NEUROPSYCHOLOGIC STATUS OF PATIENTS WITH CERVICAL BACK PAIN

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ABSTRACT

Among the adult population, up to 43% have experienced back pain in the past month, up to 65% have experienced back pain in the past year, and approximately 84% have experienced back pain at least once in their lives [2, 10]. Low back pain and neck pain are among the most common causes of disability in the 40-60 age group [6, 11].

Back pain syndromes often develop between the ages of 20 and 50 years, with pain syndromes reaching a maximum between 50 and 64 years of age; between the ages of 20 and 64 years, 24% of men and 32% of women complain of pain in the neck or back [8, 9]. Most interestingly, 12-26% of children and adolescents also complain of neck or back pain [10, 14].

Keywords: cervical dorsalgia, lumbosacral dorsalgia, quality of life.

Due to chronic back pain, people over the age of 25 are unable to work for one week per year, one third of the world population [12] and two-thirds of those over the age of 40. Treatment of this group of patients accounts for 80% of health care costs in developed countries, and more than 70% of these costs are due to back pain[7].

In most cases, episodes of back pain are nonspecific, with a predilection for the cervical and lumbosacral regions, and symptoms normalize within 4 weeks in 90% of patients with appropriate treatment [16]. In some patients, however, the pain syndrome can persist for long periods of time and lead to disability [4, 13], and in one in four patients, short-term back pain becomes chronic pain, leading to long-term disability [1, 5]. The quality of life of these patients does not improve with treatment [15]. The role of psychological factors in the development of chronic back pain is currently poorly understood.

Purpose of the study: to assess the influence of psychological state on the clinical and neurological characteristics of cervical back pain.

MATERIAL AND METHODS

We examined 214 people with cervical dorsalgia (CD) - 86 (40.2%) men (22-60 years, average age - 37.9±5.4 years) and 128 (59.8%) women aged 21 to 55 years (average 41.1±6.1 years).

An individual medical registration card has been created for each patient, displaying the full name, date of birth, exact age (in years) and gender of the patient, medical card number, anamnesis data, instrumental and clinical studies, terms and composition of therapy.

Radiological research methods were also used - CT and MRI. We conducted a comprehensive clinical and neurological examination with active identification of complaints and medical history, and used research scales: visual analog pain scale (VAS), muscle syndrome index (MSI), HADS Hospital Anxiety and Depression Scale, Vernon and Major test.

Statistical data processing was carried out using Microsoft Office Excel-2019, including the use of built-in statistical processing functions.

RESEARCH RESULTS

At the time of treatment, the main complaint was pain of varying nature, intensity and localization in the posterior and lateral cervical areas in all 214 (100%) patients, while in 178 (83.18%) patients pain was noted not only in the neck area. Thus, pain in the shoulders was noted by 146 (68.22%) patients, more often the pain radiated to both shoulders - 91 (42.52%), much less often to one shoulder - 55 (25.70%), one shoulder blade - 94 (43.93%), less often in both - 74 (34.58%), in the back of the head - 56 (26.17%) and in 28 (13.08%) patients in the axillary region, which not only limited the movements of the head and neck , but also significantly disrupted the correct posture and head position of the patients. In a significant proportion of patients, the pain radiated to several areas, so the sum is more than 100%.

In parallel with pain, our patients noted such complaints as numbness of the limbs - 63 (29.44%), feeling of cold - 37 (17.29%), limitation of movement in the shoulder joint - 32 (14.95%).

In addition, patients complained of rapid neck fatigue from static loads (78.04% - 167 patients), heaviness in the neck, shoulders and shoulder blades - in 71.96% - 154 patients, and morning stiffness in the neck and shoulder girdle - in 69.16% – 148 patients, 26.64% – 57 patients had pain clearly felt at rest.

Upon treatment, pain at rest according to VAS averaged 4.3±0.3 points, i.e. was of moderate intensity, and after physical activity in 164 (76.64%) patients the intensity increased to 6.2±0.4 points - it became pronounced, gradually decreasing at rest. Pain was moderate in 111 (57.87%) patients, severe in 87 (40.65%) patients, severe in 11

(5.14%) patients. The weakest average pain was 3.0±0.4 points, and the strongest - 7.8±0.7 points.

In 123 (57.48%) patients, the pain was aching, dull - in 58 (27.10%) patients, tightening - in 106 (49.53%), pulling - in 78 (36.45%) and boring - in 43 (20.09%) patients. In 71 (33.18%) patients, pain was combined with a burning sensation in the neck and adjacent areas.

All patients had muscle dysfunction, leading to neck muscle tension, sharp palpation muscle soreness and a long period of pain after muscle irritation.

Tension of the neck muscles limited movement in the cervical spine, which led to inclination of the shoulder line in all patients, to asymmetry of the shoulders in a quarter, to kyphosis of the cervical spine in 43 (20.09%) patients of group I, and in 51 (23.09%) patients. 83%) of patients in this group have functional kyphosis of the cervical spine without structural changes on CT and/or MRI.

In addition, in most patients, pain was combined with a significant increase in muscle tone in the neck and shoulder girdle. The IMI averaged 9.3±0.4 points, i.e. II (moderate) degree of severity. The intensity of spontaneous pain according to the IMS was on average 2.6±0.17 points - average degree. According to the IMS, muscle tone during palpation was 2.8±0.15 points. Muscle soreness during palpation was detected in 78 (36.45%) patients in the form of a facial reaction to palpation, and a motor reaction was recorded in 96 (44.86%) patients, the average score was 2.5 ± 0.15 points, i.e. . II (moderate) degree of severity.

When assessing muscle syndrome, the duration of muscle pain upon palpation is of great importance. When analyzing this indicator, it was found that in 146 (68.22%) patients pain on palpation persisted for 45-60 seconds, in 51 (23.83%) patients pain persisted for an average of 1.2 minutes and only in 17 (7.94%) of patients, the pain went away immediately after palpation. The average score was 2.4±0.1 points, i.e. II (moderate) degree of severity.

A similar assessment of IMS was obtained for the degree of pain irradiation during palpation - 2.7±0.12 points. In 130 (60.75%) patients, pain radiated to adjacent tissues, which confirms the average intensity of the muscle syndrome.

The IMI in patients with nociceptive pain is significantly higher than in patients with neuropathic pain. The severity of spontaneous pain (SP) in patients with nociceptive pain averaged 2.8±0.13 points, i.e. moderate and severe pain; muscle tone (T) – 3.05±0.22 points, muscle soreness (B) – 2.7±0.21 points. A facial reaction to palpation was observed in 32 (42.11%) patients, and a motor reaction – in 41 (53.95%) patients.

In 141 (66.89%) patients, a moderate increase in muscle tone was noted, and in 73 (34.11%) patients, severe hypertonicity was observed. The degree of pain irradiation

during palpation (SI) in patients with nociceptive pain averaged 2.8±0.09 points and did not have a significant difference between the groups.

In general, the IMI was 13.6±0.21 ($p<0.05$) in patients with nociceptive pain, which corresponded to grade III severity, and in patients with neuropathic pain – 12.1±0.23, which also corresponded to grade III severity.

We carried out laboratory diagnostics in all patients; we assessed all indicators, paying special attention to inflammatory markers - leukocytes and ESR in a general blood test and the level of CRP.

Determining the presence or absence of an active inflammatory component of CD allowed us to make a decision on treatment tactics and its components. The level of active inflammation in group I patients allowed us to identify some patients with a clear sign of the inflammatory genesis of exacerbation of CD - 52 (24.3%) patients (ESR - 26.2±3.8 mm/h, leukocytes - 10.3±1.7 *109/l, CRP – 11.4±2.6 mg/l). In the remaining 162 (75.7%) levels of inflammatory markers fluctuated within acceptable limits.

The ratio of inflammatory and non-inflammatory CD was 1:3.12, that is, more than ¾ of patients with CD have a non-inflammatory genesis of exacerbations.

Thus, we have identified a significantly pronounced pain syndrome, combined with muscular-tonic syndrome, which increases pain and creates a vicious circle.

3.3% of patients with CD noted complete limitation due to neck pain (35.2±0.03 points), 6.1% of patients noted that they had serious limitations in their ability to live (26.8±0.08 points) , 74.3% of patients scored on the test corresponding to moderate disability (24.2±0.07 points), slight disability was found in 16.4% of patients (13.2±0.05 points).

Moreover, in patients with nociceptive pain the average scores were slightly higher – 25.3±1.7, which corresponded to serious limitations, and in patients with neuropathic pain – 21.2±1.1 points ($P<0.05$). Moderate limitations in life activity were observed 1.8 times more in patients with CD with neuropathic types of pain. Whereas patients with neuropathic pain were 4.9 times more likely to have serious limitations in daily activities ($P<0.05$).

Data on the level of depression according to the HADS Hospital Anxiety and Depression Scale are presented in Tables 1 and 2.

Table 1

Level of anxiety in patients with CD depending on the type of pain, points

	Type of pain				Number of patients with CD (n=214)	
	Nociceptive pain (n=79)		Neuropathic pain (n=135)			
	abs.	% (M±m)	abs.	% (M±m)	abs.	% (M±m)
0 - 7	6	7,6±1,8	22	13,3±1,5	27	12,6±1,5
8 - 10	65	82,3±2,1	99	73,3±1,4	165	77,1±1,6
More 10	8	10,1±1,4	14	10,4±1,6	22	10,3±1,4
Total	79	100	135	100	214	100,0

As can be seen from the table, 77.1±1.6% of patients had subclinically expressed anxiety and 10.3±1.4% clinically expressed anxiety, of which the largest percentage occurs with nocicetic type of pain (P<0.05).

Table 2

Level of depression in patients of the study groups, points

	Type of pain				Number of patients with CD (n=214)	
	Nociceptive pain (n=79)		Neuropathic pain (n=135)			
	abs.	% (M±m)	abs.	% (M±m)	abs.	% (M±m)
0 - 7	43	54,4±2,1	101	74,8±1,8	144	67,3±1,2
8 - 10	29	36,7±1,9	29	21,5±1,9	58	27,1±1,5
More 10	7	8,9±1,8	5	3,7±1,7	12	5,6±1,3
Total	79	100,0	135	100	214	100,0

An identical picture characterizes the level of depression in patients with CD. Symptoms of depression were detected in 32.7±1.4%, of which subclinical and clinically significant depression amounted to 27.1±1.5% and 5.6±1.3%, respectively. There is a predominance of depressive symptoms in nociceptive types of pain (clinically expressed depression - 36.7 versus 21.5% and subclinically expressed depression - 8.9% and 3.7%, respectively).

CONCLUSION

1. In 187 (87.37%) patients, symptoms of anxiety and depression were observed, which was decisive in the occurrence of psychosomatic disorders in patients with CD and correlated with the severity of pain (r = 0.52), duration of the disease (r = 0.54) and frequency of exacerbations (r=0.51).

2. In patients with CD, we found a significant ($p<0.05$) moderate direct relationship between the total scores on the IMS at the time of the initial examination and scores on the VAS scale ($r=0.56$), scores on the Vernon and Major test ($r= 0.52$) and the "Hospital Anxiety and Depression Scale" test ($r=0.51$).

3. Disorders of the psychoemotional status of patients significantly influenced the course, duration of the disease and prognosis of CD, exacerbating the already existing vicious circle.

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