

**KETAMINE IN OUTPATIENT
CLINICAL PRACTICE**

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DISCLOSURES

- * We will be discussing the off-label use of an FDA approved medication.
- * A significant portion of my income comes from administering ketamine in a non-FDA approved fashion.

A LITTLE ABOUT ME

- * Tulane University, BS Exercise and Sport Science- '99
 - * Minor Cellular/Molecular Biology
 - * Director of Training, Tulane EMS
- * Arizona College of Osteopathic Medicine, DO- '04
 - * 2nd Generation DO
- * Atlanta Medical Center- '04- '06
 - * Categorical Surgery Internship/Residency
- * Virginia Commonwealth University- '07- '10
 - * Anesthesia Residency

HOW DID I GET HERE

- * Memorial Hospital COS- '10- '16
- * Colorado Springs Health Partners Ambulatory Surgery Center- '14- '15
- * Surgery Center at Lutheran, Wheat Ridge, CO- '15- '19
- * Member of American Society of Ketamine Physicians
- * Michigan Progressive Health- 2018
- * Summit Ketamine Innovations (SKI) – August 2019

KETAMINE?!?

- * Hallucinations
- * Dissociative Reactions
- * Nightmares
- * Horse Tranquilizer
- * Special K

... Ketamine

- * Helps relieve depressive symptoms in 70-80% of patients with Treatment Resistant Depression (TRD)
- * Most commonly used anesthetic worldwide because of safety profile
- * Significantly reduces suicidality in more than 78% of patients and complete cessation of suicidal thoughts in 58%

A Brief History

- * Developed in the late 1960's
- * Battlefield Utilization in Vietnam War
- * Safety profile:
 - * - Maintains Cardiac Output
 - * - Preserves Airway reflexes
 - * - Disassociation
- * Worldwide Anesthetic Utilization



SUMMIT KETAMINE INNOVATIONS
KETAMINE INFUSION THERAPY

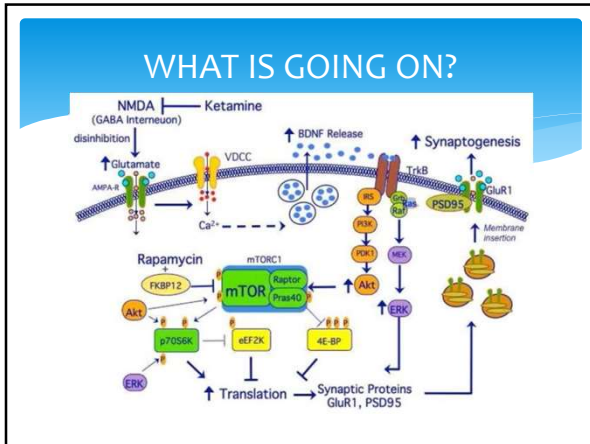
INFUSION/SUBLINGUAL THERAPY FOR:
 - Depression - PTSD
 - Anxiety - Bipolar
 - OCD - Chronic Pain
 - CRPS - Fibromyalgia

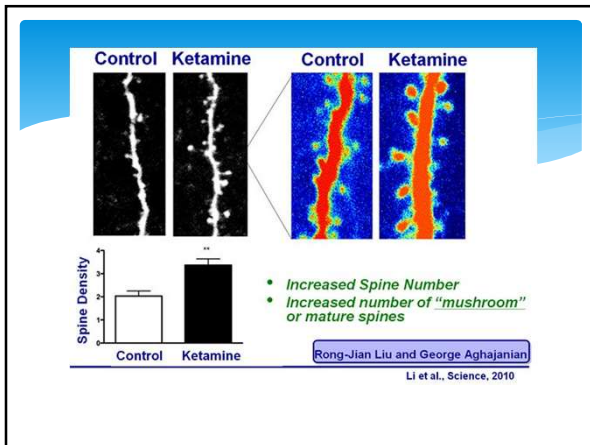
GROUP ORAL KETAMINE THERAPY
 PEER SUPPORT MEETING

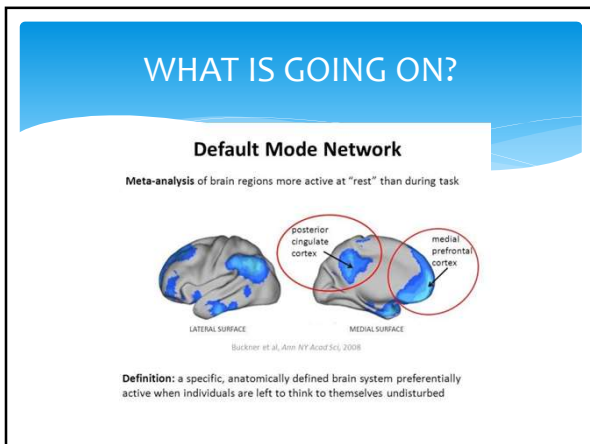
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 www.summit-med.com

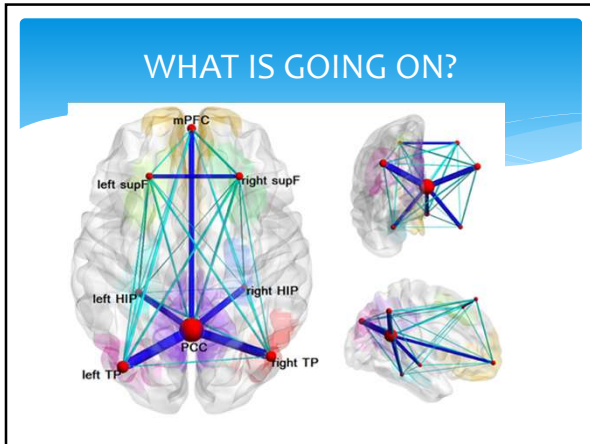
KETAMINE FOR DEPRESSION?

- * Case studies in the late 1990's- early 2000's
- * Several single infusion studies in the mid-2000's
- * Zarate, et al. Archive General Psychiatry, 2006
 - * 17 TRD patients, drug free for two weeks
 - * One infusion, second infusion one week later
 - * 71% met "response criteria" at 24 hours
 - * 29% met "remission criteria" at 24 hours
 - * 35% maintained response for greater than one week









KETAMINE FOR DEPRESSION?

- * Murrough et al **Biological Psychiatry** 2013
 - * 24 patients, 6 infusions over two weeks
 - * .5mg/kg delivered over 40 minutes.
 - * 71% patients had a >50% reduction in their MADRS
 - * Median time to relapse was 18 days
 - * 25% were symptom free at 90 days

KETAMINE FOR DEPRESSION

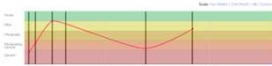
- * Cusin et al. **Australian and New Zealand Journal of Psychiatry**, 2016
 - * 14 patients with TRD, 6 infusions/ 3 weeks
 - * Escalating dose for second three infusions if not responding (.5mg/kg in 45 min → .75mg/kg in 45 min)
 - * 1/12 person in first three and 5/12 by number 6
- * Singh et al. **American Journal of Psychiatry**, 2016
 - * 67 patients with TRD
 - * 6 infusions either 2xweek or 3xweek
 - * Both groups with similar improvement in MADRS and maintained response for two weeks
 - * 70% of thrice weekly group responded, 54% of twice weekly

CURRENT IV SKI PROTOCOL

- * Patients are frequently self-referred
- * Screening exam (phone or in-person)
- * Consult with treating physician if necessary
- * Informed consent and scoring instruments (PHQ-9, GAD-7, PCL-5 and McGill) at first visit
- * 4-6 IV infusions over 3-4 weeks
 - * .625mg/kg over 50 minutes
 - * 2x week for two weeks, then weekly or every other
 - * Escalating dose ~25% at each infusion
 - * Max 2mg/kg/hr

4-6 infusions???

Depression Severity Chart




- * 2-3 infusions is the average before response is seen
- * Once response is demonstrated, further infusions serve to improve symptom relief longevity.

SKI Patient Results

- * 15 Patients, 64 infusions
- * 83% of those who completed the initial series had a positive response ($\geq 50\%$ reduction in PHQ9)
- * 13% did not complete series of 6
- * Average Dose 1mg/kg/hr





MPH RESULTS

- * 111 patients, 750 infusions (as of March 2018)
- * 73% of those who completed the series had a positive response (50% reduction in PHQ-9)
- * 10% did not finish the series of 6
- * Average dose is 1mg/kg/hr
- * Average patient booster is q6 weeks (range q3wk-q6 months)




SET AND SETTING

We want you to have a great experience and have the longest lasting effects of ketamine as possible.

We have some things that may help...

- * Silence your phone
- * Guest or no guest in your room
- * Music
- * Sound Machine
- * Ear plugs
- * Eye mask
- * Blanket
- * Pillow
- * Lights down
- * Shades open or closed
- * Fan

Please let us know if we are missing something. Our goal is for you to be as comfortable as possible.



SIDE EFFECTS

- * Nausea (6%), No vomiting
- * Dizziness (30-50%)
- * Hypertension (50-80%) SBP>20 points
- * "Hallucinations"
- * No allergic reactions
- * No laryngospasm
- * No oxygen administration
- * Long Term – None

What my patients say...

- * "I can stay home alone at night. I haven't been able to do that in years."
- * "I heard him laughing and playing with his siblings last night, I haven't heard him laugh in months."
- * "I can finally listen and play music again!"
- * "I was able to step back and recognize that I was in a toxic relationship and end it."
- * "I didn't freak out. I can't imagine how I would have dealt with this before I was going through treatment."
- * "I haven't had a craving for a beer after I started treatment. I used to drink every night."

SP

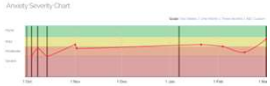
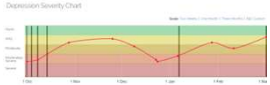
- * HPI: 51y/o male, GSW victim at 9 yrs old
- * MDD, PTSD, Anxiety. Patient presented after his horse (of 30 years) died and he felt "stuck", unable to process his grief or engage in minimal social interaction.
- * + suicidal ideation, without planning
- * Failed multiple SSRI's, anxiolytics over the years.

SP Continued...

- * 1st infusion 10/1/19 PHQ-9 = 19, GAD7= 16, PCL5= 56
- * 44.8mg ketamine over 50 minutes
- * 3rd infusion 10/14/19 PHQ-9 = 15, GAD=12, PCL5=45
- * 59.3mg ketamine over 60 min, 5.9 mg IVP slow up front
- * "SP is here for his 3rd infusion. He has reported strong improvement at home. He has been able to go grocery shopping and has improved personal grooming dramatically. Patient states he has been able to process some grief surrounding his horse and feels like he is ready to reengage in talk therapy."

SP Update

- * Booster infusion 3/3/20, PHQ9= 6, GAD7= 7, PCL5=19
- * 73.5 mg ketamine over 60 min, 7.4 mg up front
- * Patient has a new girlfriend, has repaired relationship with parents
- * Wants to advocate for other patients
- * Integral part of our Peer Support Meeting

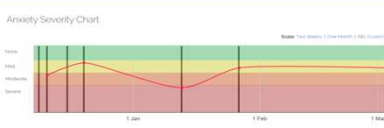
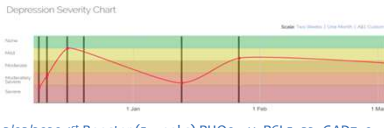



AS

- * 18y/o male, with 5 year history of MDD, anxiety after parents divorce.
- * Self medicated with Adderall from friends
- * Recent inpatient hold (6 days) for suicidal ideation, started on alprazolam for anxiety
- * Older sister completed suicide 10/12/19
- * 1st infusion 12/9/19, PHQ9= 21, PCL5=59, GAD7= 12
- * Still feeling suicidal, "just hanging on"

AS - Six Infusions

44 mg/50 min, now 63 mg/60 min

- 3/03/2020 1st Booster (5 weeks) PHQ9= 11, PCL5=32, GAD7=9
- NO SUICIDAL IDEATION
- Started Therapy

GROUP ORAL KETAMINE TREATMENT

- * Self-referred, in office consult, must have PCP/Psychiatrist or psychologist who supports the patient in the program
- * Meet twice a week for four weeks
- * Escalating oral dose ketamine protocol (.75mg/kg up to 2mg/kg)
- * Therapist uses motivational interviewing techniques to help patients achieve a longer remission
- * Follow up every three months at my office, Mood Monitor

What about Spravato™

- * FDA approved for TRD in patients who have failed at least 2 oral antidepressants
- * Risk Evaluation Mitigation Strategy (REMS)
 - * Must be administered in healthcare setting with 2 hour monitoring after administration
 - * Must be administered concurrently with oral antidepressant

Dosing Schedule

INDUCTION (4-6 weeks)
WEEKS 1-4
Day 1 starting dose: 56 mg
Subsequent doses: 56 mg or 84 mg

MAINTENANCE (once weekly)
WEEKS 1-8
56 mg or 84 mg once weekly

(weekly or every 2 weeks)
WEEKS 8 AND AFTER*
56 mg or 84 mg every 2 weeks or once weekly*

Initial:
12 visits over 8 weeks
2hrs/visit=24 hours

Maintenance:
Every 1-2 weeks

VS

6 visits over 4-5weeks
2hrs/visit= 12 hrs

Maintenance:
Every 4+ weeks

Who should try ketamine infusion therapy?

- * Patients with moderate to severe major depression, bipolar depression, anxiety, PTSD, OCD
- * Patients with Suicidal Ideation
- * Patients with chronic neuropathic pain disorders
 - * Chronic Regional Pain Syndrome (CRPS formerly RSD)
 - * Migraine headache
 - * Fibromyalgia
 - * Phantom Limb

Who should NOT try ketamine infusion therapy

- * Poorly controlled Hypertension
- * Aneurysmal disease or arteriovenous malformation
- * Cerebrovascular disease or CVA
- * Schizophrenia
- * Ketamine use disorder
- * Active psychosis
- * Cocaine or methamphetamine use

QUESTIONS

