

Guest Nation Poster #GN 6

Conversion of external fixation to internal fixation in the treatment of combat fractures.

Petro Nikitin, MD

Purpose: To determine the safety of replacing the primary external fixation of the combat open fractures of the extremities to the final internal fixation with a plate or an intramedullary nail.

Methods: During the period of the war from 2022 to 2023, 131 patients (all men) with combat fractures of the limbs were admitted to the orthopedic department of the hospital, whose fracture fragments were fixed with rod ExFixes at the previous stages of evacuation. Of them, 116 (88.5%) patients underwent conversion from the external fixation to internal fixation on 128 segments of the limbs (in 12 patients on two segments). The term of the conversion of the method was an average of 17 days. Indications for replacement were: improvement of the general condition of the patient and local status of the limb, as well as positive dynamics of laboratory indicators (hemoglobin, protein, leukocytes, ESR, C-reactive protein, tricalcitonin). If the ExFix was used for more than 3 weeks, the ExFix was dismantled and a plaster bandage (Pin Holiday) was applied for 7-10 days. The segmental distribution was as follows: shoulder – 26; forearm - 13; thigh – 43; lower leg - 41; foot - 5. 55 pins, 67 plates, 6 - a combination of pins + plate were used as final internal fixation.

Results: The results of the treatment were monitored in terms of 7 months to 18 months. Nonunions were noted in 9 (7.75%) patients (5 hips, 3 lower legs, 1 forearm). Infectious complications occurred in 11 patients (5 hips, 4 lower legs, 1 shoulder, 1 forearm), which was 9.48% of the total number of patients who underwent conversion. In our opinion, such a number of complications is small, considering the high severity of the injuries and the contamination of the primary gunshot wounds. The evaluation of the results showed that for a safe replacement, the following is required: mandatory multiple preliminary debridement, the use of cement antibacterial spacers for existing bone defects, antibiotic therapy for sensitivity, rapid delayed closure of primary wounds (up to 7-10 days), satisfactory repositioning of fragments and their stable fixation in ExFix, minimally invasive final internal fixation.

Conclusion: Conversion from external fixation to internal fixation with plates or nails for combat fractures of the extremities, as soon as soft tissue is healed, and laboratory parameters allow, can be a safe and effective procedure in the treatment of wounded with such injuries