Paper Session: Hip/Femur

Does Fixation Implant or Vitamin D Supplementation Improve Patient-Reported Function and Quality of Life in Young Femoral Neck Fractures? Results From the FAITH-2 Trial

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Purpose: The surgical implant choice and the decision to provide vitamin D supplementation to improve femoral neck fracture healing in healthy adults (age <60 years) is controversial. The FAITH-2 Trial was a pilot multicenter randomized controlled trial (RCT) comparing the sliding hip screw (SHS) and cancellous screws (CS), and vitamin D3 versus placebo for the treatment of young femoral neck fractures. This study reports the patient-reported recovery in function and health-related quality of life (HRQL), and explores potential differences in outcome between surgical implants and between supplementation treatments.

Methods: Adult femoral neck fracture patients aged 18-60 years were recruited from 15 North American hospitals. A 2 x 2 factorial design was used to randomly allocate patients to SHS or CS and to vitamin D3 4000 IU or placebo daily for 6 months. Patient-reported function was measured with the 30-item Hip Outcome Score (HOS) Activities of Daily Living and Sports scales; HRQL was measured with the Short Form 12 Physical and Mental Component Summary scores (SF-12 PCS, MCS). Longitudinal linear regression was used to model the effect of treatments and time during the 12-month post-injury period.

Results: 86 participants with a mean age of 41 years were included in the analysis. The majority of fractures were displaced and nearly half were vertical fracture patterns. No treatment group regained full preinjury function or HRQL. Similarly, vitamin D3 supplementation did not improve HOS or SF-12 scores at any time point (P >0.44). The CS group appeared to have potential improvements in HOS and SF-12 PCS during the mid-study period. At 6 months, patients in the CS group reported higher HOS scores (Activities of Daily Living scale mean difference 10.0; 95% confidence interval [CI]: –2.2, 22.2; Sports scale mean difference 12.10; 95% CI: –3.09, 27.30), and higher SF-12 PCS scores (mean difference: 6.6; 95% CI: 0.24, 12.9); a similar magnitude of improvement in HOS and PCS scores was seen at 9 months. By 1 year, the differences no longer approached significance (HOS: P = 0.26; PCS: P = 0.53).

Conclusion: These results from a multicenter pilot RCT suggest the CS may result in a clinically significant benefit in patient-reported function and HRQL during a portion of the recovery of adult femoral neck fracture patients. Conversely, vitamin D3 supplementation is unlikely to improve outcomes in either patient-reported domain. These pilot results should be interpreted with caution until replicated in larger studies.