

Did Policy Change From Early Total Care to Damage Control Orthopaedics Improve the Outcome?

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Purpose: Approach to femoral shaft fractures (FSFs) in the polytrauma context is still a matter of deliberation. During the past 2 decades, there has been a shift from early total care (ETC), in which FSF was treated immediately with intramedullary nailing, to damage control orthopaedics (DCO), where patients receive a temporary fixation and are treated in a delayed fashion. Our aim in this study is to compare the outcome of the 2 approaches.

Methods: We present a retrospective cohort study performed in a Level-I trauma center, following policy shift from ETC towards DCO during the mid-2000s. Adult patients suffering from polytrauma and FSF treated in our center were included. The first group of patients was the ETC group treated in the years 2000-2005 with immediate intramedullary nailing. The second group consisted of polytrauma patients with FSF that were treated initially with DCO after the policy change (2005-2018). Out of the ETC group, we identified retrospectively the patients who were unstable or borderline according to our institutional criteria for DCO nowadays. We gathered data from initial admission: ISS (21.4 ± 14.4), injury mechanism, vital signs, hemoglobin, and platelet levels at admission. The ETC group was treated with an intramedullary nail (IMN) while the DCO group was treated initially with an external fixator followed by conversion to IMN.

Results: A total of 97 patients were analyzed; DCO group included 52 patients, while the ETC included 44 patients. The patient groups were comparable regarding age, gender distribution, mechanism of injury, and ISS. Time to initial surgery was 0.44 ± 1.3 hours in the DCO group and the ETC, 0.36 ± 1.01 . Both univariate analysis and multivariate analysis failed to demonstrate significant differences between the 2 groups in mortality or life-threatening complication rates, such as acute respiratory distress syndrome (ARDS), and multi-organ failure. There were no significant differences in either hospital or ICU length of stay, as well as blood product consumption.

Conclusion: Our study failed to demonstrate a major benefit in outcome between ETC and DCO in a severely injured patient with a femur fracture. Further large-scale prospective studies are required to confirm or negate our findings. The recommendation to move toward DCO needs further, more convincing evidence.