

Andrew L. Fine

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Lake Erie College of Osteopathic Medicine, Elmira, NY

Mentor: Jennifer Simkin Ph.D.

Louisiana State University Health Sciences Center, Department of Orthopedics

**“Testing Association Between Vitamin D and Osteoarthritis Pain
in Total Knee Arthroplasty Patients”**

Objective: 25-hydroxyvitamin D (25(OH)D) plays an important role in maintaining adequate serum calcium and bone remodeling. Studies to date have had conflicting results regarding the correlation between serum levels of 25(OH)D and reported osteoarthritis pain. The purpose of this study was to determine if there is a correlation between serum levels of 25(OH)D and preoperative scored osteoarthritis pain in total knee arthroplasty (TKA) patients. Also using this data to look at disparities in serum levels of 25(OH)D.

Methods: 100 frozen serum samples were chosen from a TKA repository of 350 New Orleans patients. Patients were separated by race and sex, sorted in ascending order of pain scores, and chosen periodically. Preoperative osteoarthritis pain was collected for each patient through the Knee Osteoarthritis Outcome Score (KOOS) survey. Serum levels of 25(OH)D were evaluated by Enzyme-linked immunosorbent assay (ELISA). Spearman correlation and ANCOVA were conducted for statistical analysis while controlling for covariates, BMI, time of surgery, and sex.

Results: Results showed no significant correlation between serum 25(OH)D levels and preoperative osteoarthritis pain. There was a significant difference in serum 25(OH)D levels between black and white patients, with white patients more likely to have higher 25(OH)D levels than black patients.

Conclusion: There was a significant finding that in the cohort, 31% of patients were vitamin D deficient (<20 ng/mL) and 44% of patients had inadequate levels (<30 ng/mL) of vitamin D prior to surgery. The results suggest that 4 out of 10 New Orleans TKA patients, irrespective of race, sex, age, and BMI have low vitamin D levels. This statistic may only be applicable to adults preparing for TKA. Seeing that such a large percentage of patients have inadequate 25(OH)D levels and the effects it has on bone density, measuring bone density prior to TKA can have significant impacts on surgical procedure and outcome.