**Dual Implants for Geriatric Distal Femur Fractures Result in Greater Healthy Days at Home**

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**Purpose:** Healthy Days at Home (HDAH) is a recently adopted quality metric that captures both functional recovery and return to independent living that geriatric trauma patients value. Aside from mortality, HDAH is regarded by patients as one of the most important outcomes through patient engagement studies. The study purpose was to investigate the impact of dual implants (DI) vs single implant (SI) on HDAH in geriatric distal femur fractures.

**Methods:** Geriatric (age >60 years) distal femur fractures from 3 Level I trauma centers between January 2019- June 2023 were retrospectively reviewed. Demographics, comorbidities (Charlson Comorbidity Index), pre- injury function, fracture classification/characteristics, weightbearing recommendations, facility days, weightbearing status, and 90-day readmission were recorded. HDAH was calculated from hospital discharge to 90 days follow-up and accounted for days spent in care facilities, readmissions, and secondary surgeries. $\chi 2$ and analysis of variance were used for bivariate analysis. Analysis of covariance was used to compare HDAH, time to weightbearing, and facility days between DI and SI cohorts while controlling for age, gender, periprosthetic fracture, pre-injury status, and postoperative weightbearing recommendations.

**Results:** 111 SI and 38 DI patients were included. DI patients were more likely to be female (89% vs 71%, P = 0.03) and had more periprosthetic fractures (60% vs 38%, P = 0.02). There were no other demographic, fracture characteristic, or preoperative functional differences between groups. DI patients were more likely to be immediately weightbearing as tolerated (WBAT) postoperatively (66% vs 41%, P = 0.05). Following regression analysis, DI patients spent fewer days in a facility (27 vs 38 days, P = 0.018) and had greater HDAH (62 vs 51 days, P = 0.02) than SI patients. There were no differences in 90-day readmission rates (DI 20% vs SI 29%, P = 0.38) or time to WBAT (DI 19 vs SI 33 days, P = 0.10).

**Conclusion:** Distal femur fracture treatment with DI increases the number of HDAH within 90 days after hospitalization as compared to SI. Given that a 5-day difference in HDAH is clinically significant, using DI may represent an improvement in care for geriatric distal femur fracture patients.