



Burden and Impact of Cannabis Use Disorder on IBD Flare-Up/Emergent Admissions: A National Population-Based Analysis

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Introduction

Cannabis use has been explored for its potential symptom relief and improvement in quality of life of inflammatory bowel disease (IBD) patients without any clearly proven benefits yet. Data outlining the burden of cannabis dependence and its impact on overall outcomes of IBD flare-up emergent admissions are limited.

Methods and Materials

We queried the National Inpatient Sample (2019) using the ICD-10/CCS codes for IBD flareup admissions and CUD. The IBD flareup was defined as IBD patients admitted non-electively or undergoing an emergency room treatment. Baseline characteristics, comorbidities and in hospital outcomes [MACCE: all-cause mortality, acute myocardial infarction (MI), cardiac arrest and stroke], intestinal obstruction, colorectal cancer, colectomy, acute kidney injury[AKI], and sepsis) were compared between CUD and non-CUD cohort among IBD flareup admissions. Multivariable regression analyses were performed adjusting for demographics, hospital-level characteristics and relevant comorbidities.

Table 1. Baseline characteristics of Hospitalizations with vs without Cannabis Use Disorder (CUD) and in-hospital outcomes in IBD- flareup admissions 2019.				
Variable		Total Admissions with		P value
		No CUD	CUD	
Age (years) at admission	Median [IQR]	57 (39-71)	37 (28-48)	< 0.001
Sex	Male	117680 (43.2%)	4965 (57.6%)	< 0.01
	Female	154610 (56.8%)	3660 (42.4%)	
Race	White	209740 (78.5%)	5535 (65.2%)	< 0.01
	Black	30540 (11.45%)	2030 (23.9%)	
	Hispanic	16490 (6.2%)	620 (7.3%)	
	Asian or Pacific Islander	3470 (1.3%)	20 (0.2%)	
	Native American	980 (0.4%)	40 (0.5%)	
	Others	5860 (2.2%)	240 (2.8%)	
Median household income national quartile for patient ZIP Code	0-25th	67385 (25.1%)	2885 (34.2%)	< 0.01
	26-50th	67740 (25.2%)	2295 (27.2%)	
	51-75th	69805 (26%)	1970 (23.4%)	
	76-100th	63365 (23.6%)	1280 (15.2%)	
Primary expected payer	Medicare	123640 (45.4%)	1675 (19.5%)	< 0.01
	Medicaid	38775 (14.3%)	3350 (38.9%)	
	Private incl HMO	90865 (33.4%)	2370 (27.5%)	
	Self-pay	10390 (3.8%)	850 (9.9%)	
	No charges	960 (0.4%)	95 (1.1%)	
	Others	7420 (2.7%)	270 (3.1%)	
Elective versus non-elective admission	Non elective	270510 (99.4%)	8590 (99.6%)	0.05
	Elective	1765 (0.6%)	35 (0.4%)	
Region of hospital	Northeast	58565 (21.5%)	1480 (17.2%)	< 0.001
	Mid-West	65785 (24.2%)	2095 (24.3%)	
	South	100925 (37.1%)	3230 (37.4%)	
	West	47025 (17.3%)	1820 (21.1%)	
Location/teaching status of hospital	Rural	20060 (7.4%)	380 (4.4%)	< 0.001
	Urban Non-Teaching	46965 (17.2%)	1420 (16.5%)	
	Urban Teaching	205275 (75.4%)	6825 (79.1%)	
COMORBIDITIES				
Hypertension, complicated		47915 (17.6%)	510 (5.9%)	< 0.001
Hypertension, uncomplicated		78475 (28.8%)	1750 (20.3%)	< 0.001
Diabetes with chronic complications		33750 (12.4%)	545 (6.3%)	< 0.001
Diabetes without chronic complications		20240 (7.4%)	255 (3.0%)	< 0.001
Hyperlipidemia		72720 (26.7%)	885 (10.3%)	< 0.001
Obesity		36030 (13.2%)	790 (9.2%)	< 0.001
Peripheral vascular disease		16045 (5.9%)	265 (3.1%)	< 0.001
Prior MI		11700 (4.3%)	215 (2.5%)	< 0.001
Drug abuse		12050 (4.4%)	4040 (46.8%)	< 0.001
Tobacco Use Disorder		46285 (17.0%)	4135 (47.9%)	< 0.001
Chronic pulmonary disease		58130 (21.3%)	1650 (19.1%)	< 0.001
PriorTIA/Stroke		13780 (5.1%)	225 (2.6%)	< 0.001
Prior VTE		21605 (7.9%)	450 (5.2%)	< 0.001
Disposition of patient, Transfer Other: Includes Skilled Nursing Facility (SNF), Intermediate Care Facility (ICF), Another Type of Facility	Routine	184890 (67.9%)	7110 (82.5%)	< 0.001
	Transfers to short term hospital	6090 (2.2%)	95 (1.1%)	
	Transfer other	33780 (12.4%)	415 (4.8%)	
	Home Health Care	37290 (13.7%)	500 (5.8%)	
Length of stay (days)	Median [IQR]	4 (2-6)	4 (2-6)	< 0.001
Total charges (USD)	Median [IQR]	32901	30936	< 0.001
Outcome	Adjusted Odds Ratio	95% CI		P value
		LL	UL	
MACCE	1.01	0.74	1.39	0.943
Intestinal obstruction	0.91	0.72	1.15	0.432
Colorectal Cancer	1.04	0.50	2.17	0.918
Colectomy	0.88	0.63	1.22	0.437
Acute Kidney Injury	0.90	0.76	1.08	0.262
Sepsis	0.61	0.39	0.94	0.024
P< 0.05 indicates statistical significance.				
MACCE major adverse cardiovascular and cerebrovascular events - all cause mortality, acute MI, cardiac arrest, stroke				
Multivariate regression models were adjusted for: Age, Sex, Race, Median household income quartile, payer status, type of admission hospital bed size, location, teaching status, hypertension, diabetes, dyslipidemia, obesity, PVD, Prior MI, Prior PCI, Prior CABG, drug abuse, smoking, Prior TIA/Stroke, Prior VTE				

Results

A total of 280925 IBD flareup admissions were identified in our study, of which 8625 (3.1%) had a reported CUD. The CUD cohort [median age was 37(IQR 28-48)] often consisted of male, white, patients belonging to the lowest median household income quartile (34.2%) and Medicaid enrollees (38.9%) of IBD flare-up admissions. The CUD cohort had a lower rate of cardiovascular comorbidities including hypertension, hyperlipidemia, diabetes, obesity, peripheral vascular disease and pulmonary comorbidities except higher rate of tobacco use disorder and drug abuse vs. non-CUD cohort. A multivariate analysis after adjusting for all potential covariates showed lower odds of sepsis with an OR of 0.61 (0.39-0.94, p < 0.024). However, MACCE and other outcomes were comparable between both groups without any significant difference (p< 0.05). Majority of IBD flareup hospitalizations with CUD had a routine disposition with a median hospital stay of 4 days and costs upto 30,936 USD (IQR 18168-58119) vs 32901 USD (IQR 18977-61686) in the non-CUD cohort (table 1).

Discussion

Our study showed a lower risk of sepsis with cannabis use in IBD flareup admissions. This paves the way for further conducting observational studies and clinical trials in order to explore potential role/impact of medicinal/recreational use of cannabis in IBD flare-ups or emergent hospitalizations.