Abstract citation ID: znad258.659

304 Does Vitamin D Deficiency Lead to Poorer Health Outcomes After (Total) Knee Arthroplasty? a Systematic Review and Meta-Analysis

K. Vivek1, R. Kamal1, E. Perera2, C. Gupte3,1
1Imperial College London, London, United Kingdom
2Barts Health NHS Trust, London, United Kingdom
3Imperial College Healthcare NHS Trust, London, United Kingdom

**Aim:** Vitamin D deficiency is a predictor of poorer musculoskeletal disease outcomes and affects approximately 1-in-4 people. Prior literature has assessed the effects of vitamin D deficiency in joint arthroplasties. This updated systematic review and meta-analysis aims to evaluate and collate evidence available on vitamin D supplementation in total knee arthroplasty (TKA).

**Method:** A targeted terms search related to vitamin D and TKA outcomes was conducted (data inception until 01/09/2021). PubMed, Cochrane Central Register of Controlled Trials, Clinicaltrials.gov, American Academy of Orthopaedic Surgeons and British Orthopaedic Association databases were used. Analyses consisted of forest plots with I² heterogeneity statistics, pooled effects with 95% confidence intervals (CI) and, p-values. A p < 0.05 was considered statistically significant.

**Results:** 10 studies fitted inclusion criteria for narrative description and 3 for meta-analysis. 6 studies showed improved outcomes in revision surgery risk, joint infection incidence and postoperative function. Additionally, there were poorer outcomes in postoperative stiffness, prosthesis explanation and postoperative vascular events. Meta-analysis of the length of hospital stays (LOS) demonstrated a significant decrease in LOS between vitamin D sufficiency versus deficiency (standard mean difference = -0.54, 95% CI [-0.69, -0.38], p<0.00001) favouring vitamin D sufficiency.

**Conclusions:** Vitamin D supplementation demonstrated a statistically significant benefit for TKA patients regarding LOS. Most studies found positive effects of vitamin D supplementation improving patients’ health, reducing hospital resource use, and decreasing the burden on surgeons. Further research with standardised assessment scores is required to definitively prove the vitamin D screening and supplementation benefits in TKA.