

Direct Anterior Versus Anterolateral Approach for Hip Arthroplasty After Femoral Neck Fracture in the Senior Population: Early Results from an Ongoing Prospective Randomized Clinical Trial

*Alexandra Cancio-Bello, BS; Alexis Matrka, MD; Joseph Statz, MD; Brian Chalmers, MD; Michael J. Taunton, MD; William Wood Cross, MD
Mayo Clinic, Rochester, Minnesota, UNITED STATES*

Purpose: Displaced femoral neck fractures are a common injury in the elderly that are associated with an increased risk of morbidity, mortality, and future fractures, as well as a decrease in functional level. The direct anterior approach (DAA) has been shown to be effective in elective total hip arthroplasty to help patients quickly obtain high postoperative function. The goal of this study is to compare the DAA and anterolateral approach (ALA) for hip hemiarthroplasty for displaced femoral neck fractures in the senior population with regard to postoperative function using a prospective, randomized clinical trial.

Methods: At the time of analysis, 62 patients had been enrolled in the study from 2017 to 2021. 30 patients were randomized to hemiarthroplasty via the DAA and 32 were randomized to the ALA. Short-term functional clinical outcome was assessed utilizing the timed up and go (TUG) test at 6-week follow-up. Multiple secondary outcomes were assessed as well. The DAA cohort was 60% female, had a mean age of 82 years, and a mean body mass index (BMI) of 24.8 kg/m². The ALA cohort was 59% female, had a mean age of 84 years, and a mean BMI of 25.7. There was no statistically significant difference between cohort demographics. Survivorship free of any revision was assessed via Kaplan-Meier methods. Mean follow-up was 3 years.

Results: There was a significant difference between the mean TUG test time for the DAA and ALA cohorts (23 sec vs 35 sec, $P = 0.04$). There was also a significant difference between the mean 30-second chair stand value for the DAA and ALA cohorts (5 vs 2, $P = 0.03$). All other secondary outcomes analyzed showed no statistically significant difference including complication rate ($P = 0.27$), postoperative opioid requirements ($P = 0.74$), and hospital length of stay ($P = 0.10$). Survivorship free of any revision was 96.7% in the DAA cohort versus 100% in the ALA cohort ($P = 0.30$). Indication for the sole revision in the DAA cohort was persistent pain treated with conversion to a total hip arthroplasty with maintenance of the femoral component.

Conclusion: Early analysis demonstrates a significant improvement in the 6-week postoperative function of patients having undergone hemiarthroplasty for femoral neck fracture via the direct anterior approach compared to the anterolateral approach.