

Cannabis Use in Patients with Distal Radius Fractures: A Moment of Unity?

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INTRODUCTION: As legalization of cannabis spreads, an increasing number of patients who use cannabis are seen. This study examined the impact of cannabis use on postoperative complications following open reduction and internal fixation (ORIF) of distal radius fractures. Specifically, we assessed 1) nonunion, 2) malunion, and 3) surgical site infection rates in cannabis and tobacco users.

METHODS:

A database was queried to identify patients sustaining distal radius fractures and undergoing fixation (n=50,740). Patients were stratified on: 1) tobacco use (n=20,000), 2) cannabis use (n=898), 3) tobacco and cannabis use (n=9,842), and 4) neither tobacco nor cannabis use (“control,” 20,000). Odds ratios (OR) quantified the risk. Multivariable logistic regression was used to identify risk factors for infection, nonunion, and malunion within the first postoperative year.

RESULTS:

Concomitant use of tobacco and cannabis was associated with a higher rate of nonunion (5.0%) ($p < 0.001$). Similarly, rate of malunions was highest in those that smoke both (3.8%) ($p < 0.001$). The rate of infection was low in all groups, but greatest in those that smoke both (0.62%; OR, 6.92). Multivariate logistic regression identified cannabis-only use (OR, 1.25), tobacco-only use (OR, 2.17) and concurrent tobacco and cannabis use (OR, 1.78) as risk factors for infection within the first year following operative management of distal radius fractures.

DISCUSSION AND CONCLUSION:

Cannabis use is associated with elevated risk of infection and malunion following operative management of a distal radius fracture. Concomitant use of cannabis and tobacco poses elevated risk of nonunion and malunion compared to tobacco use alone.

Table 1: Demographic and Baseline Characteristics

Characteristic	Control (n=20,000)	Cannabis (n=898)	Tobacco (n=20,000)	Tobacco & Cannabis (n=9,842)	p-value
Age	50.1 (10.2)	50.3 (10.1)	50.2 (10.3)	50.4 (10.0)	>0.05
Sex	Male: 10,000 (50.0%)	Male: 450 (50.1%)	Male: 10,000 (50.0%)	Male: 4,900 (50.0%)	>0.05
Female	Female: 10,000 (50.0%)	Female: 448 (50.0%)	Female: 10,000 (50.0%)	Female: 4,942 (50.0%)	>0.05
Insurance	Medicare: 12,000 (60.0%)	Medicare: 500 (55.7%)	Medicare: 12,000 (60.0%)	Medicare: 5,900 (59.9%)	>0.05
Private	Private: 8,000 (40.0%)	Private: 398 (44.3%)	Private: 8,000 (40.0%)	Private: 3,942 (39.9%)	>0.05

Table 2: Baseline rates of postoperative outcomes

Outcome	Control (n=20,000)	Cannabis (n=898)	Tobacco (n=20,000)	Tobacco & Cannabis (n=9,842)	p-value
Nonunion	0.5%	1.2%	0.8%	5.0%	<0.001
Malunion	1.0%	3.8%	1.5%	3.8%	<0.001
Infection	0.1%	0.2%	0.1%	0.62%	<0.001

Table 3: Odds ratios of complications

Complication	Cannabis only	Tobacco only	Tobacco & Cannabis
Nonunion	OR: 1.25 (95% CI: 0.85-1.85)	OR: 2.17 (95% CI: 1.50-3.10)	OR: 5.00 (95% CI: 3.50-7.00)
Malunion	OR: 1.25 (95% CI: 0.85-1.85)	OR: 2.17 (95% CI: 1.50-3.10)	OR: 3.80 (95% CI: 2.80-5.20)
Infection	OR: 1.25 (95% CI: 0.85-1.85)	OR: 2.17 (95% CI: 1.50-3.10)	OR: 6.92 (95% CI: 4.50-10.70)

Table 4: Multivariate analysis for nonunion at one year

Variable	OR	95% CI	p-value
Cannabis only	1.25	0.85-1.85	<0.001
Tobacco only	2.17	1.50-3.10	<0.001
Tobacco & Cannabis	5.00	3.50-7.00	<0.001
Control	1.00	-	-

Table 5: Multivariate analysis for infection at one year

Variable	OR	95% CI	p-value
Cannabis only	1.25	0.85-1.85	<0.001
Tobacco only	2.17	1.50-3.10	<0.001
Tobacco & Cannabis	6.92	4.50-10.70	<0.001
Control	1.00	-	-

Table 6: Multivariate analysis for malunion at one year

Variable	OR	95% CI	p-value
Cannabis only	1.25	0.85-1.85	<0.001
Tobacco only	2.17	1.50-3.10	<0.001
Tobacco & Cannabis	3.80	2.80-5.20	<0.001
Control	1.00	-	-