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ON THE PHASES OF CLINICAL COURSE AND TREATMENT OF SPINAL CORD AND SPINE INJURIES

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Annotation: The study of the clinical course and treatment of spinal injuries is essential due to the high incidence and severity of these conditions, which require specialized management. This research categorizes spinal injuries into distinct clinical phases, including temporary clinical compensation, moderate and severe clinical decompensation, acquired clinical compensation, and clinical improvement. Each phase is marked by specific neurological, respiratory, and autonomic symptoms that guide treatment decisions. Early interventions, including surgical decompression, spinal stabilization, and ozone therapy for scar and adhesion prevention, have shown positive outcomes in patient recovery. This phased approach enables a tailored and effective treatment strategy, improving patient prognosis and enhancing quality of life.

Keywords: spine injuries, spinal cord trauma, clinical phases, neurological dysfunction, ozone therapy, pelvic organ function, clinical compensation, decompensation, spinal rehabilitation, surgical decompression, phased treatment approach

RELEVANCE

The study of spine and spinal cord injuries is important due to the high incidence rate and the severity of clinical course and treatment for these patients. Analysis of spinal fracture frequencies shows that lower thoracic and upper lumbar vertebrae fractures are the most common, followed by cervical vertebrae fractures (Romadanov A.P. 1978, Korzh A.A. 1979, Alimkulov E.A. 1985, Bolgaev A.B. 1990, 2015).

Researchers studying spinal injuries must continuously seek new methods for diagnosing and treating this serious trauma. Despite significant progress made in recent years in treating this patient category, this issue remains unresolved. Therefore, our goal was to study spine and spinal cord injuries, focusing on the phases of clinical progression and applying appropriate treatment methods. A clinical phase is defined as a set of various functional and morphological signs corresponding to a specific level of compensatory process disturbances over a given time period. We identify the clinical phase from the time of injury. The duration of clinical phases depends on the level of spine and spinal cord injury, with cervical spine and spinal cord injuries resulting in a shorter clinical phase. Based on the clinical manifestations observed in 45 patients, we identified the following clinical phases of spinal cord and spine injuries:

1. Phase of Temporary Clinical Compensation

In this phase, despite the presence of severe spinal cord injury, the patient's condition remains relatively stable. Patients report pain at the injury site, with paresis and paralysis in the limbs, sensory impairments, and pelvic organ dysfunction. Consciousness is preserved, and body temperature remains normal. This phase begins immediately after injury and lasts from 2 to 5 days, depending on the injury's location and severity.

2. Phase of Moderate Clinical Decompensation

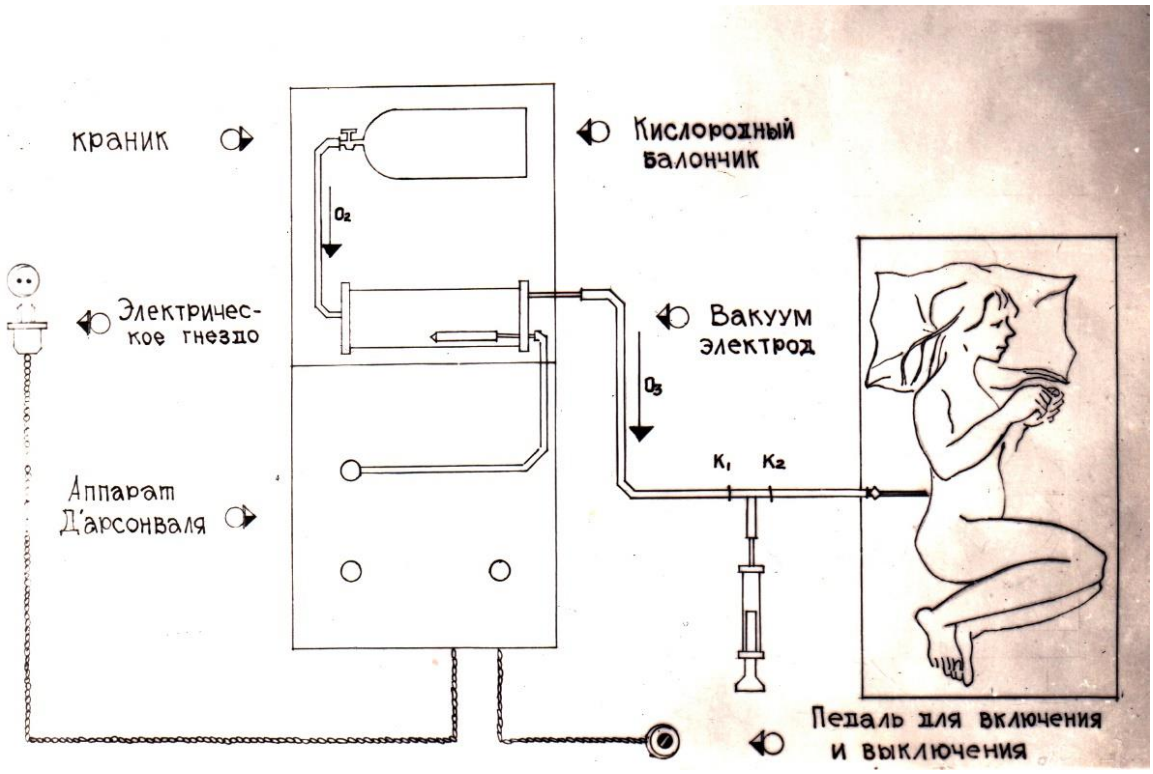
In this phase, respiratory, trophic, and urological syndromes appear, further complicating the patient's condition. Depending on the level of injury, this phase begins 2-3 days post-injury and lasts 7-10 days.

3. Phase of Severe Clinical Decompensation

This phase is most common in patients with upper cervical fractures and spinal cord injuries. Along with tetraplegia, tetraesthesia, and respiratory insufficiency, hyperthermia syndrome and paralysis of respiratory muscles occur. The voice may become hoarse or aphonic, with patients gasping for air. Uremia, septicopyemia, and trophic disorders quickly develop. Consciousness, breathing, and hyperthermia issues in upper cervical spine and spinal cord injuries are caused by medullary edema and involvement of vital centers. When injuries are located lower, the severe clinical decompensation phase occurs later, typically 3-15 days post-injury.

4. Phase of Acquired Clinical Compensation

This phase follows intensive treatment, including antibiotics, detoxification, and general strengthening therapies, as well as timely surgical interventions to relieve spinal cord compression and stabilize the spine. During this phase, body temperature gradually normalizes, urine clears, bedsores start to heal, and granulation tissue appears. Patients regain the ability to sense bladder fullness or develop an automatic bladder reflex. Neurological improvements include sensory restoration and muscle movement in specific muscles. This phase begins 3-4 weeks post-injury and can last several months. The physician's task in this phase is to reinforce progress with modern treatment methods.



5. Phase of Clinical Improvement

During this phase, the clinical picture improves significantly, with limb movements and muscle strength increasing, sensory functions restoring, controlled urination, healed bedsores, and normalized bowel movements. This phase is more easily achieved with partial or segmental spinal cord injuries. For complete spinal cord injuries, it requires diligent efforts from both the physician and patient, utilizing modern treatment and rehabilitation methods. This phase begins 2-3 months post-injury and continues for 2-3 years. During this period, patients should maintain a regimen, diet, and treatment plan to prevent the recurrence of bedsores and urinary infections.

CONCLUSION

The literature and our observations demonstrate the dynamic nature of clinical phases in spinal cord and spine injuries, with transitions between phases correlated with neurological data. This phased approach to the clinical progression and treatment of spinal cord and spine injuries allows us to adopt a new perspective on diagnostic and therapeutic measures. Recognizing clinical phases helps in applying a differentiated approach to treatment. In the phase of clinical improvement, rehabilitation treatments were provided. Patients in the hospital received general strengthening therapy and endolumbar ozone insufflation into the spinal canal to prevent adhesions and cystic processes. The ozone administration protocol is provided below.

Ozone Therapy Treatment Course

Ozone therapy was administered three times with a 10-day interval, using 20 cm^3 per session. The procedure was performed under local anesthesia through a lumbar puncture, which was well-tolerated by patients without complications. The endolumbar ozone therapy facilitated the resorption of endolumbar scars and adhesions, resulting in improved patient conditions and restored pelvic organ functions.

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