

# ACUTE BACK PAIN: DIAGNOSIS AND TREATMENT

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**Abstract:** *Back pain is a syndrome that can be associated with degenerative-dystrophic changes in the spine, muscle damage and diseases, damage to the nervous system (the spinal cord, its roots, and peripheral nerves), pathology of the internal organs of the thoracic and abdominal cavities, pelvis, and mental disorders. The most common cause of acute back pain is changes that occur when the muscles, ligaments, or joints of the spine are overloaded.*

**Keywords:** *spinal roots, pathology, disease, diagnosis, pain symptoms*

**Introduction:** The mechanical ("overload") cause of back pain is detected in 85-90% of patients. In most cases, these pains occur when performing an "unprepared" movement, as a result of a long stay in an uncomfortable position, may be due to excessive load on the arch-process joints of the vertebrae, and may be the result of degenerative-dystrophic changes in the inter vertebral discs. Such pain, without signs of damage to the spinal roots and serious spinal pathology, is considered non-specific back pain (NBP). Allocation of NBP to a separate group is justified in most cases when the patient first goes to a General practitioner. Back pain caused by potentially dangerous causes, associated with vertebra genic pathology (primary and metastatic vertebral tumors, spinal fractures in trauma and osteoporosis, its inflammatory (spondyloarthritides) and infectious (tuberculosis, discitis) lesions, compression of the spinal roots) and non-vertebra genic diseases in somatic and visceral pathology of the thoracic and abdominal cavity, pelvis and retroperitoneal space, are classified as specific back pain. Examination of a patient with acute back pain is aimed at excluding a serious, potentially dangerous disease, which is relatively rare (no more than 10% of cases), among the possible causes of pain syndrome [4, 5].

**Methods:** Potentially dangerous causes of back pain are as follows [5].

I. Rheumatic diseases

- \* Ankylosing spondylitis
- \* Psoriatic arthritis
- \* Reactive spondyloarthropathy
- Rheumatoid arthritis
- \* Rheumatic polymyalgia

II. Malignant tumors

- \* Multiple myeloma
- \* Spinal metastases

III. Infections

- \* Osteomyelitis
- Dissit
- \* Epidural abscess
- \* Tuberculosis
- \* Sarcoidosis

- Herpes zoster
- IV. Vascular diseases
  - \* Abdominal aortic aneurysm
- Epidural hematoma
- V. diseases of the blood
  - \* Hemoglobinopathy (for example, sickle cell anemia)
- VI. Metabolic disorders
  - \* Osteoporosis (primary or secondary)
- VII. Pathology of the genitourinary system
  - Kidney disease
  - Urolithiasis
  - \* Prostatitis
  - Cystitis
- VIII. Diseases of the abdominal cavity
  - \* Pancreatitis or pancreatic cancer
  - \* Duodenal ulcer
- IX. Pathology of spine structures
  - \* Spinal canal stenosis
  - \* Vertebral fractures

For back pain, a properly conducted clinical examination allows in most cases to clearly separate patients with specific and non-specific pain. First of all, when interviewing and examining a patient with back pain, the doctor should remember about "threat symptoms", the presence of which may indicate the possibility of developing a serious, sometimes life-threatening disease in the patient [5].

"Threat symptoms" or "red flags" indicating the possibility of specific back pain include:

- \* Onset of persistent back pain before age 15 and after age 50;
- \* Non-mechanical nature of pain (the pain does not decrease at rest, in a lying position, in certain poses);
- The connection of pain with an injury;
- \* Gradual increase in pain;
- History of cancer;
- \* Occurrence of pain on the background of fever, weight loss;
- \* Complaints of prolonged stiffness in the morning;
- \* Symptoms of spinal cord injury (paralysis, pelvic disorders, sensitivity disorders);
- \* Changes in urine and blood tests.

The presence of fever, local soreness in the Para-vertebral region is characteristic of an infectious lesion of the spine. Most often, the development of infectious inflammation occurs in patients receiving immunosuppressive therapy, suffering from HIV infection, tuberculosis, and infectious diseases of the urinary tract. The causes of infectious complications can be recently transferred herpes zoster, spinal surgery. Leucocytosis may be the only laboratory sign indicating a discite or epidural abscess.

The presence of pronounced stiffness in the back, especially in the morning, the gradual appearance of pain, increased pain at night may indicate rheumatic disease.

If the patient complains of weakness in the legs, violation of urination and he has a decrease in sensitivity in the anogenital area and disorders of pelvic functions, you should suspect compression of the horse's tail. Compression radiculopathies are characterized by the presence of acute shooting, less often burning pain, parenthesis and other sensory disorders that radiate to the distal zone of the dermatome and are combined with a decrease in sensitivity in the area of innervations of the corresponding root, less often with motor disorders in the area of the affected root. Compression radiculopathy can occur with spinal

stenosis, spondylolisthesis, compression by osteophytes and hypertrophied facet joints. In some cases, differential diagnosis should be performed with neurinomas and other tumors involving spinal nerve roots.

If "threat symptoms" are detected during the initial examination, it is necessary to conduct a clinical and instrumental examination and consult with appropriate specialists. Upon confirmation of the diagnosis carried out the treatment of the underlying disease. In the absence of data in favor of the presence of any specific pathology in the patient, back pain is classified as non-specific and effective analgesic therapy is performed. As a rule, NBP are benign in nature and are associated with a mechanical cause due to overload effects on the ligaments, muscles, intervertebral discs and joints of the spine.

After careful collection of anamnesis in patients with back pain, it is necessary to conduct a neurological and orthopedic examination. Neurological examination is aimed at detecting signs of sensitivity disorders, trophic disorders, movements, and changes in tendon reflexes. During orthopedic examination, pay attention to the posture, posture, the presence and degree of scoliosis, asymmetry of the limbs. It is important to determine whether or not the severity of orthopedic symptoms and pain is appropriate. The absence of increased pain during orthopedic tests is a "threat symptom" associated with serious co morbidities.

When examining the patient, it is important to pay attention to possible rashes on the skin, changes in posture, posture, gait, volume of movements in the spine, hip joints, the degree of tension and soreness of the muscles, the localization of myofascial trigger points.

If there are no "threat symptoms" during the initial examination, the patient is classified as having NBP and prescribed analgesic therapy without additional diagnostic procedures. According to international standards, if a patient with back pain does not have "threat symptoms" or root pain, there is no need to conduct laboratory and instrumental examination, including radiography of the spine or computer and magnetic resonance imaging [4]. It is important to remember that when performing imaging methods, degenerative-dystrophic changes in the spine are detected with a high frequency even in patients without back pain. Thus, according to magnetic resonance imaging of the lumbar spine, asymptomatic herniated discs are found in 30-40% of people less than 40 years of age and in 100% of people over 60 years of age [5]. Degenerative-dystrophic changes in the spine, which are often diagnosed by doctors as "osteochondrosis", can only be considered a prerequisite for the occurrence of back pain, which reduces the stability of the spine tissues to load, but not its direct cause. The presence of signs of degenerative-dystrophic lesions of the spine tissues in patients with NBP does not correlate with the nature of pain or its intensity, so, despite the temptation to attribute radiologically detected signs of spinal osteochondrosis to the causes of pain, no convincing evidence of such a relationship has yet been obtained. In modern domestic and foreign recommendations for the diagnosis of back pain, x-ray examination is not a component of the primary examination [5]. It is recommended to prescribe imaging methods and consultations with appropriate specialists for patients with back pain in unclear cases when the specific nature of the pain is suspected.

Clinically, NBP is a musculoskeletal pain, the structure of which is traditionally distinguished by muscular-tonic (reflex) pain syndrome, myofascial pain syndrome (MPS) and arthropathic pain syndrome [2].

Muscle-tonic pain occurs due to nociceptive impulses coming from the affected discs, ligaments and joints of the spine during static or dynamic overload. As a result of nociceptive stimulation, reflex muscle tension occurs, which initially has a protective character and immobilizes the affected segment. However, in the future, the tonic tense muscle itself becomes a source of pain. In this case, areas of skin and muscle hyperalgesia, muscle tension, and restricted movement in the corresponding segment of the spine are detected. If you tilt in

the Antero-posterior or lateral directions, the pain may increase. Pain relief is noted in the position of lying on your side with your legs bent at the knee and hip joints.

The formation of MPS occurs under the influence of excessive load on the muscles. With MPS, the palpable muscle feels spasmed in the form of a tight string. Painful compressions (trigeminal zones) are found in the muscle, the pressure on which causes local and reflected pain. The development of MPS is largely due to the sensitization of nociceptors localized in the muscles [1]. Neurological disorders are not typical for this pathology.

Acute NBS in most cases gradually regresses. By the end of the 6th week, acute back pain passes in 90% of patients [2].

Treatment of patients with NBP should be aimed primarily at reducing the severity of pain symptoms, which helps to restore the patient's activity and reduce the risk of chronic pain [3]. It is important to actively involve the patient in the treatment process, convince him of the benign course of his disease, eliminate signs of catastrophization, and explain to him the causes of the disease and treatment tactics. The need to inform the patient about a favorable prognosis and the expediency of maintaining activity is noted in all recommendations of experts [4].

In the acute period, it is necessary to limit physical activity, avoid lifting weights, long-term stay in a sitting or lying position. With NBP, there is no need to observe bed rest. Bed rest has been shown to do more harm than good. A little physical activity is not only not dangerous, but also useful, since early motor activity helps to improve the trophic tissues and recovery.

**Results:** A positive effect in patients with back pain also has the appointment of high-dose complexes of b vitamins (B1, B6, B12), for example, the drug Neurobion. A multicenter, randomized, double-blind study of 418 patients with back pain compared the clinical efficacy of diclofenac (25 mg) and the combined drug diclofenac (25 mg) + vitamins B1 (thiamine nitrate 50 mg), B6 (pyridoxine hydrochloride 50 mg) and B12 (cyanocobalamin 0.25 mg). Differences in favor of the combination of diclofenac + vitamins B1, B6, B12 were statistically significant in patients with severe pain at the beginning of therapy. There were no significant differences in the number of adverse events between the groups.

Patients received either diclofenac tablets (50 mg) or combination therapy (50 mg diclofenac + 50 mg thiamine + 50 mg pyridoxine + 1 mg cyanocobalamin) 2 times a day. The combination of diclofenac with b vitamins significantly exceeded mono therapy with diclofenac by the 3rd day of treatment ( $p = 0.0005$ ). There was a decrease in pain and an increase in the activity of patients. There were no differences in the safety profile between the two research groups [2].

The positive role of neurotropic vitamins in the prevention of pain relapses in patients with back pain was also revealed. In a randomized, double-blind, placebo-controlled trial, patients treated for acute back pain to prevent relapses took a vitamin complex (B1 + B6 + B12) for 6 months. The comparison group received a placebo all this time. The authors noted a statistically significant decrease in the number of recurrences of back pain in the group receiving vitamin therapy, and in cases of pain, intense pain was observed 2 times less often in the vitamin complex group compared to the placebo group [2].

In a double-blind, randomized, placebo-controlled trial, evidence was also obtained for the efficacy and safety of vitamin B12 monotherapy (intramuscularly 1000 mcg in 2 ml volume) in the treatment of low back pain in 60 patients [3]. According to the study Protocol, patients were allowed to use paracetamol from 1 to 6 tablets (500 mg) per day according to their needs to reduce pain. For 2 weeks, the severity of pain and the amount of paracetamol consumed in the vitamin B12 and placebo groups (intramuscular injections of 2 ml) were evaluated. In all groups, there was a decrease in pain. In the vitamin B12 group, the reduction in pain was more pronounced ( $p < 0.0001$ ). Paracetamol consumption was significantly

higher in the placebo group than in active treatment with vitamin B12 ( $28.9 \pm 11.32$  vs.  $9.9 \pm 8.04$  tablets for 15 days;  $p < 0.0001$ ).

At the same time, 8 patients in the vitamin B12 group did not use a single paracetamol tablet during treatment [3]. In a recently published systematic review of the use of B vitamins in the treatment of patients with acute back pain, the authors concluded that diclofenac + complex of vitamins B1, B6, B12 has an analgesic, anti-inflammatory and neuroprotective effects, while the effects are achieved faster in comparison with diclofenac monotherapy [4]. The presented data indicate the clinical effectiveness and high safety of large doses of neurotropic vitamins in the complex therapy of acute NBP.

**Conclusion:** In complex therapy, it is also advisable to include physical therapy, reflexology, and manual therapy. As a rule, this combination of medication and non-medication methods of treatment helps to accelerate the recovery of patients with NBP.

Patients who do not show improvement after 4 weeks of treatment need a detailed examination to identify possible serious pathology or signs of psychosocial distress, which often serve as the basis for the development of chronic back pain.

### Literatures:

- [1] Podchufarova E. V., Yakhno N. N. back Pain. Moscow: GEOTAR-Media; 2010. 368 p.
- [2] Chou R, Huffman LH; American Pain Society; American College of Physicians. Medications for acute and chronic low back pain: a review of the evidence for an American Pain Society/American College of Physicians Clinical Practice Guideline. *Annals of Internal Medicine* 2007 Oct; 147(7):505-14.
- [3] Bardin LD, King P, Maher CG. Diagnostic triage for low back pain: a practical approach for primary care. *The Medical Journal of Australia* 2017 Apr; 206(6):268-73.
- [4] Alekseev A.V., Arinina E. E., Arsenev A. O., Barinov A. N., Brand P. Ya., Vlasov V. V., Dubinina T. V., Karpakov A. B., Klimenko A. A., Kukushkin M. L., Lesnyak O. M., Maximov D. M., Pravdyuk N. G., Podchufarova E. V., Smirnov A.V., Solodovnikov A. G., Takhtay V. V., Shostak N. A., Erdes S. F. non-Specific pain in the lower back and clinical recommendations for therapists and General practitioners. Moscow: Kit Service; 2008. 70 p.
- [5] Khabirov F. A., Khabirova Yu. F. Pain in the neck and back and a guide for physicians. Kazan: Meditsina; 2014. 504 p.
- [6] Hamza Yel-S, Aburahma MH. Design and in vitro Evaluation of novel sustained-release double-layer tablets of Lornoxicam: Utility of cyclodextrin and xanthan gum combination. *AAPS Pharm Sci Tech.*, 2009, 10: 1357-1366.
- [7] Kidd B, Frenzel W. A multicenter, randomized, double blind study comparing lornoxicam with diclofenac in osteoarthritis. *J Rheumatol*, 1996, 23(9): 1605-1611.
- [8] Karateev A. E., Yakhno N. N., Lazebnik L. B., Kukushkin M. L., Drozdov V. N., Isakov V. A., Nasonov E. L. Application of non-steroidal anti-inflammatory drugs. Clinical recommendations, Moscow: IMA-PRESS, 2009, 168 p.
- [9] Kovalchuk V. V., Efimov M. A. Comparative characteristics of the effectiveness and tolerability of short courses of therapy (6 days) with various non-steroidal anti-inflammatory drugs in the treatment of patients with dorsalgia. , 2010, 110(1): 61-64.
- [10] Kukushkin M. L. Algorithms for diagnosis and treatment of patients with back pain. *Russian journal of pain*, 2014, (3-4): 3-6.
- [11] 11, Shokhrud F. Fayziev The problem of social stigma during a pandemic caused by COVID-19 *International Journal of Advanced Science and Technology* Vol. 29, No. 7, (2020), pp. 660-664.