

## **Introduction**

The choice of the optimal type of osteosynthesis of the extra-articular tibia fractures remains the question for discussions in the scientific literature. The authors who use the principles of the AO/ASIF, dominantly recommend the internal fixation in the case of acute fractures. However, the method of the external fixation often has preferences in open fractures, soft tissue injuries, high-energy trauma, especially in the lower third of the leg. There are also articles about the successful using of the external osteosynthesis in the treatment of closed extra-articular tibial fractures, types A and B, as a main method. Refusal of wider using of the external fixation is usually caused by the fears of a numerous inflammatory complications, probable difficulties for the patient during the treatment in the external device etc. **The purpose** of this article – to analyze own experience in the treatment of extra-articular tibia fractures based on the external osteosynthesis and to justify the indications for its using in fractures of this localization.

## **Material and methods**

Article includes the retrospective analysis of the treatment of 67 patients with extra-articular tibia fractures with the using of the pin-rod devices for the external fixation. Open fractures were diagnosed in 7 (10,3%) patients, high-energy trauma – 21 (31,3%), tibia fracture as a component of polytrauma – 19 (28,4%). The most severe type of fracture (type C) was in 15 (22,0%) patients. The complications and results of treatment according to the criteria of Order №41 (1994) of Ministry of Health of Ukraine were studied. Indications for using of the external fixation when benefits of the method are more significant than disadvantages which associated with the presence of an external device module were analyzed.

## **Results**

The main complications were: nonunion – 4 (5,9%), inflammatory soft tissue complications – 2 (2,9%), limitations of ankle joint function – 4 (5,9%). Good results were in 55 (80,9%) patients, fair - 8 (11,1%), poor - 5 (7,3%). Thus, the fears associated with a probability of numerous inflammatory complications are exaggerated. All patients were mobile during the whole period of treatment, were able to self-service, could load the injured extremity and to fulfill the movements in knee and ankle joints.

Analysis of indications for using of the external transosseous osteosynthesis showed that there are several clinical situations and cases when the benefits which can provide this method are more significant than disadvantages which associated with the presence of an external device module. The most important of them are: fractures with significant traumatic or trophic soft tissues disorders; type C, “double” and “triple” fractures when the zone of fracture spreads to large part of the diaphysis; tibia fracture as a component of polytrauma; tibia fractures of both extremities; treatment the disorders of fractures consolidation or bone defects.

## **Conclusion**

External transosseous osteosynthesis is an effective method of treatment of the extra-articular tibia fractures. Fears associated with a high incidence of inflammatory complications and difficulties for the patient during the treatment in the external device, are exaggerated if the adequate external fixator is used. The main conditions for the effective application of this method are: the using of adequate modern devices of apparatus, which can provide the possibility of corrective effects on bone fragments and on the zone of fracture (compression, distraction, etc.) during all stages of treatment, full axial loading of the extremity, movements in adjacent (knee and ankle) joints, as well as strict adherence to the surgical technology.