

# The Association Between Pre-existing Medical Conditions and Trigger Finger Release in a Medically Underserved Region

Blake C Martin<sup>1</sup>, Manoj Peiris<sup>1</sup>, Michael D Sander<sup>1</sup>

<sup>1</sup> University of Texas Rio Grande Valley School of Medicine, Edinburg, Texas 78539, United States

**Introduction:** Trigger finger is a relatively common condition involving the digits of the hand and can lead to significant functional impairment and tenosynovitis within the flexor sheaths for these digits. Although most patients recover via non-surgical approaches (splinting or steroid injection), trigger finger release may be required. The Rio Grande Valley (RGV) is a health professional shortage area with unique cultural and socioeconomic conditions that may influence the health of the population. This community has a high prevalence of chronic conditions, such as diabetes and obesity, and is also medically underserved, impoverished, and has a large population of undocumented immigrants. Our primary objective in this study was to analyze patients with various pre-existing medical conditions and determine if there was an association with the risk of needing trigger finger release surgery.

**Methods:** We conducted a retrospective chart review using the University of Texas Rio Grande Valley (UTRGV) UTHealth electronic database utilizing medical charts from January 1, 2018, to January 1, 2025. Institutional review board approval was obtained prior to starting the study. We collected and analyzed medical charts, via ICD-10 codes, of patients who were diagnosed with various pre-existing medical conditions such as immunodeficiency (ICD-10 = D80-D84), type 1 diabetes mellitus (E10), type 2 diabetes mellitus (E11), obesity/overweight (E66), hypertension (I10), alcohol misuse (F10), tobacco use (Z72.0), anemia (D62-D64), and vascular disease (I70, I73, I77-I79). We also collected and analyzed the charts, using CPT codes, of patients who underwent trigger finger release surgery (CPT = 26055). We chose not to analyze pre-existing musculoskeletal conditions (arthritis, gout, etc.) but instead chose to evaluate other conditions that are not necessarily musculoskeletal based and may be overlooked. Bivariate and multivariate analyses were conducted, which included conducting trigger finger release surgery as the dependent variable and the pre-medical conditions as predictors. The results were reported as odds ratios with 95% confidence intervals. All analyses were performed with R statistical software.

**Results:** There were 45,350 patient charts analyzed in this study, with females representing 55.7% (25,260) of the study population. Of this study population, a total of 91 (0.2%) patients underwent trigger finger release surgery. According to bivariate analysis, none of the analyzed conditions proved to be significant protective or risk factors. However, multivariate analysis showed that immunodeficiency and alcohol misuse increased the odds of requiring trigger finger release surgery by 3.3 (OR = 3.31, p-value = 0.0259) and 2.2 (OR = 2.19, p-value = 0.031) times, respectively.

**Discussion:** We were unable to find any existing literature specifically agreeing or disagreeing with our findings. However, current literature states that immunodeficiency can cause systemic inflammation which could be a factor behind the increased risk for trigger finger as inflammation and subsequent narrowing of the tendon sheath can cause trigger finger. Regarding alcohol misuse, chronic alcohol use and alcoholic neuropathy could play a role in the occurrence of trigger finger and subsequent surgery. Chronic alcohol use has been shown to trigger inflammatory responses with release of inflammatory markers which could contribute to the tendon sheath narrowing. Furthermore, alcohol use has been shown to cause delayed and abnormal tendon healing, which may lead to chronic inflammation and fibrosis which may cause narrowing of the space between tendon and sheath. Lastly, alcohol can cause tendonitis which may factor into narrowing of the space between the tendon and its sheath, predisposing to trigger finger.

The limitations of this study include a limited number of individuals who underwent trigger finger release surgery, and individuals must have been seen at a UTRGV affiliated institution to be included in the study.

Our results expand the knowledge on individuals who may be at increased risk for surgical release of trigger finger, particularly in the RGV and similar medically underserved regions. Physicians and other healthcare providers may use this knowledge to help evaluate the risk of surgery when caring for individuals with trigger finger, particularly in these unique communities.

**Significance/Clinical Relevance:** This study addresses an important gap by identifying immunodeficiency and alcohol misuse as novel risk factors for surgical trigger finger release in a medically underserved population. By clarifying potential contributors to surgical risk, these may improve clinical decision-making and preventative care in high-risk, resource-limited communities.

