

Is Vitamin D Associated with Improved Physical Function and Reduced Re-Operation Rates in Elderly Patients with Femoral Neck Fractures Treated with Internal Fixation?

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Purpose: Daily vitamin D supplementation is recommended for individuals over the age of 50, as vitamin D is necessary for general bone health. There has been increased interest within the orthopaedic community on the potential for vitamin D to improve outcomes in fracture patients. The recently completed FAITH (Fixation using Alternative Implants for the Treatment of Hip Fractures) trial (cancellous screws versus sliding hips screws in femoral neck fracture patients over the age of 50) provides a unique opportunity to investigate this further. The objectives of this study are: (1) to determine the proportion of patients who consistently take vitamin D following their fracture and (2) to determine if vitamin D supplementation is associated with improved postinjury physical function and reduces rates of reoperation within 2 years of the fracture.

Methods: The FAITH trial is a multicenter randomized controlled trial of 1111 femoral neck fracture patients treated with cancellous screws or sliding hip screws. A subset of 625 patients included within this study were asked about vitamin D supplementation at each of the follow-up visits over a 2-year period. Based on their frequency of vitamin D supplementation in the first 6 months of follow-up, patients were categorized as either consistent (3-4 visits), inconsistent (1-2 visits), or noncompliant in their vitamin D supplementation. Patients with one or fewer follow-up visits in the first 6 months were excluded from the analysis. Multivariate regression was used to compare the effect of vitamin D supplementation on physical function (defined as the physical component score of the Short Form-12 [SF-12]) at 12 months postfracture and reoperation, adjusting for baseline SF-12 score, gender, and fracture displacement.

Results: 575 patients were included in the final analysis. The mean age was 74.5, the majority were female (65.8%), and had undisplaced fractures (72.6%). 18.7% reported never taking vitamin D, 35.6% reported taking vitamin D inconsistently, and 45.7% reported taking vitamin D consistently. Our adjusted analysis found that consistent vitamin D supplementation postfracture was associated with a 2.29 increase in the physical component of the 12-month SF-12 score ($P=0.045$). Vitamin D supplementation was not associated with reoperation rates.

Conclusion: Despite highly publicized vitamin D supplementation guidelines we found that a surprisingly low proportion of elderly hip fracture patients are consistently taking vitamin D, which suggests a need for additional strategies to promote compliance with

vitamin D supplementation in this population. Our research also found that vitamin D may be associated with improved physical function following a hip fracture. Further research is needed to confirm these findings given the observational nature of this study.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.