Unstable Intertrochanteric Fractures: Is the Best Plate a Nail?

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Purpose: The management of Intertrochanteric hip fracture remains contentious. We aimed to determine if either sliding hip screws or cephalomedullary nails have superior outcomes for unstable intertrochanteric hip fractures.

Methods: We prospectively reviewed all unstable intertrochanteric hip fractures (AO31A2.2 to AO31A3.3) from January 2001 to December 2015 inclusive. Patient demographics, surgical details, functional scores, and 1-year mortality were assessed for 3 distinct operative procedures: sliding hip screw (SHS), SHS with trochanteric stabilization plate (SHS + TSP), and cephalomedullary nails (CMN). The data were statistically analyzed and $P < 0.05$ considered significant.

Results: We identified 3451 patients of whom 3230 had full data sets available for analysis. The mean age of 80 ± 12 years. The mean ages by implant were SHS 80.5 ± 11.6, SHS + TSP 80.5 ± 11.9, and CMN 79.0 ± 13.3, with a significant difference noted between SHS and CMN only ($P = 0.016$). A female preponderance of 3:1 was noted. Frequency of A2.2 and A2.3 fracture subtypes increased ($r = 0.377$ and $r = 0.548$, both $P < 0.001$), while a nonsignificant increasing trend in A3 subgroup ($r = 0.068$, $P = 0.423$) was observed. Modal ASA (American Society of Anesthesiologists) grade was 3, with no difference in ASA grades between groups ($P = 0.138$). SHS procedures reduced ($r = -0.903$), with a concomitant increase in SHS with TSP ($r = 0.777$) and CMNs ($r = 0.864$). Baseline functional scores were similar. No difference was seen at 12 months postoperatively ($P = 0.179$). All implants displayed functional deterioration from baseline ($P < 0.0001$). The SHS + TSP group had the longest inpatient stay (18.1 ± 14.3), versus SHS 12.5 ± 9.8 and CMN 12.6 ± 9.1 ($P < 0.001$). Revision rates were SHS 4.04%, SHS + TSP 2.53%, and CMN 2.34%, respectively ($P = 0.239$). Kaplan Meier plots for mortality at 12 months for each group was 22.6% SHS, 27.2% SHS + TSP and 18.1% CMN ($\times 2(2) = 9.165$, $P = 0.014$). Subanalysis by gender demonstrated males were at an increased risk of mortality at 12 months postoperatively.

Conclusion: Better baseline functional scores and a younger age may influence the use of CMNs. No functional benefit is conveyed at 12 months postoperatively. Males tended to be younger, with higher 12-month mortality risk compared to females, regardless of implant. The use of a CMN for treating unstable intertrochanteric fractures of the hip is associated with equivocal length of stay and lower mortality rates compared to a SHS, with or without an additional TSP.