Decreased Post-Operative Opioid Use Following Total Hip Arthroplasty in Diabetic Patients Using GLP-1 Agonists

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INTRODUCTION:

The impact of glucagon-like peptide-1 (GLP-1) agonist use on total hip arthroplasty (THA) outcomes remains unclear. It has been postulated that in addition to weight reduction, GLP-1 agonists may possess an anti-inflammatory analgesic effect. With a rising rate of GLP-1 agonist use, understanding the potential impact on pain control is imperative. This study aims to determine the influence of GLP-1 agonist use on opioid consumption following THA in patients with diabetes mellitus.

METHODS:

A retrospective review was performed with all-claims data files of a large national database querying International Classification of Disease, tenth revision procedure codes. We identified 160,290 patients who underwent THA

from 2015-2020 with a diagnosis of diabetes mellitus. 419 were prescribed GLP-1 agonists, 891 sodium-glucose cotransporter-2 (SGLT2) inhibitors, 1,574 sulfonylureas, 14,571 metformin, and 4,776 insulin. Opioid prescriptions were recorded at 90-days pre-operative, 90-days post-operative, and 365-days post-operative. Logistic regression was performed using age, sex, obesity, tobacco use, anxiety, depression, and fibromyalgia. The results were presented as odds ratios (OR) with 95% confidence intervals.

RESULTS: Patients taking GLP-1 agonists had decreased opioid use 365-days post-operatively (OR 0.56 [0.42-0.73]), with no difference at 90-days pre- or post-operatively (OR 1.07 [0.88-1.30] and OR 1.06 [0.87-1.30], respectively). Those on SGLT-2 inhibitors and sulfonylureas were found to have no difference 365-days post-operatively (OR 0.85 [0.72-1.01] and OR 1.04 [0.92-1.17], respectively). Patients on metformin and insulin both consumed increased amounts of opioids at 365-days post-operatively (OR 1.50 [1.41-1.61], OR 1.27 [1.22-1.32]).

DISCUSSION AND CONCLUSION: GLP-1 agonist use for diabetes is associated with decreased risk of long-term opioid use following THA compared to SGLT2-inhibitors, sulfonylureas, insulin, metformin, and without pharmacotherapy. In addition to weight reduction these medications may also have an analgesic effect for patients undergoing THA.