

Outcomes after open repair of aortic aneurysms and dissections in cannabis consumers

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INTRODUCTION

- *Acute cannabis use:*

- has been associated with an increase in systolic blood pressure, heart rate, and pulse pressure, it may place an acute stress on the aortic wall, increasing the risk of AD.
- can *potentiate sympathetic activity*, when used in conjunction with other stimulating agents, it may place an individual at higher risk for aortic dissection.

Kariyanna PT, Chandrakumar HP, Chowdhury YS, et al.
Marijuana and coronary dissection: a case report and review of literature.
Am J Med Case Rep. 2021, 9:172-9.

INTRODUCTION

- *Mechanism* behind cannabis-induced SCAD is due to a combination of increased sympathetic drive causing an increase in shear stress on the walls of the coronary arteries and thereby leading to SCAD.
- THC activates cannabinoid (CB1 and CB2) receptors found in multiple tissues.
- THC increases arrhythmias & ACS risk *within an hour* of smoking marijuana.

Adeniyi A, Abadir S, Kooshkabadi M, Yusuf SO, Khanna R, Collura B, Anais Hichard M. Recreational Marijuana Use and Coronary Artery Dissection: A Case Series. Cureus. 2022 Jan 31;14(1):e21778.

INTRODUCTION

- Clinicians should have a lower threshold for considering *acute aortic dissection* in younger patients presenting with chest pain & recent marijuana consumption.

Sarmiento IC, Giammarino A, Scheinerman SJ, Guirola A, Hartman A, et al.
Marijuana: An Underappreciated Risk Factor for Acute Type A Aortic Dissection?
Heart Surg Forum. 2021 Feb 15;24(1):E137-E142.

OBJECTIVE

- Investigate the impact of cannabis consumption on the mid and long-term surgical outcomes of patients with aortic aneurysms or dissections.

METHODS

- Patients > 18 years with more than 6 months of cannabis use at the time of surgical repair for cardiovascular disease (aortic aneurysms or aortic dissection). Between 2007 and 2023.
- Stratified into two groups: Cannabis-users and non-cannabis users.
- The primary endpoint was complications or death within 30 days of intervention. Secondary outcomes included late complications and re-interventions.
- From the University of Texas Health Science and inpatient records from Memorial Hermann Hospital (Houston, Texas).

RESULTS

- Cannabis: 48.3 ± 11.8 years vs. non- Cannabis : 58.5 ± 14.9 years, $p < 0.001$).
- Surgical mortality was comparable between both groups (Cannabis : 9.7% vs. non-Cannabis: 8.6%, $p=0.662$).

RESULTS

- **Cannabis group showed**

- Higher patients with Marfan syndrome (Cannabis: 11.2% vs. non- Cannabis : 4.4%, $p < 0.001$).
- Elevated history of recreational drug use; cocaine (25.4% vs. 1.6%, $p < 0.001$), amphetamines (3.7% vs. 0.6%, $p < 0.001$), opioids (8.2% vs. 0.5%, $p < 0.001$), and intravenous drugs (6.7% vs. 0.6%, $p < 0.001$).
- More frequent emergency surgeries (Cannabis: 56.7% vs. non- Cannabis: 36.2%, $p < 0.001$).
- Superior postoperative strokes (Cannabis: 14.9% vs. non- Cannabis: 8.2%, $p = 0.009$), postoperative respiratory complications (Cannabis: 32.1% vs. non- Cannabis: 19.0%, $p < 0.001$) and renal failure (Cannabis: 27.6% vs. non- cannabis: 17.53%, $p < 0.004$).
- Higher incidence of hypertension.

Table 3. Patient outcomes

Characteristic	Number (%)		
	Open surgery on TAAAs and aortic dissections (n= 134)		
	<i>Cannabis consumers (CC)</i>	<i>Non-cannabis (NC)</i>	<i>p- value</i>
Thirty- day mortality	9.70	8.59	0.6617
Intraoperative complications	26.87	18.88	0.02
Intraoperative cardiac arrest	1.49	2.34	0.5279
Myocardial Infarction	3.21	1.33	0.0261
Ventricular fibrillation	5.22	1.56	0.0029
Pneumonia			
Respiratory complications	46.27	27.54	<.0001
Respiratory failure	32.09	19.02	0.0003
Pneumothorax	11.94	6.74	0.0261
Pleural effusion	8.21	7.03	0.6111
Tracheostomy	6.72	7.38	0.7778
Coagulation complications	32.84	23.70	0.0188
CNS complications	26.87	17.81	0.0101
Coagulopathy	19.40	12.92	0.0357
Gastrointestinal complications	17.91	10.29	0.0070

RESULTS

Stroke	14.93	8.23	0.009
TIA	2.24	0.35	0.0037
Acute kidney injury	27.6	17.53	0.004
Dialysis	11.19	7.59	0.140
Infection	5.97	4.12	0.3109
Vessel access complications	2.99	2.56	0.7647
ICU stay, days			
Hospital LOS, days	85.82	76.30	0.0121
Discharge home	65.67	59.26	0.1481

DISCUSSION

- Our findings highlight the significance of respiratory complications after aortic surgery.
- One of the most crucial findings of our study was the significant number of patients with cannabis use who presented with stroke after aortic surgery repair, and how our study found that, compared to the non- cannabis smokers, postoperative stroke was significantly higher in the Cannabis group.

CONCLUSIONS

- **Cannabis use** may be a significant risk factor in aortic surgery.
- Our study showed that young, healthy patients with prolonged cannabis use might be at a higher risk of requiring more emergency surgeries due to their background.