

Glucagon-like Peptide-1 Receptor Agonist Use is Associated with Decreased Incidence of Trigger Finger and Complications Following Trigger Finger Release in Patients with Type 2 Diabetes: A Propensity-Matched Analysis

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Introduction: Type 2 diabetes mellitus (T2DM) is associated with an increased incidence of various musculoskeletal pathologies, including trigger finger (TF).^{1,2} Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) have become increasingly popular in recent years for glycemic control, but emerging evidence links their use with certain upper extremity complications.^{3,4} However, the relationship between GLP-1 RA use and trigger finger remains unknown. This study aims to compare rates of TF, TF release, and complications of TF release between T2DM patients with and without a history of GLP-1 RA use.

Methods: This study utilized a de-identified global electronic medical record database (TriNetX) to identify adult patients >18 years with T2DM and at least one healthcare encounter between January 1, 2015, and January 1, 2025. The study group for the primary analysis included patients with a history of GLP-1 RA use compared to a control group with no history of GLP-1 RA. The secondary analysis included patients with T2DM and a history of TF separated into experimental and control groups by the presence or absence of GLP-1 RA use, respectively. The tertiary analysis included T2DM patients with a history of GLP-1 RA use within the 6 months prior to TF release, whereas the control group consisted of patients with no preoperative GLP-1 RA exposure. Patients with pancreatitis, medullary thyroid neoplasm, and multiple endocrine neoplasia were excluded from all analyses as these are contraindications for GLP-1 RA use.⁵ Cohorts were propensity-matched based on baseline demographic characteristics, BMI, hemoglobin A1c, medical comorbidities, and other medications for glycemic control. The primary outcome was the incidence of TF; the secondary outcome was the incidence of TF release. Tertiary outcomes included postoperative surgical site infection, wound dehiscence, stiffness, and abscess drainage within 90 days of surgery. All outcomes were evaluated using risk ratios (RR) and 95% confidence intervals (CI). A p-value < 0.05 denoted statistical significance.

Results: The primary analysis included 515,817 matched pairs. The incidence of trigger finger was 3.2% in GLP-1 RA users versus 3.3% in non-users (RR 0.948, 95% CI [0.929, 0.969]). In contrast, GLP-1 RA use was associated with a higher prevalence of TF release (RR 1.247, 95% CI [1.200, 1.295]). Patients with preoperative GLP-1 RA use had a lower rate of surgical site infection following TF release (RR 0.640, 95% CI [0.412, 0.995]). The incidence of hand stiffness within 90 days following TF release was 5.5% in the GLP-1 RA exposure group versus 7.1% in the GLP-1 RA-naïve group (RR 0.759, 95% CI [0.634, 0.909]). All other postoperative complication rates were similar between the two groups.

Discussion: GLP-1 RA use in patients with T2DM was associated with a modest reduction in the incidence of trigger finger and a significantly lower risk of postoperative stiffness within 90 days of release surgery. Paradoxically, we also observed a paradoxical 25% increased incidence of TF release among GLP-1 RA users. This may reflect a more aggressive or refractory disease phenotype in these patients, despite overall lower incidence, warranting surgical management. Alternatively, diagnostic or treatment bias may play a role, as patients on GLP-1 RAs are often more engaged in healthcare follow-up and thus more likely to undergo referral and operative treatment. These findings contrast with prior literature linking GLP-1 RA use to adhesive capsulitis of the shoulder, and instead may point to anti-inflammatory and antifibrotic effects of GLP-1 RAs in musculoskeletal hand pathology.^{4,6} Importantly, our data suggest that GLP-1 RA use may not necessarily require cessation prior to TF release. Limitations include the retrospective nature of this study and the use of a large database reliant on ICD-10 and CPT coding accuracy. Likewise, medication adherence, duration of therapy, and disease severity were not available.

Significance/Clinical Relevance: To our knowledge, this is the first large-scale analysis evaluating GLP-1 RAs and trigger finger outcomes. This study provides novel insight into the potential protective effects of GLP-1 RA use in reducing the incidence of trigger finger and postoperative complications, offering a new perspective on the management of musculoskeletal conditions in patients with T2DM. These findings may guide clinicians in making informed decisions regarding the use of GLP-1 RAs in diabetic patients undergoing trigger finger release, potentially improving surgical outcomes and patient care.

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