Cannabis Use Disorder is Not Associated with Opioid Analgesic Use or Patient-Reported Outcomes after Anterior Cruciate Ligament Reconstruction: A Retrospective Matched-Cohort Analysis

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INTRODUCTION: Cannabis use disorder (CUD), also known as marijuana use disorder, is prevalent yet underdiagnosed psychiatric condition among the US population. Epidemiologic studies have identified a high rate of comorbidity between CUD and chronic pain and other psychiatric disorders. There is a concern among orthopaedic surgeons that patients with CUD who undergo elective procedures, such as anterior cruciate ligament reconstruction (ACLR), may be at higher risk for long-term opioid use and poorer outcomes following surgery. The aim of this study was to compare opioid use and patient-reported outcomes (PROs) following ACLR between patients with CUD versus controls.

METHODS: We conducted a retrospective review of patients with an active diagnosis of CUD who underwent primary ACLR surgery at a single center from 2011-2021 with minimum 3-month follow-up. Patients with CUD were identified using ICD-10 code F12 and its associated sub-codes. CUD patients were matched to controls on age, sex, and follow-up time using greedy nearest-neighbor propensity score matching. Analgesic prescriptions up to one year postoperative were abstracted from medical records and all opioid analgesic doses were converted to morphine milligram equivalents (MMEs). Pre- and postoperative Patient-Reported Outcome Information System (PROMIS) scores, 90-day readmissions, and 90-day revisions were also abstracted from medical records. Outcomes were compared between CUD and control groups using Mann-Whitney U test and Fisher's exact test. P-values <0.05 were considered significant.

RESULTS: A total of 104 CUD patients were matched to 104 controls. Sex demographics were the same in both groups (65.4% male, 34.6% female) and there were no significant differences in mean age (CUD 29.9 vs. control 29.2 years; p=0.57), BMI (CUD 25.5 vs. control 25.5 years; p=0.95), or follow-up time (CUD 16.1 vs. control 15.1 months; p=0.65). Both groups were prescribed postoperative opioids at similar rates (CUD 82.7% vs. control 83.7%; p=1.00). Among those prescribed opioids, there were no significant differences in total days supplied (CUD 12.5 vs. control 10.8; p=0.67), total MMEs (CUD 558 vs. control 445; p=0.71), or MMEs per day (CUD 47.5 vs. control 46.3; p=0.65). Likewise, there were no significant differences in pre-to-postoperative improvement in PROMIS Pain Intensity (CUD -5.8 vs. control -5.1; p=0.51), Pain Interference (CUD -8.3 vs. control -7.6; p=0.81), Mobility (CUD 10.9 vs. control 11.1; p=0.90), Mental Health (CUD 0.03 vs. control 0.54; p=0.74), or Physical Health (CUD 3.9 vs... control 4.2; p=0.94).

DISCUSSION AND CONCLUSION: Patients with CUD do not appear to consume opioid analgesics at a higher frequency or duration than their counterparts without CUD following ACLR surgery. Furthermore, both groups experience similar improvements in patient-reported outcomes following ACLR and these improvements are not diminished among CUD patients. While orthopaedic surgeons should continue to screen patients for cannabis use as part of a thorough preoperative assessment, cannabis abuse or dependence in itself is not cause for concern for worse post-ACLR outcomes.