GLP-1 Agonists Decrease Infection but Increase Fracture Risk Following TKA

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INTRODUCTION: Recently, the indications for glucagon-like peptide 1 (GLP-1) agonists have expanded from antihyperglycemic therapy to also include medical weight loss therapy. As such, a greater proportion of total knee arthroplasty (TKA) patients are utilizing these medications. This study sought to determine if GLP-1 agonists demonstrate an effect on rates of infection, fracture, and all-cause revision following primary TKA.

METHODS: An institutional research consortium database (TriNetX) was utilized due to its linkage with pharmacy claims data to create a retrospective cohort comparison. Patients prescribed a GLP-1 agonist were propensity matched 1:1 with patients not prescribed a GLP-1 agonist. Matching variables included Age, race, sex, nicotine use, BMI, hemoglobin A1c, and estimated glomerular filtration rate. Each cohort consisted of 4,700 patients. The primary outcome was periprosthetic joint infection (PJI) at 90 days and 1 year. The secondary outcomes were periprosthetic fracture and all-cause revision at 90 days and 1 year.

RESULTS: Results: PJI rate was lower in the GLP-1 agonist cohort at 90 days (0.9%, 44 vs 1.5%, 68; p=0.02) and 1 year (1.2%, 57 vs 2%, 96; p=0.002). The rate of periprosthetic fracture was higher in the GLP-1 agonist cohort at 90 days (0.5%, 22 vs 0.2%, 10; p=0.03) and 1 year (0.7%, 33 vs 0.3%, 16; p=0.02). All-cause revision was similar between the GLP-1 agonist and no GLP-1 agonist cohort at 90 days (0.5%, 25 vs 0.7%, 34; p=0.2) or 1 year (1.3%, 60 vs 1.6%, 77; p=0.1).

DISCUSSION AND CONCLUSION: After controlling for potentially confounding variables, GLP-1 agonists decrease risk of PJI but simultaneously demonstrate an increased risk of periprosthetic fracture at 90 days and 1 year after primary TKA. Understanding the effects of GLP-1 agonists on bone mineral density might help mitigate fracture risk while maintaining the decreased risk of PJI associated with these agents.