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ANALYSIS OF THE DYNAMICS OF BLOOD FLOW INDICATORS OF VERTEBROBASILAR SYSTEM ISCHEMIA CAUSED BY VERTEBRAL ARTERY SYNDROME

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✓ *Resume*

In the treatment of vertebrobasilar system ischemia caused by vertebral artery syndrome, pay attention to the pathogenesis, clinical and neurological features of the disease, consider effective examination and treatment methods, improve the quality of medical care for patients, find effective methods of rehabilitation, improve the existing algorithm, develop a single principle of patient management. the need to get out was the basis for our choice of the topic of this study.

Keywords: vertebrobasilar system, Vertebral artery syndrome, algorithm improvement.

УМУРТҚА АРТЕРИЯСИ СИНДРОМИ ФОНИДА КЕЛИБ ЧИҚҚАН ВЕРТЕБРОБАЗИЛЛЯР ТИЗИМ ИШЕМИЯСИ ҚОН ОҚИМИ КЎРСАТКИЧЛАРИ ДИНАМИКАСИ ТАХЛИЛ ҚИЛИШ

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✓ *Резюме*

Умуртқа артерияси синдроми фонида келиб чиққан вертебробазиляр тизим ишемияси даволашда касаллик патогенези, клиник- неврологик хусусиятларига эътибор бериш, самарали текширув ва даволаш услубларини кўриб чиқиш, беморларга тиббий ёрдам кўрсатиш сифатини ошириш, реабилитация самарадор усулларини топиш, мавжуд алгоритмни такомиллаштириш, беморларни олиб боришнинг ягона тамойилини ишлаб чиқиш зарурати ушбу тадқиқот мавзусини танлашимизга асос бўлди.

Калит сўзлар: вертебробазиляр тизим, Умуртқа артерияси синдроми, алгоритмни яхшилаш.

АНАЛИЗ ДИНАМИКИ ПОКАЗАТЕЛЕЙ КРОВотоКА ПРИ ИШЕМИИ ВЕРТЕБРОБАЗИЛЛЯРНОЙ СИСТЕМЫ, ВОЗНИКШЕЙ НА ФОНЕ СИНДРОМА ПОЗВОНОЧНОЙ АРТЕРИИ

Ходжаева М.С.

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✓ *Резюме*

При лечении ишемии вертебробазилярной системы, вызванной синдромом позвоночной артерии, обращать внимание на патогенез, клинико-неврологические особенности заболевания, учитывать эффективные методы обследования и лечения, повышать качество оказания медицинской помощи больным, находить эффективные методы реабилитации, улучшать существующий алгоритм, разработать единый принцип ведения пациентов. Необходимость выхода легла в основу выбора нами темы данного исследования.

Ключевые слова. вертебробазилярная система, синдром позвоночной артерии, совершенствование алгоритма.

Relevance

Currently, cerebrovascular diseases have become one of the main causes of death and permanent disability. Ischemic stroke, which is the most severe form of cerebrovascular disorders of cerebral circulation, occupies a leading place among them. The development of ischemic stroke in the vertebrobasilar arterial system is caused by various forms of pathology of the extracranial parts of the vertebral arteries, which, in turn, are caused by degenerative-dystrophic processes and anomalies of the cervical spine. According to statistics (70-85)% of all cerebral vascular accidents are ischemic strokes [1,7,6].

Reflex narrowing, compression of the vertebral arteries due to the above extravasal factors are united by a common term - vertebral artery syndrome. There is no single and clear definition of the vertebral artery syndrome either in the Russian-speaking or in the world medical literature. The vertebral artery syndrome is a collective concept and includes a complex of cerebral, vascular and vegetative syndromes resulting from damage to the sympathetic plexus of the vertebral artery, deformation of its wall, or changes in the lumen [10, 12, 19, 22, 29, 30]. The prevalence of vertebral artery syndrome in degenerative-dystrophic manifestations of the pathology of the cervical spine is (30.0 - 42.5)% [9].

The main pathogenetic mechanisms of the vertebral artery syndrome are compression of the arterial trunk, autonomic plexus and narrowing of the lumen of the vessel due to reflex spasm, which contribute to a decrease in blood flow to the posterior parts of the brain, followed by cerebrovascular insufficiency.

According to the nature of hemodynamic disturbances, compression, irritative, angiospastic and mixed forms of the vertebral artery syndrome are distinguished. With the compression option, the narrowing of the lumen of the vessel occurs by mechanical compression of the artery wall. The irritative variant of the syndrome is formed as a result of vertebral irritation of the efferent sympathetic fibers of the vertebral plexus, causing vasospasm. In practice, compression-irritative variants of the syndrome are most often observed. Angiospastic syndrome manifests itself as a reflex spasm that occurs in response to irritation of receptors in the area of the affected vessels [10].

The blood supply to the brain is carried out by two pairs of main arteries extending from a single source - the branches of the aortic arch, while the internal carotid arteries (carotid pool) deliver 75% of the total amount of necessary blood to the brain, and vertebral arteries - 25%. Although the volume of blood flow in the vertebrobasilar arterial system is only one third of the total cerebral circulation, nevertheless, acute cerebrovascular accidents in this basin are more dangerous and are accompanied by severe intracerebral complications with more severe focal neurological symptoms [12].

In pathologies of the cervical spine, the possibility of damage to the vertebral artery is due to its topographic and anatomical position. A significant part of the extracranial segment of the vertebral artery, its second segment V2, passes in the movable musculoskeletal canal of the transverse processes, most often of the C2-C6 vertebrae, which determines the dependence of blood flow on head turns and the possibility of extravasal compression in the pathology of the cervical spine. The most common variant of the beginning of the left vertebral artery from the subclavian artery, when it enters the opening of the transverse process of the sixth cervical vertebra - in 88% of cases. The entrance to the opening of the transverse process is located at the level of C4 - in 0.5% of cases, C5 - in 6.6% of cases, C7 - in 5.4% of cases. In this case, the lateral wall of the artery is adjacent to the uncovertebral articulation, and the posterior wall is adjacent to the superior articular process. At the level of C1-C2 (the third segment of V3), the artery is covered only by soft tissues, mainly by the inferior oblique muscle of the head. The condition of the perivascular plexuses and the lower cervical sympathetic ganglion, which determines the sympathetic innervation of the vertebral artery, is also of great pathogenetic significance in the development of the vertebral artery syndrome [6].

The most common cause of ischemic stroke is stenotic and occlusive processes in the carotid and vertebral arteries [3, 5, 12]. According to various data, the frequency of dysgemia in the vertebrobasilar pool (VBB) is 25-30% of all cerebrovascular accidents, including up to 70% of transient ischemic attacks [3, 9].

The purpose of this study. analysis of the dynamics of blood flow indicators of vertebrobasilar system ischemia caused by vertebral artery syndrome.

Materials and methods

A retrospective analysis of the results of manual therapy treatment of 9 patients with vertebral artery syndrome in the neurology department of the multidisciplinary central hospital of the Bukhara region

from January 2022 to August 2022 was carried out. The age of patients ranged from 28 to 65 years (mean age 57.4 years)). These patients had already been diagnosed with vertebral artery syndrome in other medical institutions before contacting the neurology department of the multidisciplinary central hospital of the Bukhara region. Most of them also had other general somatic and neurological pathologies. All patients had different duration from several months to 12 years of unsuccessful experience in the treatment of vertebral artery syndrome in various medical institutions.

The control group included 9 patients from among the specialized patients of the neurology department of the multidisciplinary central hospital of the Bukhara region with vertebrogenic disorders of the cervical spine, suffering, among other things, from the vertebral artery syndrome. The average age of patients in the control group was 62.2 years.

Examination of patients from the main group in the department of neurology of the multidisciplinary central hospital of the Bukhara region involved an examination by an orthopedist-traumatologist, a chiropractor, if necessary, to clarify the localization of the pathology, an MRI of the cervical spine, as well as some other tests.

The treatment of both the main and control groups was carried out according to the author's method of S. Frank, which is based on the best achievements of the European school of manual therapy by K. Levit [15], developed and supplemented by their own developments and achievements of Ukrainian colleagues. The European School of Manual Therapy K. Levit sees the prerequisites for manual treatment in violation of the function of the motor system. The most adequate treatment for reversible functional movement restrictions is manipulation [15, p. twenty]. The goal of manipulation treatment is to restore the function of the joint in those places where it is inhibited (blocked) [15, p. 23]. The object of manipulations are functional disorders, mainly blockages in the joints. Blocking is understood as restriction of movement in the motor segment [15]. The author's technique of S. Frank is protected by scientific publications in European scientific medical periodicals [7]. The essence of the method is the use of manual therapy techniques in combination with shock wave therapy (SWT). The combination of these two components in one technique allows to obtain a synergistic effect [7]. The specified technique after the collected anamnesis assumes: clarification by palpation and SWT sensor of the localization of blocked segments and trigger points; if necessary, the use of SWT in target areas to reduce their pain sensitivity, improve the trophic function of the nerve, increase blood circulation in the area of the blocked segment; and most importantly, the implementation of manual therapy techniques to eliminate pathologies with periodic repetition until a positive clinical result is obtained. This method has been successfully practiced over the past ten years for the treatment of vertebral artery syndrome as well.

Results and discussion

The main study group consisted of 9 patients with vertebral artery syndrome resistant to treatment by other methods.

The control group consisted of 9 patients with vertebrogenic disorders of the cervical spine, who had a history of cerebral, vascular and autonomic syndromes arising from damage to the sympathetic plexus of the vertebral artery, deformation of its wall or changes in the lumen and described by the general concept of vertebral artery syndrome. Patients in the control group had never previously been treated for vertebral artery syndrome by any methods.

The results of the study showed that all patients with vertebral artery syndrome of the main and control groups have vertebrogenic disorders of the cervical spine, all of them suffer from vertebrogenic cervicgia. In the main group, herniated intervertebral discs and protrusions were observed in six patients (66.7%), hypertension - in six patients (66.7%), dyscirculatory encephalopathy - in five patients (55.6%), transient ischemic attacks - in four patients (44.4%), astheno-neurotic syndrome - in three patients (33.3%), scoliotic posture - in three patients (33.3%), deforming spondylosis with multiple osteophytes - in two patients (22, 2%), deforming spondylarthrosis of the mid-cervical spine - in one patient (12.5%), osteoarthritis of the lower cervical spine - in one patient (12.5%), vestibulo-atactic syndrome - in one patient (11.1%), vasospasm of the vertebral arteries - in one patient (11.1%).

In patients of the control group, against the background of vertebral artery syndrome and vertebrogenic cervicgia, the following pathologies were also noted: herniated intervertebral discs and protrusions - in seven patients (76.7%), dyscirculatory encephalopathy - in four patients (44.4%), ischemic strokes in history - in three patients (33.3%), transient ischemic attacks - in three patients

(33.3%), hypertension - in five patients (55.6%), astheno-neurotic syndrome - in three patients (33.3%), deforming spondylosis - in two patients (22.2%), kyphosis of the cervical spine - in one patient (11.1%).

All patients of the main and control groups underwent treatment consisting of 5-10 sessions of manual correction of target areas using, if necessary, SWT. After the initial treatment, patients were observed in the neurology department of the multidisciplinary central hospital in Bukhara region for 1-3 years.

As a result of the first course of manual therapy in the main group, the condition of 100% of patients improved. It was noted that the positive neurological dynamics in patients with vertebral artery syndrome depends both on the duration of the disease and, mainly, on the complexity of the pathologies of the cervical spine and, as a result, the degree of damage to the vertebral arteries. The best results were obtained at the functional stage of the vertebral artery syndrome, its primary diagnosis within a period of up to a year and with an age limit of patients under 50 years of age. The worst results and longer duration of the first course of treatment were in patients with the organic stage of the vertebral artery syndrome, more complex pathology of the cervical spine, longer duration of the disease, and in patients of the older age group (over 50 years).

In seven patients of the main group (77.8%), a significant regression of neurological parameters was noted, which affected the quality of life of patients (headaches, dizziness, unsteadiness, gait instability, attacks of dyscirculatory encephalopathy, vision and hearing improved). In one patient (11.1%), the neurological condition improved significantly, but with a noticeable reduction in the main complaints, the intensity of attacks of dyscirculatory encephalopathy could not be weakened. In one patient (11.1%), the neurological condition did not change significantly.

In seven patients of the control group (77.8%), a significant regression of neurological parameters was noted, in two patients (22.2%) the response to treatment was insufficient.

Both in the main and in the control group, the best results were obtained in the treatment of a recent functional stage of the vertebral artery syndrome, in younger patients and in patients with minor pathology of the cervical spine. It should also be noted that the results of improving the neurological status in patients of the main and control groups are almost the same.

The statistics of repeated visits of patients of both the main and control groups in the department of neurology of the multidisciplinary central hospital of the Bukhara region for 3 years about relapses of the vertebral artery syndrome shows that it is better to keep the long-term effect of treatment for a younger age group of patients with a functional stage of the vertebral artery syndrome and less complex pathologies of the cervical spine. Such patients take repeated courses of manual therapy, as a rule, with an interval of 1-2 years. Patients of older age groups with an organic stage of vertebral artery syndrome and significant pathologies of the cervical spine are forced to apply for repeated courses of manual therapy much more often, sometimes with an interval of 1-3 months.

Thus, both in the main group with vertebral artery syndrome resistant to treatment by other methods, and in the control group, where this syndrome has never been treated, there are high and almost identical rates (77.8%) of clinical results of improvement in neurological status during the observation period. In cases of recurrence, it was also possible to significantly reduce both their frequency and intensity. It should be noted that the proposed method is effective where other treatment of vertebral artery syndrome was powerless, since the sample for the main group consisted of patients with treatment-resistant vertebral artery syndrome. So only manual therapy techniques without the use of medicines and other methods of treatment managed to achieve significant results.

Conclusions

The use of manual therapy in combination with SWT makes it possible to provide assistance to patients with vertebral artery syndrome resistant to treatment by other methods. Eliminating the pathology of the cervical spine with manual influences, it is possible to deal with the main cause of the development and progression of blood flow disorders in the vertebrobasilar basin. Since degenerative-dystrophic processes in the cervical spine, especially at an older age, can only be suspended, the treatment of vertebral artery syndrome is reduced to the maximum reduction of its relapses and their intensity, which contributes to a significant regression of neurological parameters. The method is effective where other methods of treating vertebral artery syndrome have been powerless. It is cost-effective, does not require lengthy expensive examinations, allows you to return the quality of life to the patient in the shortest possible time with minimal material and moral costs.

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