Stabilizing Surgery in the Treatment of Spine Injuries

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Abstract

Injuries of the spine are a severe type of injury, accompanied in most cases by the disability of patients. Objective of the study: To improve the results of surgical treatment of injuries and diseases of the spine using TPF systems. The results of 114 patients with injuries of the thoracic and lumbar spine were analyzed. Mechanism of injury: fall from a height - 88 patients, road injury - 33 patients. Of the total number of examined patients, 53 patients underwent conservative treatment and 61 patients underwent surgical treatment. 1 Fixation of the damaged segment of the spine with various types of metal structures (TPF) - 22 patients. 2 Decompressive laminectomy with revision of the spinal canal and spinal cord at the level of injury (without fixation of the spinal column) – 20 patients. 3 Decompressive laminectomy at the level of damage + revision of the epi- and subdural spaces of the spinal cord and, as the final stage of the operation, fixation with metal structures - 19 patients. Results: During the surgical interventions, during the revision, a complete anatomical rupture of the spinal cord was found in 9 patients, in 27 cases, a picture of hematomyelia and spinal cord contusion at the level of damage. Conclusions: 1 in the presence of symptoms of spinal cord injury, it is necessary to perform LE, revision of the spinal canal and spinal cord. 2, the most reliable fixation is achieved when using a construct for TPF, which makes it possible to activate the patients early.

Keywords: Trauma, Spine, Spinal Cord, Revision, Metal Structure, TPF System.

Relevance: According to domestic and foreign authors, the treatment of patients with spinal injuries remains an urgent problem of modern neurosurgery to date. The importance of this task is determined by the ever-increasing number of patients with severe spinal injury. Making a decision on surgical intervention on an injured spine without neurological deficit is a difficult task and causes ambiguous judgments.

The transition from conservative to early surgical methods for the treatment of severe spinal injuries led to a significant reduction in disability and a decrease in negative consequences.

Objective of the study: To improve the results of surgical treatment of injuries and diseases of the spine using TPF systems.

Materials and Methods: From 2010 to 2020, 114 patients with injuries of varying severity of the thoracic and lumbar spine were under our supervision in the Department of Neurosurgery of the AF RNCEMMP. The age of patients is from 16 to 60 years. The duration of spinal injury was from 3 hours to 5 days. When distributing patients by gender: men - 76 patients and women - 38. According to the mechanism of injury: falling from a height - 81 patients, road injury - 33 patients.

Examination of patients was carried out according to the approved protocol (examination by specialists, radiography of the spine in standard projections, computed and magnetic resonance imaging of the spine).

Among the examined patients with complicated spinal injuries, there were 40 patients and 74 patients with uncomplicated injuries. According to the level of the damaged spine: Th 7 - Th 8 - 6 patients, Th 9 - Th 10 - 19 patients, Th 11 - Th 12 - 49 patients, Th12 - L1 - 26 patients, L1 - L2 - 11 patients and L3 vertebra - 3 sick. As can be seen from the above data, the largest number of patients was with injuries of the transitional spine - 86 patients. According to the number of damaged vertebrae: at the level of 1 vertebra - 87 patients and at the level of 2 vertebrae - 27 patients. According to the degree of compression of the vertebral bodies, I degree - 36 patients, II degree - 49 patients, III degree - 16 patients, and with IV degree of damage were - 3 patients. Of the total number of examined patients, 53 patients underwent conservative treatment and 61 patients underwent surgical treatment.

After examinations, 61 patients underwent the following types of surgical interventions:

1 Fixation of the damaged segment of the spine with various types of metal structures (TPF) - 22 patients.

2 Decompressive laminectomy with revision of the spinal canal and spinal cord at the level of injury (without fixation of the spinal column) – 20 patients.

3 Decompressive laminectomy at the level of damage + revision of the epi- and subdural spaces of the spinal cord and, as the final stage of the operation, fixation with metal structures - 19 patients.

Of the 61 patients, 12 used metal constructions from the Medbiotech company (Republic of Belarus) and in 29 cases TPF constructions from the ChM company (Republic of Poland).

Results: During the surgical interventions, during the revision, a complete anatomical rupture of the spinal cord was found in 9 patients, in 27 cases, a picture of hematomyelia and spinal cord contusion at the level of damage.

During repeated examinations of patients after 3 and 6 months, a satisfactory functioning of the fixing metal structures was noted, after 1 year, looseness of the structures was found in 6 patients, in these cases operations were performed with the re-establishment of the structure and in 2 cases their removal.

Conclusions: Thus, based on the analysis of the results of surgical treatment of patients with spinal injuries, it can be concluded that the most reliable fixation is achieved when using a construction for TPF, which makes it possible to activate patients early.

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