Results and conclusions

Intraoperative MG let develop differentiated surgical tactics. Myelography conducted during operation, let diagnose the reversal of spinal stenosis and spinal subarachnoid space.

The analysis of the intraoperative control provided to patients with spinal injuries showed, that myelography let diagnose the state of spinal subarachnoid space during operation, as well as after the correction of a strong kyphotic spinal deformity. It also let diagnose the reversal of spinal stenosis, which is needed to determine further tactics and extent of operative interference.

The obtained results on the use of intraoperative MG proved its higher effectiveness, which let reduce operative interference and avoid excessive laminectomy in 82,4% of patients.

The work is submitted to Scientific Conference "The Problems of International Integration of Educational Standards", England (London) – France (Paris), April 20-28, 2009. Came to the Editor's Office on 04.02.2009.

TREATMENT OF UNSTABLE VERTEBRAL COMPRESSION FRACTURES

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Surgical treatment of unstable compression fractures of thoracic and lumbar spine, with the purpose of restoring anatomical axis of the damaged spinal part and its functions, remains an important and often unsolvable issue. And at the same time, it is essential not only to diagnose a compression of the vertebral body, but also to determine its severity level, which is of a great importance for revealing the nature of static disorders of the vertebral column. Mistakes in treatment of simple fractures of the vertebral body are caused, in the first place, by unclear differentiation between spine stability and instability that come as a consequence of vertebral column injury.

The aim of the current research was to study the treatment results in patients with unstable fractures of thoracic and lumbar spine in acute and early stages.

Materials and methods

We examined 251 patients with spinal injuries aged between 16 and 59 years. The most common type of injury were the traumas received in car accidents; among mechanisms of injury prevailed falls from a great height. The majority of the patients (57,8%) had fractures of lumbar spine; fractures of thoracic spine were diagnosed in 23,4%; both vertebral parts were damaged in 8% of all cases. Using different methods, 80,7% of patients were operated. Spinal fractures without cranial and caudal end-plate collapse and cranial disk injury were treated using posterior spinal fusion using shape memory instrumentation; spinal fractures accompanied by collapse of cranial end-plate and cranial disk injury were treated using anterior transpedicular fixation.

Results

Surgical treatment of unstable compression fractures of thoracic and lumbar spine let achieve stabilization and spinal axis extension in 80,8% of the operated patients.

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STUDYNG OF THE MECHANISM OF SECRETION ACETYLCHOLINE IN NERVOUS-MUSCULAR JUANCTION

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One of the main problems of contemporary bioinformatics consists in revealing physical-chemical nature of neural signal generation, as well as some principles of information transmission from neural cell to muscular one. It may be seen as a necessary step to understanding molecular mechanisms of neural system activity.

Neural cells transmit informations by signals that represent electric currents generated by neuron surface membrane. These currents arise due to transferring charges which belong to the ions of sodium, potassium, calcium and chloride. The information transmission process in neuromuscular synapses may be divided into two basic phases: (a) a mediator release from nervous endings caused by neural impulse, and (b) a mediator interaction with postsynaptic membrane that implies the miniature end-plate potentials (MEPP).

The hypothesis on a quantum secretion nature underlyes modern views on the mediator release mechanism. Under normal conditions a spontaneous release of bubbles charged with mediator into synaptic fissure takes place. These bubbles are seen as quanta containing intermolecular portions of about acetylcholine molecules. Here the Ca^{2+} ions which enter into nervous endings during the action potential are the activators of release system. Then some mediator quanta attain the postsynaptic membranes surface that leads to local depolarization registered as membrane potential. In the course of depolarization caused by action potential diffusion across the nerons the quanta release is rapidly increased, and the degree of depolarization in postsynaptic membrane grows. These changes in membrane potential are registered as MEPP values. While attaining a critical value MEPP is transformed into regenerative depolarization process in postsynap-