

Is “Delayed” Early Total Care Dangerous When Nailing Femur Fractures?

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Background/Purpose: Timing of definitive fixation of femur fractures in the polytraumatized patient remains an area of certain controversy. The concept of damage control orthopaedics (DCO) was designed to treat unstable patients with temporary stabilization using external fixation. Recently, improved resuscitative methods have allowed for the return of early appropriate total care. Recent studies have shown that definitive fixation within 24 hours of injury resulted in lower complication rates than delayed treatment. The purposes of this study were first to review the tendencies at our Level I trauma center, and second to evaluate complications associated with timing of femoral nailing.

Methods: All femoral shaft fractures amenable to intramedullary nail fixation over a 5-year period were identified retrospectively from a trauma database. Patients who died prior to fixation, underwent damage control, and those with periprosthetic fractures were excluded. Complications collected were mortality, pulmonary embolism, fat embolism, pneumonia, acute respiratory distress syndrome (ARDS), deep vein thrombosis (DVT), and respiratory arrest. Patients were divided into four groups (<24 hours, 24-48 hours, 48-120 hours, >120 hours) based on timing from injury to operative fixation.

Results: A total of 822 patients presenting with femur fractures were identified over a 5-year period. Of these patients, 610 were treated with intramedullary statically locked nailing. Nine patients died in the immediate postoperative period. The average age was 33.6 years and mean ISS was 22.3. The mean time from admission to operation was 23.1 hours, with 70.9 % being treated <24 hours, 15.2% between 24 and 48 hours, 9.3% between 48 and 120 hours, and 4.6% >120 hours. The total rate of complications was 22%. ARDS and pneumonia were statistically more likely in patients nailed within 24 hours ($P > 0.05$). ARDS was also significantly increased in patients undergoing fixation after 120 hours. All other complications were not different among the groups.

Conclusion: Early total care for femur fractures is safe although not without complications. Modern resuscitation has likely allowed for earlier fixation time; however, it does not eliminate complications. Current literature supports primary definitive fixation and this is reflected in our practice. Special attention should be given to patients at risk for respiratory complications. When there is a delay, intramedullary nailing can still be safely undertaken between injury days 2 and 4 without increased complications.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an “off label” use). For full information, refer to page 600.