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NEW APPROACHES TO THE DIAGNOSIS AND TREATMENT OF COMBINED INJURIES OF LONG BONES IN ADOLESCENTS IN THE ACUTE PERIOD

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Abstract: For femoral fractures, only the use of surgical fixation techniques creates optimal conditions for consolidation of fragments and restoration of limb function. In our opinion, diagnosis, optimization of tactics and treatment methods, as well as the development of preventive measures for the most common life-threatening complications in this category of patients should be based on expanding the indications for minimally invasive technologies using external fixation devices.
Keywords: Polytrauma, femur fractures, combined trauma, osteosynthesis.

INTRODUCTION

The second half of the 20th and the beginning of the 11th century will go down in the history of injury surgery as the time of the appearance, spread and intensive study of multiple and combined injuries, which occur in 16–25% of cases in trauma hospitals [1].

Injuries, along with diseases of the circulatory system and cancer, are one of the main medical and social problems in most countries of the world. Data from the World Health Organization (WHO) indicate a high level of morbidity and mortality due to injuries, primarily among people of young working age.

MATERIALS AND METHODS

For femoral fractures, only the use of surgical fixation techniques creates optimal conditions for consolidation of fragments and restoration of limb function. At the same time, internal osteosynthesis has begun to occupy a leading position in the treatment system for such patients in recent years [2]. The DCP plates used satisfy the conditions for stable osteosynthesis of fragments of long tubular bones only with additional external immobilization.

RESULTS AND DISCUSSION

Bone fractures always heal through a stepwise process of endochondral ossification. Initially, a hematoma is formed as a result of damage to the surrounding soft tissues, periosteum and ruptures of the vessels located inside the bone. As a result of these disturbances and the occurrence of local necrosis around the damaged area, the osteocytes closest to the fracture site die. One of the effective methods was developed by A.M. Savintsev. “Method of fractures of long tubular bones”, patent RU2382614C1. The method consists in stabilizing the fracture zone by osteosynthesis, followed by a stimulating effect on osteogenesis by introducing autologous bone marrow into the fracture zone [2].

Kashansky Y.B. proposed a “method for the treatment of comminuted and multiple fractures of long tubular bones” surgically, including repositioning bone fragments and fixing them using bone or intramedullary osteosynthesis, characterized in that on days 10–16 after surgery an additional injection is injected into the fracture zone autologous mesenchymal stem cells in autologous serum in the amount of 25–50 million cells [3].

Tsiulina E.P. and Privalov V.A. It is recommended to carry out external transosseous osteosynthesis in combination with intramedullary reinforcement of the damaged bone and subsequent vibration action on the wire inserted into the medullary canal. In this case, daily vibration was applied to the wire inserted into the medullary canal, with a frequency of 50 Hz and an amplitude of 2 mm, 3 times a day for 30 minutes using a vibromassage device [2].

Research conducted by a group of scientists led by Professor G.N. Tsybulyak revealed that the combination of femoral fractures with abdominal trauma occurs in 62.9% of cases of femoral fractures due to polytrauma, while damage to the spleen occurs in 8 .9% of cases, liver – in 21.8% of cases, hollow organs – in 8.9% of cases, mesentery – in 17.9%, pancreas – in 5.1%. The most common combination of these injuries occurs in the age group 20–30 in men, 24.5% in women in the age group 40–50 (29.6%). The combination of hip fractures with craniofascial trauma occurs in 40.3% of cases, with a concussion noted in 34.8% of victims, brain contusion in 64.3%, traumatic intracranial hemorrhage in 30.4% , fractures of the skull bones – in 22.3%, most often this combination occurs in men in the age group of 30–40 years (30.6%), in women – 50–60 years (28.7%) [3].

A group of scientists under the leadership of M.I. Gromov proposed a "Method for treating victims with severe combined trauma." The method of reducing the number of complications in victims with severe combined trauma was that the patient with severe combined trauma, starting from the next day after the injury, for 10 days, was administered intramuscularly 75 mg of derinat. As a result, the victims developed post-traumatic anemia, hypoproteinemia and immunodeficiency less frequently or corrected in a shorter period of time. As a result, the total number of developing complications is reduced by 2 times, and the number of infectious non-life-threatening complications has decreased by more than 11 times. The duration of hospital treatment is reduced by 7 days. [4].

CONCLUSION

Thus, an analysis of the literature showed that the therapeutic and diagnostic tactics in the treatment of patients with femoral fractures with associated trauma are multifaceted. In our opinion, diagnosis, optimization of tactics and treatment methods, as well as the development of preventive measures for the most common life-threatening complications in this category of patients should be based on expanding the indications for minimally invasive technologies using external fixation devices.

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