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FEATURES OF THE TREATMENT OF MULTIPLE FRACTURES OF THE LONG TUBULAR BONES OF THE LOWER LIMB

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SUMMARY

He treatment of patients with multiple fractures still remains an urgent problem in traumatology, since the number of victims with this pathology tends to increase. The difficulty in treating patients lies in the fact that these injuries arise from the direct impact of a large energy force, in which bone tissue and surrounding soft tissues suffer for a long time. This indicates a tendency to develop new and improve existing methods for the treatment of patients with multiple fractures of the lower extremities, which indicates the urgency of the problem and the need for further research.

KEYWORDS: Multiple fractures, osteosynthesis, polytrauma.

RELEVANCE

The treatment of patients with multiple fractures still remains an urgent problem in traumatology, since the number of victims with this pathology tends to increase and, according to some authors, ranges from 13.4% to 75.3%. One of the causes of multiple bone fractures is a road injury, which is recorded in 79%.[1] The severity of these injuries increases, as evidenced by the frequency of traumatic shock from 27% to 81.9%. The difficulty in treating patients lies in the fact that these injuries arise from the direct impact of a large energy force, in which bone tissue and surrounding soft tissues suffer for a long time. It is no accident that the unsatisfactory results of the rehabilitation of patients after conservative and surgical treatment methods reach 75% of cases, with primary disability reaching 76.4%, and persistent disability up to 29.8%. Despite the active tactics of maintaining the data of the victims (early stable osteosynthesis, therapeutic preventive measures aimed at improving the rheological properties of blood, prevention of fatty and thromboembolism), mortality remains

high and reaches 41.7%. Currently, in the treatment of fractures of long tubular bones of the lower extremity, surgical methods are becoming increasingly common.

Of these, intramedullary blocking osteosynthesis with pins of various designs is most often used, bone osteosynthesis with the use of plates and screws, internal, transosseous with spokes and cannulated screws, and also external with external fixation devices. Each of these methods has its own indications and contraindications, advantages and disadvantages. In patients with isolated trauma, the choice of osteosynthesis is determined by the nature and type of fracture. With multiple polysegmental fractures, the patient especially needs early activation. Given this, the requirements for the strength of osteosynthesis should be increased. Currently, the method of minimally invasive osteosynthesis (MIO) with plates for the treatment of diaphyseal fractures of the lower leg is widely used.[2,3,4] The main objective of this method of treatment is to maintain tissue viability in the fracture zone. The popularity of MIO is associated with changes in the design of the plates - the development of "internal clamps" with locking screws in the holes of the plates. The design of the plates is improved for each location and type of fracture.[5] Blocked closed intramedullary osteosynthesis is the standard in the treatment of diaphyseal femoral and lower leg fractures in most developed countries.

Using this method provides less traumatic fixation of fractures and allows for an earlier limb load. D. Kreb et al.[6] studied the results of treatment of diaphyseal fractures of the femur and BB with the method of closed intramedullary osteosynthesis without blocking. The duration of interventions averaged 43 minutes. (range 18-68 min.) With fractures of the LBC and 55 min. (range 47-150 min.) - BBK. In 96% of cases, good results were obtained without additional intervention. The most common complications of bone fractures of the lower extremities are the false joints and nonunion (23.2%), the development of osteomyelitis (0.4-22.4%). With open fractures, these complications account for about 27.0%.[7] The analysis shows that there is a tendency to develop new and improve existing methods for treating patients with multiple fractures of the lower extremities, which indicates the urgency of the problem and the need for further research.

The purpose of our study: To improve the results of surgical treatment of patients with multiple fractures of the long tubular bones of the lower limb.

MATERIALS AND METHODS

In the Bukhara branch of the Republican Scientific Center for Emergency Medicine from 2013 to 2018, we operated on 102 patients with multiple fractures of the lower extremities, among which there were double fractures of one leg in the patient, double fractures of one hip in 27, fractures of two legs - at 23, fractures of two hips - at 16, fractures of one lower leg and thigh - at 22, fractures of bones of two lower legs and one thigh - at 5, fractures of one lower leg and two hips - in 9 victims. Their age ranged from 11 to 82 years, and the main group (85 patients - 83.3%) were people of working age from 25 to 57 years. There were 73 men (71.6%), women - 29 (28.4%). Closed fractures were present in 52 patients, open ones in 50. In 84 injured, injuries were received as a result of road traffic accidents. In other cases, fractures occurred in the workplace (10 patients) and in everyday life - in 8.Given the direct mechanism of injury, comminuted fractures of both the thigh and lower leg (62 cases) located in the diaphyseal sections of the bone were more common. Oblique fractures in 23 cases, transverse ones in 12 cases, screw-like ones - 5. 81 patients had concomitant injuries: compression fracture of the spine - in 3, pelvic fracture - in 9, humerus - in 4, forearm bones - in 17, scapula - at 4, fracture of ribs at 18, patella - at 3, clavicle - at 14, ankle fracture - at 4, foot bones - at 5. In a state of traumatic shock, 74 people were received (shock of the first degree - 27, II degree 41, III degree 6), who needed anti-shock measures. In addition, in 52 victims, a closed head injury of varying severity was observed (concussion - 46, brain contusion - 6), which required the selection of adequate anesthesia for surgery. All received emergency assistance on the principle of urgent surgery.

RESULTS AND DISCUSSION

After clinical, radiological and laboratory studies, together with the anesthesiologist, they decided on the timing and extent of the surgical intervention. Given the nature of the damage and related diseases, operations under spinal anesthesia were performed in 74 patients, under general anesthesia - in 24 patients, intravenous - in 4 patients. On the day of admission, osteosynthesis was performed by 71 victims, up to 3 days - 22, up to 7 days - 9. Blocking intramedullary osteosynthesis was performed by 54 patients, AVF U 21, bone osteosynthesis with blocking plates in 23, 4 patients was performed osteosynthesis with needles due to the nature of the fracture and general somatic condition. In order to reduce the duration of the operation, osteosynthesis of damaged segments was carried out by two teams of doctors of 2-3 people. Depending on the level of fractures, their number and degree of damage to the soft tissues, various types of osteosynthesis were used. Patients with closed fractures of the thigh

and lower leg were mainly osteosynthesized with standard (22) or reconstructive (32) intramedullary pins depending on the nature of the fracture. To improve the results of surgical treatment and the prevention of early postoperative thromboembolism during surgery, the Ilizarov compression-distraction apparatus was used for closed repair of fragments. After installing the pin, the compression-distraction apparatus was removed. Patients rose to their feet with crutches already 2 days after surgery. The combined method of osteosynthesis was used in two versions. In the first embodiment, they were used in the treatment of fracture of one segment, in the second of different segments. The use of various methods of osteosynthesis according to the first embodiment was performed both with isolated and with multiple polysegmental fractures. In the second - only with multiple. The first option provided for their simultaneous or sequential use. The simultaneous use of plates, screws and ANF was carried out in cases where each of the methods separately did not provide sufficient fixation strength or did not allow to complete all tasks to achieve strong fixation of fragments. Most often, these options were used in the treatment of fractures of the pelvic bones, acetabulum, proximal end of the thigh, and mice of the leg. Below are examples of the simultaneous use of various methods of osteosynthesis in the treatment of injuries on one segment. Consistently different methods of osteosynthesis were used for stale fractures to eliminate displacements of fragments resulting from muscle retraction, often on the thigh and forearm. In the first case, a powerful muscle ¬ array prevented instantaneous reposition. In the second case, the likelihood of developing a compartment syndrome was high. The displacement was eliminated by slow distraction in the ANF, replacing it further with immersion fixers. The second variant of combinations of various methods of osteosynthesis provided for the use of their combinations in fractures of several segments in one patient. Most often this was noted in the presence of both open and closed fractures, periarticular and diaphyseal injuries, injuries of the lower and upper extremities, etc. The use of combined methods of osteosynthesis according to the first option made it possible to resolve some complex issues of surgical treatment of fractures. At the same time, there were a number of serious drawbacks of their application according to the second variant. As shown by ours. previous studies, in the treatment of polysegmental fractures, the greatest number of complications and unsatisfactory treatment results were in the group of patients using combined osteosynthesis methods. In addition, the length of hospital stay and the total duration of treatment in these cases were longer compared with the use of any one method of osteosynthesis of all existing fractures. The advantage of each of the methods taken separately was lost, and the negative moments came to the fore and were summarized. For

example, the use of ANF in combination with immersion methods of osteosynthesis led to an increase in the duration of inpatient treatment, since on the thigh or pelvic ring the apparatus could only be removed after the fractures were fused. In these cases, in order to prevent complications, the patients were forced to stay in a hospital for the entire period of their stay at the ANF. Some methods of osteosynthesis in the treatment of polysegmental fractures were not combined. So, the use of ilsilateral fractures of ANF for the distal segment, and plates for the proximal, in most cases led to the development of complications. An increase in the weight of the peripheral limb was the cause of rotational instability in the proximal fracture zone, which caused the destruction of internal fixation and the development of complications. At the same time, the quality of life of patients and their mobility remained low. From the above example it can be seen that these combinations of osteosynthesis are unacceptable for the treatment of bilateral fractures. Combinations of ANF and submersible methods also increased the likelihood of infectious complications. The places for the introduction of transosseous elements were the entrance gate of infection into the internal environment of organism. Then the bacteria spread along the lymphatic tract. Violations of lymphatic outflow associated with a disturbance in the functioning of the muscular-vein pump in 8 patients were the initiators of severe inflammatory complications. In our opinion, the use of combined methods of osteosynthesis in multisegmental fractures is justified only in the first embodiment. Recommendations for using them in the second variant should be limited. As previous studies have shown, the smallest number of complications in the treatment of polysegmented fractures was noted with the use of blocked osteosynthesis. The widespread use of ANF should be reduced, applying them only for extensive damage to the soft tissues before wound healing or to eliminate the displacement of fragments in stale fractures, as a preliminary stage of osteosynthesis. Submersible blocked osteosynthesis. The use of standard plates for diaphyseal fractures is also considered unjustified, due to the invasiveness of the method and the observed phenomena of debrikolyazha: plates and screws often do not withstand the loads due to the long terms of fusion of comminuted fractures prevailing in polytrauma.

OUTPUT

1. Thus, the method of intramedullary blocking osteosynthesis is the most effective method of osteosynthesis for polysegmental fractures of long tubular bones of the lower limb.
2. The simultaneous use of combinations of various osteosynthesis methods within the same segment is shown in cases where each of the methods used does not provide sufficient

fixation strength, or allows solving problems that are inaccessible to each of the methods separately.

3. The use of combinations of different methods of osteosynthesis for the treatment of different segments of the limbs in one patient is not recommended, as it often leads to the development of complications and unsatisfactory treatment outcomes.

LITERATURE

1. Fracture homolaterale des diaphysesfemorale et tibiale: etude retrospective a propos de 24 cas / C. Samaha [et al.] // 7e Congres de l' AOLF: livre des resumes. – Liban, 2000; 158-159.
2. Minimally invasive percutaneous plate fixation of distal tibia fractures / S. Bahari, B. Lenehan, H. Khan, J.P. McElwain // ActaOrthop. Belg., 2007; 73(5): 635-640.
3. Müller T.S., Sommer C. Minimally invasive plate osteosynthesis of the distal tibia // Oper. Orthop. Traumatol, 2012; 24(4-5): 354-367.
4. The results of minimally invasive percutaneous plate osteosynthesis (MIPPO) in distal and diaphysealtibial fractures / M.A. Aksekili, I. Celik, A.K. Arslan, T. Kalkan, M. Uğurlu // ActaOrthop. Traumatol. Turc, 2012; 46(3): 161-167.
5. Khmara A.D., Norkin I.A., Khmara T.G. Treatment tactics for combined trauma to the chest and segments of the limbs (review) // Saratov. Scientific medical journal, 2012; 8(4): S. 982-988.
6. Intramedullary nailing without interlocking screws for femoral and tibial shaft fractures / D.L. Kreb, T.J. Blokhuis, K.J. van Wessem, M. Bemelman, K.W. Lansink, L.P. Leenen // Arch. Orthop. Trauma Surg, 2013; 133(8): 1109-1113.
7. Gayko G.V., Kalashnikov A.V., Nikitin P.V. Intramedullary blocking osteosynthesis in the treatment of patients with closed fractures of long bones of the limbs // News of Orthopedics, traumatol. that prosthesis, 2007; 1. S: 26-33.