Effect of Glucagon-Like Peptide-1 Agonists on Outcomes and Complications Following Rotator Cuff Repair: A Matched Cohort Analysis

Kevin Collon, MD[3]; Bradley J. Lauck, BA[1]; Charles B. Colson, BS[2]; Nicholas C. Bank, MD[1]; Nicholas A. Trasolini, MD[3]; Brian R. Waterman, MD[3]; Jessica Churchill, MD[4]; Alan W. Reynolds, MD[3]

[1]Department of Orthopaedics, The University of North Carolina School of Medicine, Chapel Hill, North Carolina, United States of America

[2]Georgetown University School of Medicine, Washington, DC, USA

[3]Department of Orthopaedic Surgery & Rehabilitation, Wake Forest University School of Medicine, Atrium Health Wake Forest Baptist, Winston-Salem, North Carolina, USA

[4]Denver Health, Denver, CO, USA

Introduction: Rotator cuff tears are common, particularly among older individuals, with diabetes mellitus (DM) and obesity increasing both the likelihood of injury and the risk of postoperative complications. Glucagon-like peptide-1 receptor agonists (GLP-1RA) have demonstrated efficacy in improving glycemic control and reducing body weight, but their impact on surgical outcomes remains unclear. While prior studies have examined GLP-1RA in total shoulder arthroplasty, their effect on arthroscopic rotator cuff repair (RCR) has not been well defined. This study investigates the association between GLP-1RA use and postoperative outcomes following arthroscopic RCR.

Methods: A retrospective cohort study utilizing the TriNetX database identified patients undergoing arthroscopic RCR from 2000 to 2024. Patients prescribed GLP-1RA within six months preoperatively were compared to a propensity-matched cohort without GLP-1RA exposure. Primary outcomes included 90-day postoperative medical complications and 2-year surgical outcomes. Outcomes between cohorts were compared using odds ratios (OR) with 95% confidence intervals (CI).

Results: After propensity score matching, 3,066 patients were included in each cohort. The GLP-1RA cohort had a significantly lower risk of hospital readmission within 90 days (2.7% vs. 3.6%; OR 0.741, 95% CI 0.555-0.989, p=0.041) and reduced likelihood of subsequent RCR within two years (4.5% vs. 5.7%; OR 0.768, 95% CI 0.611-0.966, p=0.024). No significant differences were observed in surgical site infection, pneumonia, thromboembolic events, or emergency department visits within 90 days postoperatively. Likewise, no differences were found in other surgical outcomes, including shoulder arthroplasty, lysis of adhesions, or adhesive capsulitis at the 2-year follow-up.

Discussion: Preoperative GLP-1RA use was associated with decreased hospital readmission and lower rates of subsequent RCR, suggesting a potential protective effect. These findings highlight the need for further investigation into the role of GLP-1RA in orthopedic surgery.