A Comparison of Helical Blade and Lag Screw Fixation in the Treatment of Intertrochantic Hip Fractures with Cephalomedullary Nails

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Purpose: The objective was to compare failure rates of helical blade versus lag screw fixation in intertrochanteric femur fractures treated with the Trochanteric Fixation Nail-Advanced (TFNA).

Methods: Data from 13 Level I trauma centers were retrospectively analyzed. Patients with intertrochanteric femur fractures (AO/OTA 31A1-A3) treated between January 2014 and May 2021, inclusive, with TFNA were identified. Pathologic fractures and those with less than 3 months of follow-up were excluded. Rates of fixation failure, reoperation, and nonunion were compared when a lag screw was used vs a helical blade. Fixation failure was defined as perforation of the femoral head with the helical blade or lag screw due to collapse or varus angulation.

Results: A total of 767 cases were analyzed. 454 (59.2%) were female and median age was 77 years. 458 (59.7%) were treated using a lag screw and 309 (40.3%) using a helical blade. Fixation failure occurred in 23 (3%) total cases: 11 (2.4%) in the lag screw group versus 12 (3.9%) in the helical blade group (P = 0.238). Reoperation was needed in 45 (5.9%) cases: 21 (4.6%) in the lag screw group versus 24 (7.8%) in the helical blade group (P = 0.066). Nonunion occurred in 13 (1.7%) cases: 9 (2.0%) in the lag screw group versus 4 (1.3%) in the helical blade group (P = 0.48).

Conclusion: No statistically significant differences were observed in rates of fixation failure, reoperation or nonunion between intertrochanteric fractures when a TFNA lag screw was used versus a TFNA helical blade. Reoperation rates approached statistical significance, occurring in 7.8% of cases where a helical blade was used compared to 4.6% of cases where a lag screw was used. While earlier reports have suggested a higher rate of fixation failure with use of the helical blade, this study supports more recent findings demonstrating no significant difference in early outcomes between the use of a helical blade and lag screw.