

## CLINICAL AND FUNCTIONAL INDICATORS OF THE ORGAN OF VISION IN PATIENTS STUDIED

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**Abstract.** *The results of the analysis of the most common ophthalmological subjective complaints of patients are presented in Graph 3.2. The majority of patients in main group 2 (61.4%) complained of a persistent decrease in visual acuity. This figure turned out to be twice as high as in main group 1. At the same time, patients in main group 1 with 1-2 tbsp. pathological process, significantly more often (48.9%) complained of transient visual impairment with increased blood pressure. This symptom was sometimes described by patients as temporary blurred vision or difficulty focusing, lasting up to 15 minutes. It should be noted that transient visual impairment with increased blood pressure was also often noted by patients without manifestations of hypertensive angioretinopathy in the fundus (46.3%).*

**Keywords:** *during the study, patients in the study groups were assessed for best-corrected visual acuity (BCVA) in order to level out factors that reduce visual acuity associated with refractive errors and initial manifestations of cataracts, BCVA.*

Complaints about the appearance of dark spots or “floaters” before the eyes were also noted most often in the main group 2 – 74% of patients. a nonspecific symptom in the form of pain in the eyeballs was also a relatively common complaint among patients and occurred on average in 40% of patients. Most often, visual impairment became a reason to contact an ophthalmologist directly in patients of main group 2.

During the study, patients in the study groups were assessed for best-corrected visual acuity (BCVA) in order to level out factors that reduce visual acuity associated with refractive errors and initial manifestations of cataracts. At the same time, using standard methods, BCVA was assessed for both distance and near. The results are presented in Table 3.4.

Figure 3.2. Prevalence of main ophthalmological complaints in patients in the study groups.

**Table 3.4**

**BCVA indices in patients in the study groups ( n is the number of eyes).**

Index	Main group 1 (n=360)	Main group 2 (n=140)	Control group 1 (n=10 8)
	M ± m	M ± m	M ± m
MCOH, in the distance	0.76±0.12	0.54±0.23	0.85±0.11
BCVA, close	0.79±0.09	0.71±0.14	0.88±0.09

\*- significant in relation to the indicators of control group 1 at  $p < 0.05$ ;

^- significant in relation to the indicators of main group 2 at  $p < 0.05$ ;

Evaluation of average BCVA values at distance and near in the study groups showed regular values according to the stages of hypertensive angioretinopathy. At the same time, no statistically significant differences were found between the average indicators in the study groups due to the fact that, to a greater extent, in the main group 2, the visual acuity of patients varied

within a fairly wide range depending on the localization of the pathological process on the retina and the presence of a congestive optic disc process . According to biomicroscopy data, in all patients in the 3 study groups, no significant changes in the anterior segment of the eye were detected, with the exception of partial opacification of the lens, the degree of which corresponded to the age of the patients and did not lead to a significant decrease in visual functions and did not interfere with fundus ophthalmoscopy. The level of intraocular pressure was assessed in patients according to pneumotometry data. In cases of ambiguous results, patients additionally underwent Maklakov tonometry or Goldman applanation tonometry with mandatory consideration of the central corneal thickness. At the time of examination, IOP indicators in the examined groups were within normal values. To assess fundus changes identified during ophthalmoscopy in patients with GAD, the Keith-Wagener-Barker classification was used. The occurrence of symptoms is presented in Table 3.5.

**Table 3.5**

***Prevalence of main ophthalmoscopic symptoms in patients in the study groups (n is the number of eyes).***

Forms of target organ damage	Main group 1 (n=360)		Main group 2 (n=140)		Control group 1 (n=108)	
	n	%	n	%	n	%
Violation of the ratio of the diameter of veins and arteries	360	100%	140	100%	-	-
Arteriovenous crossings (Salyus-Hun class 1-3)	350	97.2%	140	100%	-	-
Thickening of the walls of blood vessels	272	75.6%	136	97,1 %	-	-
Light reflex expansion	260	72.2%	120	85,7 %	-	-
C-m "copper" or "silver wire"	204	56.7%	130	92,9 %	-	-
Zones of partial or complete obliteration of arterioles	248	68.9%	115	82,1 %	-	-
Hemorrhages	-	-	134	95,7%	-	-
Hard exudates	-	-	128	91,4 %	-	-
Cotton wool lesions	-	-	118	84,3 %	-	-
ONH swelling	-	-	65	46,4%	-	-

In patients of main group 1 with stages 1-2 of HAR, the presence of a symptom of a violation of the ratio of the diameter of veins and arteries was established in 100% of cases. Almost with the same frequency, patients noted the presence of arteriovenous crossovers or Salus-Hun symptoms of 1-3 degrees - 97.2%. At the same time, the analysis showed that the Salus-Hun symptom of degree 2 prevailed in patients. The above signs were characteristic of stage 1 of GAD

according to the classification. This stage was detected in 44 eyes (24.4%) of patients from main group 1. In the remaining 136 eyes (75.6%) signs of stage 2 GAR were detected. Among them, the following prevailed: thickening of the walls of blood vessels (75.6%), expansion of the light reflex (72.2%), the symptom of “copper” or “silver wire” (56.7%) and the presence of zones of partial or complete obliteration of arterioles (68, 9%) (Fig. 3.3). It should also be noted that in patients of main group 1, changes in the fundus in 100% of cases were bilateral in nature, that is, they developed simultaneously in both eyes, which indicates that signs of angiopathy in hypertension develop, as a rule, in both eyes.

The ophthalmoscopic picture characteristic of stages 3 and 4 of GAR took place in the eyes of patients of the main group 2. The results showed that much more often in this group the pathological process in the form of retinopathy itself developed unilaterally, that is, in one eye with the presence of signs of angiopathy or GAR 1- 2 stages on the opposite eye. In the presence of all the above symptoms of stages 1 and 2 of HAR in the eyes of patients of the main group 2, signs were noted in the form of hemorrhage in 95.7% of cases, hard exudates - in 91.4% of cases, cotton wool-like lesions - in 84.3% of cases and edema of the onset of the disc - in 46.4% of cases. In general, based on the results of ophthalmoscopy, the presence of stage 4 GAR according to the classification was established in 30 eyes in the main group 2 based on confirmation of the presence of neuroretinopathy in the form of edema of the optic disc. To confirm the presence of macular edema in patients, OCT was subsequently performed.

Thus, the existence of a synergistic relationship between the severity of fundus lesions in GAR with the main risk factors and target organ damage in HD has been proven, which indicates that the severity of GAR may be an indicator or predictor of the development of severe associated complications in HD. This relationship can also be used in the opposite direction to predict the development of more severe forms of fundus damage in HD in cases of more pronounced target organ damage or the presence of major risk factors.

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