DELAY OF OSTEOREPARATION PROCESS IN POLYFOCAL FRACTURES OF LONG BONES: CLINICAL AND EXPERIMENTAL STUDIES

Saipiev Azizbek Akbarovich
Erkin Mustaqimovich Khayratov
Bakhtiyor Zarifovich Khamdamov
Bukhara State Medical Institute

Relevance of the problem: Polyfocal fractures of long bones are complex traumatic conditions that occur in multiple injury cases and significantly affect patients' life and functional capabilities. Such fractures are characterized by delayed osteoreparation, development of complications, and slow functional recovery. Currently, various methods are used in clinical practice to treat polyfocal fractures of long bones, but there is insufficient precise and comprehensive data on their effectiveness and influence on the osteoreparation process. Moreover, the discrepancies between clinical experience and experimental studies hinder a complete understanding of the mechanisms of delayed osteoreparation. Therefore, a comprehensive clinical and experimental study of delayed osteoreparation in polyfocal fractures of long bones, identification of the underlying pathogenesis, and development of effective therapeutic approaches are of significant importance for both medical practice and science.

Objective: To comprehensively study the delay of the osteoreparation process in polyfocal fractures of long bones based on clinical and experimental studies, to identify its pathogenesis, and to develop effective treatment methods.

Materials and Methods: The delay of the osteoreparation process in polyfocal fractures of long bones was studied through a combination of clinical and experimental research. Clinical analysis of 226 patients showed that the mechanism of injury, age, type of fracture, and blood supply to the intermediate fragment significantly influenced the osteoreparation process. Experimental studies confirmed that blood supply and healing of the intermediate fragment depended on the osteosynthesis method. The Ilizarov method and its combination with intramedullary pinning proved effective for stable fixation of the intermediate fragment and improving blood circulation. Thus, clinical and laboratory data demonstrated that considering the blood supply to the intermediate fragment and the type of osteosynthesis used is crucial for effective treatment of polyfocal fractures of long bones. These results provide the basis for developing effective therapeutic approaches to enhance functional recovery and prevent complications.

Results: Clinical and experimental studies comprehensively analyzed the osteoreparation process in polyfocal fractures of long bones. Clinical analysis of 226 patients confirmed that the mechanism of injury, age, type of fracture, and blood supply to the intermediate fragment significantly affect osteoreparation. Experimental studies demonstrated that the healing and blood supply of the intermediate fragment depend on the osteosynthesis method. The Ilizarov method and its combination with intramedullary pinning were effective for stable fragment fixation and improving blood flow. Therefore, clinical and laboratory data indicate that considering blood supply and osteosynthesis type is crucial for successful treatment and functional recovery of patients.

Conclusion: The osteoreparation process in polyfocal fractures of long bones was studied through clinical and experimental research. The study results indicate:

- The delay of osteoreparation depends on the mechanism of injury, age, fracture type, and blood supply to the intermediate fragment.
- The Ilizarov method and its combination with intramedullary osteosynthesis are effective for stable fragment fixation and improving blood circulation.
- Clinical and laboratory data allow for continuous monitoring, functional recovery assessment, and development of effective therapeutic strategies to prevent complications.

REFERENCES:

1. Dingemans S.A. et al. Two-stage treatment in patients with patients with high-energy femoral fractures does not lead to an increase in deep infectious complications: a propensity score analysis. // Eur J Trauma Emerg Surg. – 2018. №44 (1). – P. 125-131. doi: 10.1007/s00068-017-0822-6. Epub 2017 Jul 28. PMID: 28755132; PMCID: PMC5808064.
2. Farsetti P. et al. Lower limb lengthening over an intramedullary nail: a long-term follow-up study of 28 cases. // J Orthop Traumatol. – 2019. - №20 (1). – P. 30. doi: 10.1186/s10195-019-0538-y. PMID: 31506759; PMCID: PMC6737138.
3. Ghaseminejad-Raeini A. et al. Antibiotic-Coated Intramedullary Nailing Managing Long Bone Infected Non-Unions: A Meta-Analysis of Comparative Studies. // Antibiotics (Basel). – 2024. - №13 (1). – P. 69. doi: 10.3390/antibiotics13010069. PMID: 38247628; PMCID: PMC10812602.
4. Ghayyad K. et al. Nonunion fractures: trends in epidemiology and treatment of femur fractures, 2017-2022. // Cureus. – 2024. - №16 (9). – P. 70-76. doi: 10.7759/cureus.70566. PMID: 39483929; PMCID: PMC11524799.