The Cannabis Controversy: Case Studies of Cannabis Use Disorders in Renal Transplant Candidates

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• Off-label: No off-label use of medication will be described
Objectives

• Review the legal status of cannabis use in Europe and the U.S.
• Potential negative outcomes associated with cannabis smoking in kidney recipients
• Two case reports of cannabis users pursuing kidney transplantation
• Data on 61 kidney transplant candidates/recipients with Cannabis Use Disorders
Potential Risks of Post-transplant Cannabis Smoking

- Intoxication with associated neglect of self-care or non-adherence to immunosuppression and medical management

- Infectious risks, especially inhaled fungal infections including *Aspergillus, Legionella, Mucor, Acinetobacter*

- Relapse to drug of choice in patients with addictions, including substances with more direct impact on renal function (e.g. cocaine, methamphetamine, alcohol)

- Vascular effects of persistent smoking on wound healing and kidney function
Case 1: Graft Loss During Active Addiction

- A 24 year old single male had a history of end-stage renal disease secondary to bilateral renal hypoplasia and underwent living-related donor transplantation from a relative in 2005. He experienced allograft failure due to acute cellular rejection from medication non-adherence in 2012 while actively abusing cannabis and alcohol, when first living independently. He readily attributes his graft loss to his cannabis and alcohol use.

- He was asked to abstain from alcohol and cannabis, complete a primary outpatient treatment program, and attend AA/NA with sponsorship. He pursued recommendations; however, at six-month follow-up he reported a 2-day relapse of cannabis use. He thereafter increased the intensity of his recovery plan. At 12-month follow-up, he had maintained his sobriety from both cannabis and alcohol with good insight. The patient is now listed as a renal transplant candidate and pursuing living donor transplantation.
Case 2: Cocaine Addict in Remission Unwilling to Quit Cannabis

- A 44 year old married male with chronic renal insufficiency secondary to hypertension and diabetes pursued a pre-transplant evaluation. His cannabis use began at age 13, and he reported use three to four days weekly, twice per day. History of cocaine and alcohol use disorders active from ages 19-24 leading to his relocation from an inner-city environment to stop crack cocaine.

- At six-month follow-up he had been unable to maintain abstinence. He was asked to pursue a structured protocol, including abstinence from all substances, participation in an outpatient treatment program, and weekly NA. He is now requiring thrice weekly hemodialysis due to delay of transplant.

- At 9 and 12-month follow-up, he had not complied with recommendations or been able to establish and maintain sobriety. The patient opted to seek transplantation at another transplant center. He was approved and listed despite ongoing daily cannabis use.
Mayo Clinic Kidney Transplant Candidates and Recipients with Cannabis Use Disorders

- N=61
- Diagnoses: Candidates/Recipients met DSM-IV criteria for cannabis abuse (N=21) or cannabis dependence (N=40)
- Outcome data: Collected through 6/9/2017
Cannabis Use Disorder Cohort (N=61)

- 54% never returned for psychiatric reassessment
- 33% remained denied for listing
- Majority deferred or denied because of active cannabis use or non-adherence to treatment recommendations
- 38.3% active cigarette smokers; 52% former
- 21.3% have undergone transplantation
- No cannabis associated deaths or negative outcomes in transplant recipients
Cannabis Dependence vs. Abuse

- Abusers (100%) more likely to achieve abstinence than those with Dependence (82.5%) (p=0.084)
- Abusers have more sober time (p=0.032)
- Dependent patients trend toward more previous substance use disorder treatments (p=0.075)
- Dependent patients (84.6%) more likely to be daily cannabis smokers than abusers (9.5%) (p<0.001)
- Dependent patients (59%) more likely to meet criteria for alcohol dependence than abusers (24%) (p=0.004)
Cannabis Dependence vs. Abuse

- Family history of alcohol or drug abuse:
  - Cannabis dependence group (64.9%)
  - Cannabis abuse group (50%)

- Depression diagnoses:
  - Cannabis dependence group (43.6%)
  - Cannabis abuse group (38.1%)

- Cannabis abusers (66.7%) more likely than dependent candidates (32.5%) to be listed/transplanted (p=0.015)
Transplanted/Listed vs. Deferred/Denied

- Abstinence from cannabis use was achieved in 100% of the transplanted/listed patients and 79.4% of the deferred/denied (p=0.014)
- Median sober date was 10/2013 for the T/L group and 1/2015 for the D/D group (p=0.056)
- 50% of the T/L group pursued substance abuse treatment interventions; only 30% of the D/D group
- 33.3% of the T/L group reported a history of alcoholism; 57.6% of the D/D group were alcohol dependent
- Family history of alcohol and drug use disorders in 61.5% of the T/L group and 58.1% of the D/D group
Conclusions

• Transplant listing was commonly deferred or denied in kidney transplant candidates with cannabis use disorders
• Denial was commonly associated with persistent use or unwillingness to pursue a treatment intervention
• Cannabis abusers were more likely to receive a kidney than cannabis dependent candidates
• 59% of cannabis dependent candidates met criteria for alcohol dependence
• 60% of the patients had a family history of a substance use disorder