87,99 and 81,63%, respectively. The degree of the rise and restoration frequency of rheographic values of the glaucomatous eye under the influence of PEMF to the age norm was more expressed at initial stages of the glaucomatous process (latent and initial glaucoma).

Vestn Oftalmol. 1996 Jan-Mar;112(1):6-8.

[Possibilities of magnetotherapy in stabilization of visual function in patients with glaucoma]

[Article in Russian]

[Bisvas Shutanto Kumar, Listopadova NA.](#)

Courses of magnetotherapy (MT) using ATOS device with 33 mT magnetic field induction were administered to 31 patients (43 eyes) with primary open-angle glaucoma with compensated intraocular pressure. The operation mode was intermittent, with 1.0 to 1.5 Hz field rotation frequency by 6 radii. The procedure is administered to a patient in a sitting posture with magnetic inductor held before the eye. The duration of a session is 10 min, a course consists of 10 sessions. Untreated eyes (n = 15) of the same patients were examined for control. The patients were examined before and 4 to 5 months after MT course. Vision acuity improved by 0.16 diopters, on an average, in 29 eyes (96.7%) out of 30 with vision acuity below 1.0 before treatment. Visocontrastometry was carried out

using Visokontrastometer-DT device with spatial frequency range from 0.4 to 19 cycle/degree (12 frequencies) and 125 x 125 monitor. The orientation of lattices was horizontal and vertical. The contrasts ranged from 0.03 to 0.9 (12 levels). MT brought about an improvement of spatial contrast sensitivity by at least 7 values of 12 levels in 22 (84.6%) out of 26 eyes and was unchanged in 4 eyes. Visual field was examined using Humphry automated analyzer. A 120-point threshold test was used. After a course of MT, visual field deficit decreased by at least 10% in 31 (72%) out of 43 eyes, increased in 3, and was unchanged in 9 eyes; on an average, visual field deficit decreased by 22.4% vs. the initial value. After 4 to 5 months the changes in the vision acuity and visual field deficit were negligible. In controls these parameters did not appreciably change over the entire follow-up period.

Rev Environ Health. 1994 Apr-Jun;10(2):127-34.

Pulsed magnetotherapy in Czechoslovakia--a review.

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Pulsed magnetotherapy has been used in Czechoslovakia for more than one decade. It has been proved that this type of physical therapy is very efficient mainly in rheumatic diseases, in paediatrics (sinusitis, enuresis), and in balneological care of patients suffering from ischaemic disorders of lower extremities. Promising results have also been obtained in neurological diseases (multiple sclerosis, spastic conditions) and in ophthalmology, in degenerative diseases of the retina.

Vestn Oftalmol. 1993 Jul-Sep;109(4):16-8.

[A new method for treating chronic blepharitis using magnetic compounds and an alternating magnetic field]

[Article in Russian]

[Machekhin VA](#), [Sheludchenko VM](#), [Iablokova NV](#), [Zvegintseva GB](#), [Kapranova NE](#).

Discusses a new method of clinical use of alternating magnetic field from 0.1 to 0.25 T and of a magnetic ointment composition with reduced iron powder in patients with chronic blepharitis. Such treatment was found fairly effective, reducing the rehabilitation periods 2-3-fold and giving a good clinical effect (41-87%).

Vestn Oftalmol. 1990 Sep-Oct;106(5):54-7.

[Effectiveness of magnetotherapy in optic nerve atrophy. A preliminary study]

[Article in Russian]

[Zobina LV](#), [Orlovskaia LS](#), [Sokov SL](#), [Sabaeva GF](#), [Konde LA](#), [Iakovlev AA](#).

Magnetotherapy effects on visual functions (vision acuity and field), on retinal bioelectric activity, on conductive vision system, and on intraocular circulation were studied in 88 patients (160 eyes) with optic nerve atrophy. A Soviet Polyus-1 low-frequency magnetotherapy apparatus was employed with magnetic induction of about 10 mT, exposure 7-10 min, 10-15 sessions per course. Vision acuity of patients with its low (below 0.04 diopters) values improved in 50 percent of cases. The number of patients with vision acuity of 0.2 diopters has increased from 46 before treatment to 75. Magnetotherapy improved ocular hemodynamics in patients with optic nerve atrophy, it reduced the time of stimulation conduction along the vision routes and stimulated the retinal ganglia cells. The maximal effect was achieved after 10 magnetotherapy sessions. A repeated course carried out in 6-8 months promoted a stabilization of the process.

Antibiotiki. 1982 Oct;27(10):774-5.

[Action of gentamycin against a background of magnetotherapy of the anterior chamber in a traumatic infected erosion of the cornea]

[Article in Russian]

[Verzin AA](#).

Fifteen patients with surface infections of the cornea due to a foreign body in one eye were treated with magnetophoresis and gentamicin before and after removal of the foreign bodies. The lower eyelid was turned back and a cotton tampon impregnated with 1 ml of a 0.3 per cent aqueous solution of gentamicin was applied. After that the tube of the alternating magneto was placed before the eyelids. The magnetic field (50 oersted, 50 Hz) was applied for 9 minutes. Such a treatment promoted suppression of the eye inflammatory reaction and accelerated corneal epithelization.