

Incidence of Complications and Mortality in Polytrauma Patients Managed Either with ETC or DCO: Lessons Learned

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Purpose: We hypothesize that polytrauma patients treated with Early Total Care (ETC) had a lower mortality rate and incidence of complications compared to the group of patients managed with Damage Control Orthopaedics (DCO).

Methods: 1695 polytrauma patients with ISS ≥ 16 were eligible to participate. Inclusion criteria were patients who had suffered a long bone shaft fracture that was managed either with external fixator (DCO) or intramedullary (IM) nailing (ETC). Data analyzed included initial physiological state (blood pressure, pulse rate, lactate, acid base balance, coagulation parameters), ISS, blood transfusion requirements, AIS (Abbreviated Injury Scale) per body region, mechanism of accident, operations performed, ICU stay, length of hospital stay, complications, and mortality. Descriptive statistics were performed as appropriate for comparison among the 2 groups.

Results: 360 patients met the inclusion criteria (205 patients managed with DCO and 155 with ETC). Mean age was 44.64 years (range, 16-95), mean ISS was 27.3 points (range, 16-66) and mean Glasgow Coma Scale (GCS) was 14 on arrival. In the DCO group the mean ISS = 27.65, GCS = 14.02, and time to operation was 12.89 hours. 43 patients required blood products with an average of 4.30 units per patient. Average ICU stay was 4.73 (SD = 8.87) days; average hospital stay was 21.54 (SD = 21.17) days. 37 patients experienced complications. There were 5 deaths. The percentage of regional anatomical injuries with their AIS was: head 38.50% (3.3), chest 65% (3.25), abdomen 26% (2.54), pelvis 62.5% (3.64), spine 58% (2.37), limbs 81% (2.52). In the ETC group the mean ISS was 26.79, GCS = 13.72, and time to operation was 13.01 hours. 26 patients required blood products with an average of 6.92 units per patient. Average ICU stay was 3.41 (SD = 6.6) days and average hospital stay was 15.4 (SD = 16.86) days. 17 patients experienced complications. There were a total of 7 deaths. The percentage of regional anatomical injuries with their AIS was head 38.71% (2.98), chest 65.81% (3.39), abdomen 24.52% (2.76), pelvis 42.58% (3.61), spine 50.32% (2.55), limbs 78.06% (2.57). Comparison of no survivors for the ETC and DCO group of patients revealed the following: nonsurvivors ETC 7 of 155 (4.52%), DCO 5 of 205 (2.44%); age 63.79 versus 76.12 years; shock 71.43% versus 40%; ISS 37.71 versus 30.2; head injury 42.86% versus 60%; chest injury 85.71% versus 20%; abdomen injury 42.86% versus 20%; pelvis injury 71.43% versus 40%; spine injury 42.86% versus 60%; limb injury 71.43% versus 60%; and death post admission 14 days versus 10.4 days.

Conclusion: Both strategies were found to be effective but ETC was associated with almost double mortality rate and should be practised with caution.