

## Delayed internal fixation of femoral shaft fracture reduces mortality among patients with multisystem trauma

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The management of long bone fractures in poly-trauma patients is not controversial. The timing of this management, however, is controversial and this has been the subject of numerous articles, editorials and conference papers in recent years.

Nobody would argue that definitive fracture fixation is beneficial to the polytrauma patient. Timing this fixation seems to be the key to good outcomes in these patients. It does seem that performing damage control orthopaedics in the more severely injured group of patients may decrease ARDS and increase survival rates. The reasons for this revolve around the pro-inflammatory nature of definitive long-bone fixation (nailing or plating) and the 'second hit' effect this has on the already compromised host.

This is a large observational study reported from California, where a large cohort of severely injured patients (ISS > 15) with concomitant femur fractures were studied and reported upon. More than 3 000 patients were included in the group. The group was divided into

sub-groups depending on the timing of the definitive fracture fixation. Mortality was compared across the subgroups and also compared across injury patterns and other confounding factors.

The result was clear: The patients who received definitive treatment for their femur fractures at a later stage (after 12 hours) had significantly **lower** mortality rates. This benefit was even more pronounced in the group of patients who had significant abdominal trauma.

The reason for this is probably that the severely injured patient is probably still poorly resuscitated or recovering physiologically from the shock state during the first 12 hours post-injury and is thus very vulnerable to the second hit phenomenon.

This study clearly supports the new trend toward damage control orthopaedics in the setting of long bone fractures in conjunction with severe other injuries (ISS > 15).

This is the largest series to date with mortality as the end-point and seems to be a very relevant article in this field.