

Therapeutic Effectiveness of Ketamine infusions in POTS

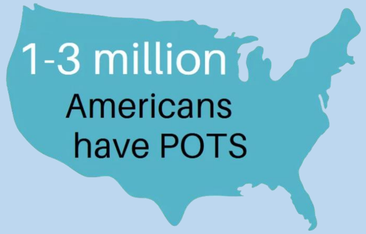
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INTRODUCTION

Postural Orthostatic Tachycardia Syndrome (POTS) is an autonomic disorder characterized by a sustained increased heart rate ≥ 30 beats per minute upon standing without hypotension.

Pathophysiology is multifactorial and overlaps with conditions linked to dysautonomia, including PTSD.
Triggers include trauma, heat, dehydration, infection, stress.



Management involves as needed symptom relief, with no current resolution of symptoms and addition of trauma
focused psychotherapy. When refractory to treatment, a patient can be referred for ketamine therapy.

CASE REPORT

46F with PMHx of GAD, MDD, POTS and PTSD following an episode of rape in a hotel at 22 years old.

Since the episode, she has had sleep disorders, nightmares, social isolation, and chronic fatigue.

Her past medical history causes longstanding orthostatic intolerance, 3-4 syncopal events a month, dizziness, brain fog, fatigue, and GI dysfunction all refractory to pharmacologic and non-pharmacologic interventions.

After clearance from her psychiatrist, she was referred to the pain clinic to start Ketamine infusion protocol.

METHODS

On day of ketamine infusion, baseline data including pain levels, functional status, analgesic use were recorded. The room was comfortable, colorful, calm, dimmed, and desired music was playing.

Patient was enrolled in an 8 week program, with ketamine infusion occurring every other week. Telehealth visits were carried in between infusions.

1. Premedication of Midazolam 2mg and Ondansetron 4mg was administered along with ASA standard monitoring.

2. Ketamine was started at 1mg/kg for 45 minutes.

3. Monitored for 30-60 minutes after completion of infusion, then discharged with designated driver.

Total infusions = 4
Final Dose = titrated up to 2mg/kg
Thereafter, maintenance dose every 2 months

RESULTS

Sessions were well tolerated except for transient nausea/vomiting only. Eight weeks after her treatment patient reports complete resolution of her PTSD and POTS

- Improvement in fatigue, mood, and cognitive clarity
- Able to travel and stay in a hotel room with family member
- From 3 missed workdays/month to full-time employment without limitations
- No more orthostatic hypotensions

Benefits of infusions were sustained for > 1 year.

DISCUSSION

This case shows sustained resolution of POTS symptoms following ketamine therapy, being a novel clinical observation.

Ketamine modulates multiple neurotransmitter systems and may influence central autonomic tone via NMDA receptor antagonism, potentially reducing sympathetic overactivity.

By simultaneously targeting pain, mood, and autonomic dysfunction, ketamine may interrupt the bidirectional cycle between psychiatric distress and dysautonomia.

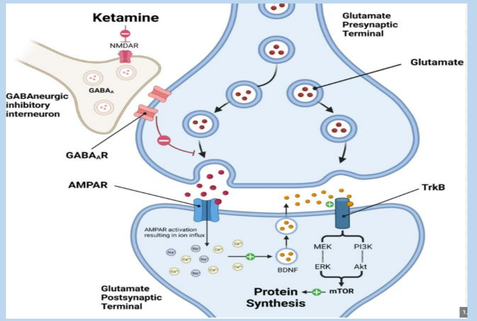


Figure 2. Proposed Mechanism of Ketamine-Mediated Autonomic Modulation. Ketamine → NMDA receptor antagonism → Central neuromodulation → Repair damaged neurons + stabilize Glutamate and GABA → Improved PTSD/MDD symptoms

Current POTS therapies often provide incomplete relief with continuous psychotherapy strategies.

The durable (>1 year) and functionally meaningful response supports further prospective investigation of ketamine as an adjunct therapy in PTSD.

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