

CLINICAL AND DIAGNOSTIC FEATURES OF PATIENTS WITH COMPUTER VISUAL SYNDROME IN COMBINATION WITH DEGENERATIVE DISORDERS OF THE CERVICAL SPINE

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Annotation. Computer visual syndrome (CVS) is one of the three components of computer syndrome, which includes musculoskeletal changes, carpal tunnel syndrome, and computer visual syndrome itself. This concept was first introduced in 2001 by the American Optometric Association (American Optometric Association), who united under this concept a complex of visual and ocular symptoms associated with prolonged work at a personal computer.

Key words: Degenerative-dystrophic spine diseases.

Introduction. Degenerative-dystrophic spine diseases (DDD) are one of the main causes of relative disability and mainly affect people of working age. The incidence of degenerative-dystrophic diseases in medical institutions is 51.2 per 1000 inhabitants. Degenerative-dystrophic diseases of the spine account for up to 40% of all orthopaedic diseases. That is, this pathology is the leading pathology and accounts for 90% of the total number of diseases of the spinal column. And these figures continue to grow from year to year.

According to statistical data, the cervical spine is most often affected. There are several reasons for this. The cervical spine is less stable than the thoracic spine, which is stabilised by ribs. Cervical is more mobile and more susceptible to the influence of muscle pulls, which can change the biomechanics of the vertebra, and therefore contribute to its subluxation. Also the cervical department is statistically more prone to injury.

The frequency of osteochondrosis of the cervical spine in men and women is almost the same (women 52%, men - 48%, age - from 31 to 60 years) [1]. Osteochondrosis of the spine is a degenerative dystrophic multifactorial, chronic, recurrent disease that begins with the pulposus intervertebral disc, spreads to the fibrous ring, then to other elements of the vertebral motor segment (VMS), manifested in certain conditions by polymorphic (reflex, compression, compression-reflex and reflex-compression) neurological syndromes [2].

Patients with persistent back pain are categorised as people with chronic diseases and require long-term treatment and close monitoring by specialists. This paper will present a literature review that combines theoretical and practical knowledge to diagnose clinical symptoms suspicious of degenerative and dystrophic diseases of the cervical and lumbosacral spine.

The occurrence of complaints characteristic of computer visual syndrome (CVS) forces the patient to seek medical help. Of course, first of all, ophthalmologist consultation is required. However, according to a number of authors [5], patients turn to alternative specialists (general practitioners, neurologists, therapists), which is due to the variety of subjective symptoms in CPS. The analysis of the literature indicates only some studies systematising the main manifestations of CPS.

Purpose of the study. To evaluate the significance of using the questionnaire 'KZS-22' in patients with computer visual syndrome.

Material and methods of the study. The study is based on the analysis of the results of complex examination and treatment of 45 patients of young age who were treated in the neurological department of the SamMU clinic for the period 2022- 2024 (Table 1), who were included in the main group (MG) - patients with computer visual syndrome (CVS) and concomitant degenerative (DV) in the cervical spine (CS): - 19 females (42.2%) and 26 males (57.8%).

Table 1. Distribution of patients by groups

Indicators	OG,n=45		HS, n=40	
	abs	%	abs	%
men	26	57,8%	20	50,0%
women	19	42,2%	20	50,0%
gender index m/w	1,4		1,0	
average age, years	27,7+7,1		31,6+4,8	

The comparison group (CG) consisted of 40 patients with CPP without DS in the SHP: men -20 (50.0%) and women - 20 (50, 0%). gender index m/w -1.0. The mean age was 31.6+4.8.

Each of the patients underwent a single examination of clinical-functional and ophthalmological parameters of the visual analyser. The questionnaire 'KZS-22' was used to assess the severity of CPS, which was used for testing (6). The use of the developed questionnaire provides a sufficiently effective differential diagnosis of the state of vision of patients with KZS phenomena (normal indices - 175-220 points; asthenopia - less than 175 points) and the stage of asthenopia severity (compensation - less than 175 points; decompensation - less than 147 points), which is confirmed by a high (0.939) level of prognostic quality of the model.

The study materials were subjected to statistical processing using parametric and nonparametric analysis methods. Accumulation, correction, systematisation of initial information and visualisation of the obtained results were carried out in Microsoft Office Excel 2016 spreadsheets. Statistical analysis was performed using IBM SPSS Statistics v.26 (developer - IBM Corporation).

Results of the study and their discussion. The main subjective symptoms of computer visual syndrome (CVS) were the following complaints: ocular complaints, which included - feeling of foreign body, 'sand', itching in the eye; dry eyes; redness of eyeballs; feeling of 'rubbery', burning in the eye, these complaints were observed in 95.3% of the examinees ; visual complaints were feeling of 'tiredness' of vision; tension of eye muscles, they were observed in 98,4% of the examined), somatic complaints included headache, which was observed in 79,3%, pain sensations in the neck and back were observed in 82,7%, the desire to stop the load, to take a break was detected in 84,9%; the feeling of temporary loss of visual concentration was determined in 75,8%, the feeling of fear that vision may further deteriorate was in 67,4%.

In the OG, more pronounced 'ocular' manifestations of CPS were found in comparison with HS (mean score - 8.6 ± 0.4 , range from 5.0 to 9.4 points, the highest scores on 7 complaints from 8.9 to 9.4 points), with 'visual' (mean score - 6.3 ± 0.9 , range from 4.1 to 8.8 points, the highest scores on 7 complaints from 7.2 to 8.8 points). The mean score for 'somatic' manifestations in the OG was quite high (7.2 ± 0.8 points).

The data presented in Figure 1 indicate certain regularities of the patient's subjective status in the presence of CPS depending on the concomitant pathology in the cervical spine.

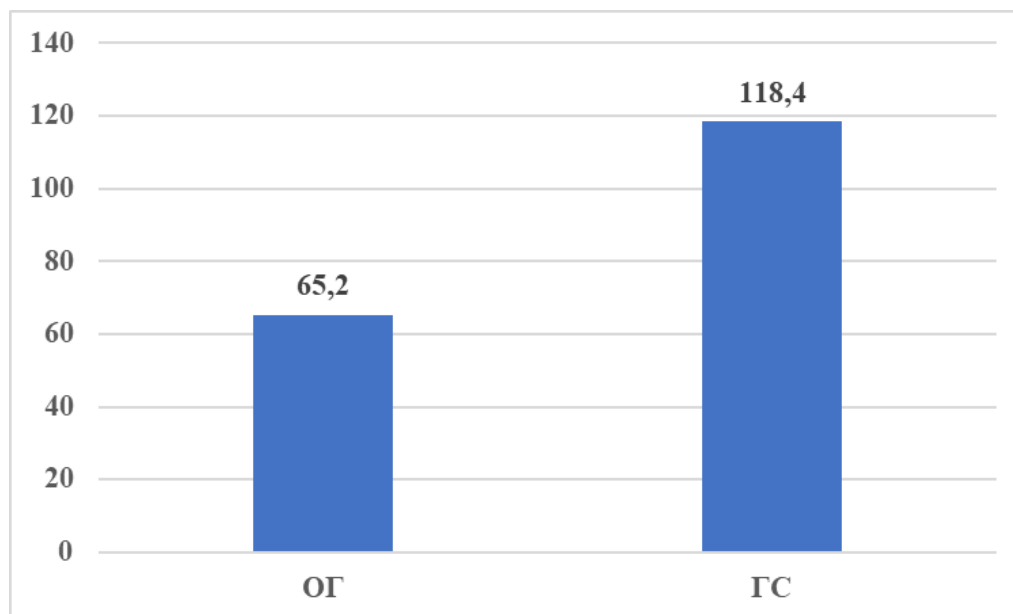


Figure 1. The value of the total testing index (scores) according to the questionnaire 'KZS-22' in patients with CPS depending on the presence of DS in the SHP on average per working week.

The results of the comparative evaluation of the total test score did not reveal significant differences between the examined groups of OH and HS patients. In HS, the total score on the KZS-22 questionnaire was 65.2 ± 1.4 points compared to GS, where this index was 118.4 ± 1.2 points, $p > 0.05$, while the control group showed a low score, statistically significant in comparison with OG and HS and was 136.7 ± 1.6 points ($p < 0.01$). A more detailed analysis of the obtained data showed that 18 (out of 22) questions showed significant differences between the groups (Fig.1). Thus, according to the 'KZS-22' questionnaire, pronounced asthenopia was revealed in OG patients, and moderate asthenopia in HS patients.

It should be noted that our study is consistent with the literature data indicating a fairly wide range of subjective manifestations of patients with EPS phenomena (6).

When studying in dynamics the severity of CPS according to the questionnaire 'CPS-22' during the week, it was noted that by the end of the week the quality of ophthalmological function significantly decreases, especially in patients with CPS on the background of SHOP.

After resting over the weekend, the quality of ophthalmological function does not recover in patients with KZS, more pronounced changes are observed in OG.

Conclusions. According to the 'KZS-22' questionnaire, pronounced asthenopia was detected in patients with KZS on the background of SHOP DR, and moderate asthenopia was detected in patients with KZS without SHOP DR. When studying in dynamics the severity of CPS according to the questionnaire 'CPS-22' during a week, it was noted that by the end of the week the quality of ophthalmological function significantly decreases, especially in patients with CPS on the background of SHOP DM. In order to diagnose the degree of severity of CPS it is necessary to use the methodology of the questionnaire 'CPS-22'.

Literature.

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