THE USE OF NITINOL RODS IN STABILIZATION OF THE LUMBAR SPINE FOR PATIENTS UNDER 21 YEARS

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The outcomes of surgical treatment of 25 young patients with degenerative diseases of the lumbar spine in two groups were compared in patients with nitinol rods (dynamic stabilization) without spondylodesis and with rigid lumbar fixation of titanium rods.

Men - 12, women - 13, the average age is 17.6 years (from 16 to 21 years). These patients are divided into 2 groups depending on the stabilization method. Clinical and radiological results were monitored at least 1 year after the operation.

In our study we used nitinol rods of 2 standard sizes - 60 and 80 mm. The size and curvature of the bending of the rods is calculated from the average anatomical parameters characteristic of the lumbar spine and lumbosacral junction.

In all groups, there were no statistically significant differences in preoperative values and in the control periods of observation of the VAS (for both the back and the lower limb), Oswestry and SF-36 between patients with nitinol and titanium rods ($p > 0.05$).

In both cases (rigid and dynamic stabilization), statistically significant changes were noted in the postoperative period ($p < 0.01$). In both groups, in comparison with preoperative values, improvement was observed in all control periods, which were highly statistically significant ($p < 0.01$).

When studying the mobility in stabilized segment with dynamic nitinol rods, it is determined that the mobility, which persists in 1 segment, averages 4.8°. This index is within the limits of measurement error (up to 5°), however, when measuring mobility in two segments, the mobility is 9.6°.

Transpedicular fixation of the lumbosacral spine with the use of nitinol rods is an effective technology that allows to keep movements in the lumbosacral spine in combination with a stable fixation. Further study of this technology should continue, including with reference to deformations of the spine.

RISK FACTORS AND SURGICAL TREATMENT OF CRANIOVERTEBRAL STENOSIS IN PATIENTS WITH MAROTEAUX-LAMY SYNDROME (MUCOPOLYSACCHARIDOSIS TYPE VI)

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Introduction. Atlantoaxial instability with the outcome of myelopathy and spastic tetraparesis are commonly described in patients with MPS VI type. The accumulation of glycosaminoglycans behind the odontoid process leads to a gradual development of the spinal canal stenosis and compression of the spinal cord in the cervical spine. These lesions lead to neurological disorders and loss of quality of life.

Methods. Nine patients with MPS type VI. Of them 3 males and 6 females aged 14 to 35 years (mean age 20.8 years). All patients presented with craniovertebral stenosis of some degree and underwent posterior spinal canal decompression with cervical fusion. Neurological symptoms were observed in 7 of all cases preoperatively. Functional assessment and evaluation of neurological status was conducted in all cases. CT and MRI evaluation was performed at the atlantoaxial level before surgery and at follow-up.

Results. The average follow-up period was 2.9 years. Seven of the nine patients demonstrated regression of neurological symptoms. In two patients the neurological status was unchanged. Solid fusion was achieved in 6 cases. Complications from surgery we observed in 3 patients. One patient died one year after surgery due to unrelated causes, there was one case of pseudarthrosis one case of implant instability and one case of early postoperative wound suppuration.

Conclusion. The majority of patients with type VI MPS present with some degree of spinal stenosis at the atlantoaxial level. Based on our experience, these patients require close neurological and radiographic monitoring as early as possible. In our view, surgical treatment of patients with type VI MPS should be considered before the onset and progression of neurological symptoms.