Association of Cannabis Use and Pseudoarthrosis After Cervical Decompression and Fusion: A Retrospective Cohort Study of United States Academic Health Centers

Ziad Hassan, Omkar Anaspure, Julian Peregoff, Amanda M Moser, Nnaemeka Okorie, Tensae Assefa, David Casper, Amrit Singh Khalsa

INTRODUCTION:

Cannabis use (CU) has risen sharply in the U.S. due to expanding legalization and accessibility. However, its impact on spine surgery outcomes remains unclear. Early studies show mixed findings and are often limited by small sample sizes or narrow CU definitions. This study assesses the effects of recent CU on outcomes following anterior and posterior cervical decompression and fusion using a large, multicenter database.

METHODS:

Using the TriNetX Diamond Network, we identified patients undergoing primary anterior or posterior cervical decompression and fusion. CU was defined as any cannabis use documented within 30 days prior to surgery. Propensity score matching was used to create a 1:1 matched cohort of CU and non-CU patients across 33 variables. Primary outcomes included surgical site infection (SSI) at 90 days and pseudarthrosis at 5 years. Secondary outcomes included hospital readmission, intensive care unit (ICU) admission, postoperative bleeding, opioid prescriptions, respiratory failure, anesthesia events, and thromboembolic events.

RESULTS:

After applying inclusion criteria to 96,965 patients, 3,224 matched patients were identified from 60 healthcare organizations. CU was associated with higher readmission rates (RR = 1.243; 95% CI [1.078, 1.433]; p = 0.0027) and increased opioid prescription rates (RR = 1.056; 95% CI [1.033, 1.079]; p < 0.0001) within 90 days of operation. No significant differences were found in SSI within 90 days (RR = 1.706; 95% CI [0.941, 3.092]; p = 0.0747) or pseudarthrosis rates at 5 years postoperatively (RR = 1.019; 95% CI [0.784, 1.326]; p = 0.8860). No significant differences were observed in rates of ICU admission, postoperative bleeding, respiratory failure, anesthesia events, thromboembolic events.

DISCUSSION AND CONCLUSION:

Cannabis use in patients undergoing cervical decompression and fusion was associated with increased risk of 90-day readmission and opioid prescription, though not with major surgical complications. These findings suggest that while CU may not directly impact surgical integrity, it may influence postoperative care needs and recovery. Further investigations are needed to delve into the underlying mechanisms associated with cannabis and these reported findings.