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Research Article

PAIN SYNDROME IN REFRACTORY GLAUCOMA AND POSSIBILITIES OF ITS QUANTIFICATION BY VISUAL-ANALOG SCALE

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ABSTRACT

The Visual Analog Scale (VAS) is a validated subjective measure of acute and chronic pain. Scores are recorded by making a handwritten mark on a 10-cm line that represents a continuum between "no pain" and "most severe pain.

KEYWORDS

Refractory glaucoma, micropulse transscleral cyclophotocoagulation.

INTRODUCTION

Terminal glaucoma of various origins is often accompanied by chronically ongoing pain that cannot be treated by traditional therapies. The peculiarity of this variant of the disease is that it most often occurs in elderly people who suffer from concomitant severe diseases, which makes it impossible to perform traditional operations used in glaucoma, or these operations have exhausted their possibilities. Various medical and surgical methods are used to manage the pain. In order to be more objective in evaluating the success of the ongoing treatment, the visual analogue scale proposed by Huskisson E. C., 1974.

Purpose. To study the pain syndrome in refractory glaucoma and the possibility of its quantitative assessment on a visual analogue scale.

Materials and methods. The analysis of the pain syndrome in 32 patients with refractory painful

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glaucoma who treated by the method of micro pulse transscleral cyclophotocoagulation (MTSCFC). For the procedure, a diode laser with a wavelength of 810 nm was used in the micro pulse mode (Subcyclio method). The laser parameters recommended by the manufacturer were used: power 2000 mW, duty cycle 31.3%. Laser radiation was delivered by contact using a probe at a distance of 3 mm from the limbus. All patients underwent a thorough general clinical and ophthalmological examination prior to treatment. The severity of the pain syndrome was conditionally assessed, based on the general condition of the patient, the intensity of complaints. Visual acuity was determined by Snellen optotypes, the anterior part of the eye was examined with a standard slit lamp, gonoioscopy was performed with a three-mirror Goldman lens. The value of intraocular pressure was also determined using a slit lamp according to Goldman. The state of the anterior eye was additionally studied using the method of ultrasonic biomicroscopy (UBM) repeatedly in the period from 12 to 50 weeks. All patients underwent a thorough general clinical and ophthalmological examination prior to treatment. Visual acuity was determined with Snellen optotypes, the anterior part of the eye was examined with a standard slit lamp, gonioscopy was performed with a three-mirror Goldman lens. Intraocular pressure was also determined using a Goldman slit lamp as well as a Maklakov tonometer. The state of the anterior eye was additionally studied using ultrasound biomicroscopy (UBM). The degree of pain syndrome severity was estimated conditionally, based on the general state of a patient, intensity of the complaints, ability to work, presence or absence of sleep, intensity of accompanying headaches. Thus, a severe degree of pain syndrome was estimated by scores from 7 to 10 and included a constant nagging pain in the eye, constant headache, insomnia, heaviness in the orbit and the corresponding part of the head, and complete absence of any ability to work. It is noteworthy that traditional analgesic drugs, more often from the group of nonsteroidal anti-inflammatory drugs (NSAIDs), helped only slightly and for a short time, combined with the maximum subjectively tolerable hypotensive regimen.

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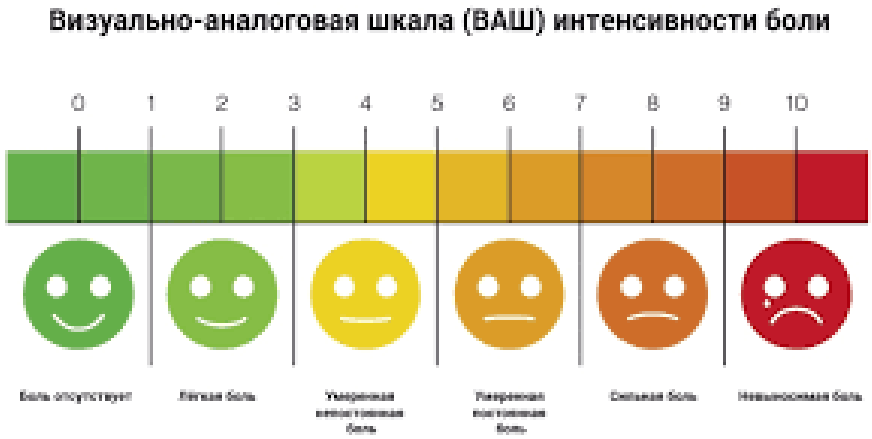

Fig.1 Visual-Analog Pain Intensity Scale

Moderately severe pain syndrome (4 to 7) included constant nagging pain in the eye and heaviness in the orbit, periodically aggravated by headaches, occasional insomnia, decreased interest in current events, and depressed emotional background.

Mild pain syndrome (less than 4) included pain in the eye periodically relieved by NSAIDs and hypotensive drugs, heaviness in the orbit, and occasional sleep disturbances. Patients could hardly perform their usual functions at work and at home. The main data on the dynamics of pain syndrome in the eye under the effect of MTCF are shown in Table 1.

Table 1.

Dynamics of basic clinical parameters in patients after subcyclio MTCT at different times

Clinical Indicator / Time of Observation	Prior to the MTFC	First day	First week	Weeks 2-5	Weeks 5-10	3 месяца – 1 год
Ophthalmotonus value (mm Hg)	45,0±4.4	37,5±2.9	30,1±1,7	24,2±4,6	22,7±3,1	23.3±1.9
Pain syndrome:	32 (100%)	-	-	-	-	-

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Severely pronounced	-	25-78,1%	27-86,4%	-	-	-
(7-10 б.)	-	7 -21,9 %	5 (13,6%)	25-78 %	22(68,7%)	17(53,1%)
Moderately expressed (4-7 ppm)	-	-	-	7 (22 %)	10(31,3%)	15(46,9%)
Mild	Expressed In all 32 eyes 32/0/0	25/7/0*	17/10/5	10/5/7	7/15/10	5/7/20
(less than 4 points)	1,1±0.1	2.1±0.2	2.3±0.1	2,7±0.2	2.9±0.3	3.0±0.4

The dynamics of pain syndrome signs expression was observed after hypotensive laser surgery - MTCF subcyclio.

Compensation or significant decrease of pain syndrome usually occurs within the first day. So, if before the treatment intolerable pains (7-10 points) affected almost all patients (n=32), then already during the first week of the postoperative period, 27 patients noticed only moderate pain (4-7 points), and seven of them - weak pain (less than 4 points). The cause of these moderate pains could be postoperative iridocyclitis. In later periods, there was a tendency for the intensity of pain syndrome to decrease. So, at 5-10 weeks of follow-up a weakly expressed painfulness (+) was preserved in 22 eyes, and 10 patients had no pains at all. It should be noted that nonsteroidal anti-inflammatory drugs were used to relieve postoperative iridocyclitis.

To confirm the revealed tendencies in the dynamics of pain syndrome we brought dynamic changes of the anterior chamber depth determined by ultrasound biomicroscopy. The main advantage of this technique is a possibility to estimate quantitatively the most important parameters of anterior chamber, such as anterior chamber depth, degree of ciliary body atrophy (its thickness) even in those eyes where destructive changes of anterior chamber do not allow to visualize them gonioscopically and biomicroscopically. Ultrasound biomicroscopy (UBM) was performed on Sonomed Escalon VuMax device (USA) by standard immersion technique in upper and lower meridians during 11-13 hours and from 17-19 hours (5 measurements were taken in each sector) with the probe being placed parallel and perpendicular to the iridociliary zone structures under study. The main data on anterior chamber depth dynamics are shown in

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Table 1. The table shows a gradual restoration of the anterior chamber depth.

CONCLUSION

The visual analogue scale proved to be a method of objective estimation of pain syndrome intensity in patients with refractory glaucoma and can be used to estimate pain intensity in such patients.

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