Medication-Assisted Treatment of Substance Use Disorders

RADACT
2024 Fall Academy
James M. Fitterling, Ph.D.

1

Acknowledgements

- Bakti, S. (date?). Addiction pharmacotherapy, UCSF School of Medicine.
- NYS Office of Alcoholism and Substance Abuse Services (date?), Addiction Medications.
- Peterson, K. (2014-15). Biomarkers for alcohol use and abuse: A summary, *Alcohol Research & Health*, 28(1), 30-37.
- SAMHSA. (2015). *Medication for the treatment of alcohol use disorder: A brief guide*.
- Saxon, A. (date?), Pharmacotherapy for alcohol use disorders, UW School of Medicine.
- RADACT Trainees, Nov. 1, 2023

2

2

Assessment – Candidacy for Medication-Assisted Therapy (MAT)

- Readiness to change (Importance and Confidence)
- Relapse potential
- Severity of comorbid medical & psychiatric problems
- Ability to tolerate medications
- Medication adherence issues
- Pregnancy or pregnancy risk in childbearing women

3

3

Assessment – Candidacy for MAT (*Cont'd*)

- Medical and Psychiatric History
- Substance use history
- Evaluation of family and psychosocial supports
- Prescription drug use history
  - Alaska Prescription Drug Monitoring Program
  - NABP PMP InterConnect (interstate)

4

4

Assessment – Candidacy for MAT (*Cont'd*)

- **Physical Exam**
  - Include neurocognitive function
  - Identify sequelae of alcohol use
  - Evidence of hepatic dysfunction
- **Examples:** cirrhosis, encephalopathy, B-complex vitamin deficiencies, tachycardia , hand or tongue tremor, HTN, hepatosplenomegaly, peripheral neuropathy, spider angiomata, conjunctival injection, unexplained trauma

5

5

Assessment – Candidacy for MAT (*Cont'd*)

Laboratory Testing (for alcohol patients)

- BAL
- Carbohydrate Deficient Transferrin (CDT)
- Gamma-glutamyl transpeptidase (GGT) (5-40 U/L ref)
- Aspartate aminotransferase (AST) or SGOT (5-40 U/L ref)
- Alanine aminotransferase (ALT) or SGPT (7-56 U/L ref)
- AST/ALT ratio (2:1 or > suggests alcoholic liver disease)
- Ethyl glucuronide (ETG) (Detects ETOH at low levels (+/-); cutoff 500 ng/mL

6

6

Ethyl Glucuronide (EtG) & Ethyl Sulfate (EtS)

- Detect ETOH at low levels (+/-)
- EtG or EtS alone does not confirm drinking or abstinence
  - Sensitive to incidental exposure to alcohol (-> false positive)
  - Advise client to avoid ETOH-containing products – including "non-alcoholic" beer and wine & kombucha
  - Urinary tract infection degrades EtG (false-negative) but doesn't affect EtS

7

7

Assessment – Candidacy for MAT (*Cont'd*)

Laboratory Testing (for alcohol patients) – Continued

- LFT – other enzymes or factors (PT-PTT; Prothrombin Time and Partial Thromboplastin Time)
- CBC and MCV (Mean Corpuscular Volume)
- Test for vitamin deficiencies (thiamine, folic acid, pyridoxine) **RATHER,** usually give vitamin supplements assuming vitamin deficiency
- Other liver and renal testing (most medications are metabolized by liver and/or excreted through kidneys)

8

8

Assessment – Candidacy for MAT (*Cont'd*)

Laboratory Testing (for all patients)

- Drug urine toxicology screen
  - Thin layer chromatography
  - Enzyme immunoassay
  - Gas chromatography - mass spectrometry
- Issues
  - Sensitivity (avoid false negative) and specificity (avoid false positive)
  - Cutoff scores
  - Pharmacokinetics

9

9

Assessment – Candidacy for MAT (*Cont'd*)

Other factors to consider

- Client's attitude about medication-assisted tx
- Client's family's attitude about medication-assisted tx

10

10

Treatment Planning for MAT

COMPONENTS

- Medication and other therapies with rationale
- Schedules for F-U visits and lab testing
- Reasons for participation in mutual self-help groups
- Family/significant-other involvement in tx
- Plan for tx of co-occurring medical, psychiatric and other SUDs – including smoking
- Criteria for D/C'ing medications and other txs

11

11

Patient Education and Informed Consent

- Info re. SUD as a chronic medical disorder
- What to expect from tx
- Info re. medication; why selected; potential risks/benefits; side effects, even info re. pharmacology
- Importance of informing physicians and dentists
- Sxs that should be reported
- Plan for ensuring medication adherence
- Importance of concurrent psychosocial tx
- Plan for F-U

12

12

Pharmacotherapy

- Efficacious but less available
  - Philosophy
  - Payment
  - Prescribers
  - Over-the-counter
- COMBINATION of psychosocial and pharmacological tx crucial for adherence and success

13

Pharmacotherapy

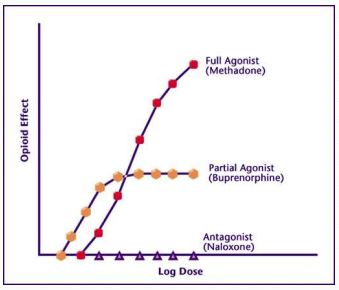
- Agonists
  - Activate receptor site
  - Enhance activity of neurotransmitter system
  - E.g., Methadone
- Antagonists
  - Block or reverse effects of drug
  - Inhibit activity of neurotransmitter system
  - E.g., Naloxone
- Partial Agonists
  - E.g., Buprenorphine

14

Medication-Assisted Treatment of Opioid Dependence

15

Medications for Treating Opiate Addiction



16

16

Medication for Opiate Addiction Tx – Methadone

- Agonist
  - Activates receptors
  - Produces drug effect, has potential for abuse
  - Slow onset, long half-life
  - Reduces opiate use, crime, infectious disease
- Detoxification
- Maintenance

17

Medication for Opiate Addiction Tx – Naltrexone

- Opioid receptor antagonist
- Blocks receptors for 48-72 hours
- No euphoria
- Treating overdose
- Maintaining abstinence
- Poor adherence except in select populations & combined with sanctions &/or behavioral treatment
- Address with Vivitrol® (depot version of naltrexone)

18

Medication for Treating Opiate Overdose – Naloxone (Narcan®)

- Opioid antagonist
- High receptor affinity
  - Opioid effects immediately reversed
- Rapid pharmacokinetics
  - Requires repeated administrations until opioids completely metabolized

19

19

Medication for Treating Opiate Overdose – Nalmefene (OPVEE®)

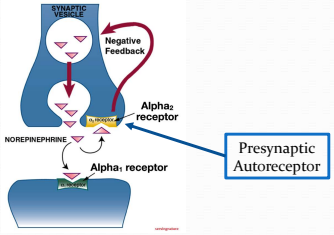
- Opioid inverse agonist (reduces receptor activity *BELOW* basal level)
- High receptor affinity
  - Opioid effects immediately reversed
- Longer pharmacokinetics
  - Lasts *longer* than naltrexone or naloxone

20

20

Xylazine (Tranq) – new additive to street fentanyl

- Potent Alpha2 Receptor agonist



https://servingnature.blogspot.com/2013/03/ans-receptors.html?m=1

21

21

Naloxone vs. Fentanyl with Xylazine

- Fentanyl – synthetic opioid
  - As a potent MOR antagonist, Naloxone effective
- Xylazine - Alpha2 receptor agonist – *NOT* an opioid
  - Thus, Naloxone will *NOT* reverse Xylazine effects
  - Tx is supportive: Atropine, low-dose epinephrine, oxygen/intubation, fluid, and/or norepinephrine
- Yet, *STILL* give naloxone to reverse opioid respiratory suppression (NIDA)

22

22

Medication for Opiate Addiction Tx – Buprenorphine

- Mixed agonist-antagonist (partial agonist)
- Approved for general practice settings
- Reduces opiate craving 24-36 hours
- No withdrawal symptoms on discontinuation
  - Contested by some
- Low risk of overdose when combined with other opiates

23

Buprenorphine

- Subutex® contains only buprenorphine hydrochloride
- Suboxone® contains naltrexone to prevent misuse
- Subutex® given during first few days of treatment, while Suboxone® is used for maintenance treatment
- First narcotic drugs available under Drug Abuse Treatment Act (DATA) of 2000 for treatment of opiate dependence prescribed in physician's office

24

24

Buprenorphine – Role in Tx

- Medication-Assisted Withdrawal
  - Goal – total abstinence from all opioids, therapeutic or otherwise
  - Abstinence Model
- Medication-Assisted Maintenance
  - Goal – total abstinence from all illegal and nonprescribed opioids
  - Harm-Reduction Model
  - Superior to Medication-Assisted Withdrawal (see handout Fiellin et al., 2014)

25

25

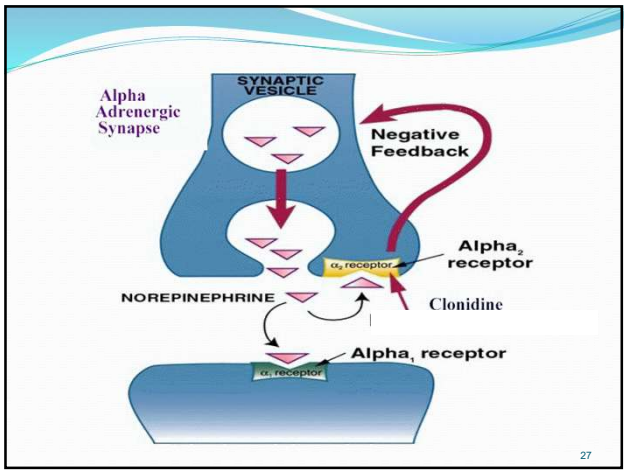
Clonidine

- Alpha2 receptor agonist used to treat HTN, suppresses NE release
- Adding to buprenorphine extends opioid abstinence
- Even in absence of withdrawal signs, it "decouples" stress from craving in everyday life
- Alpha2 receptor agonist used to treat HTN, suppresses NE release
- (Also used to minimize withdrawal Sxs from LT use of opioids, ETOH, benzodiazepines, nicotine)

Kowalcyk et al., 2014

26

26



27

27

Discussion

What factors would lead you to choose the following and why?

- Methadone
- Buprenorphine
- Naltrexone
- None

28

28

Kratom (Mitragyna speciosa)

- Leaves from tree in SE Asia
- Stimulating at low doses; sedating at high doses
- Novel μ, δ, and κ opioid receptor agonist
- Mytraginine (major alkaloid) ***partial*** agonist
- 7-hydroxymitragynine (minor alkaloid) more potent than morphine

29

Kratom (Mitragyna speciosa)

- Used by opioid users to ameliorate opioid withdrawal Sxs
- μ-opioid agonism averts withdrawal sxs, while κ agonism attenuates reinforcement and produces aversion
- Mitragynine, as an α2 adrenergic agonist, may also mimic adjunctive therapies for opioid withdrawal such as clonidine
- Thus, may exert several convergent pharmacological effects that could attenuate opioid withdrawal sxs and blunt cravings

30

Kratom (Mitragyna speciosa) Cont'd

- Politics, money behind efforts to schedule kratom
- Efforts to place kratom as Schedule I
  - DEA 2016
  - FDA 2017
- Pharmaceutical companies applied for patents of kratom alkaloids
- Panel of leading scientists write to Congress to oppose scheduling kratom (*see handout)*

31

Medication- Assisted Treatment of Alcohol Use Disorders

32

Medications for Treating Alcohol Dependence

- Disulfiram (Antabuse®; 1970s)
  - Vomiting, flushing, headaches following alcohol ingestion
  - Well-supervised patients
- Naltrexone (1999)
  - Blocks stimulation of endogenous opioids
  - Blunts "high" effects of alcohol
- Acamprosate (2004)
  - Alcohol-blocking agent
  - Blocks craving

33

Indications for Medications for Treating Alcohol Dependence

- **Acamprosate** – **P**atients dependent on alcohol who are abstinent at treatment initiation
- **Disulfiram** – **S**elect patients who want enforced sobriety to optimize efficacy of other treatment
- **Oral naltrexone** - **T**reatment of alcohol dependence
- **Extended-release injectable naltrexone** – **P**atients who have been able to abstain from alcohol in outpatient setting

34

34

FDA Approved Medications for Treating Alcohol Dependence

Medication	Target	Year Approved
Disulfiram	Aldehyde Dehydrogenase	1949
Research from animal models over the past 25 years has provided promising targets for pharmacotherapy		
Naltrexone	Mu Opioid Receptor	1994
Acamprosate	Glutamate and GABA-Related	2004
Naltrexone Depot	Mu Opioid Receptor	2006

35

Disulfiram (Antabuse®)

- On market since 1948 (originally as an antihelminthic – antiparasitic medicine)
- Deters consumption by making people ill if they drink
- Interferes with metabolism of alcohol
- Aversion therapy to deter person from drinking

36

Alcohol Metabolism

(1) Alcohol → Acetaldehyde
Alcohol dehydrogenase

(2) Acetaldehyde → Acetic Acid
Acetaldehyde dehydrogenase
Disulfiram

(3) Acetic Acid → $Co_2 + H_2o$ + Energy
o_2

About one ounce of alcohol eliminated every 3 hours

37

37

Disulfiram-Alcohol Reaction

- Related to acetaldehyde buildup
- Flushing
- Sweating
- Nausea and Vomiting
- Headache
- Tachycardia
- Sometimes hypotension
- Sometimes dyspnea

38

Disulfiram Side Effects

- Sedation
- Tingling in extremities
- Metallic taste
- Hepatotoxicity
  - Occurs 1/25,000 patient-years of tx
  - Mechanism unknown
  - Potentially fatal

39

Naltrexone (Revia®)

- Acts on opioid receptors to reduce pleasurable aspects of drinking
- Taken daily
- Safe (although metabolized by liver)
- Cannot be abused, does not produce any dependence
- Blocks euphoric effects of alcohol
- Abstinence OR Harm-Reduction Model

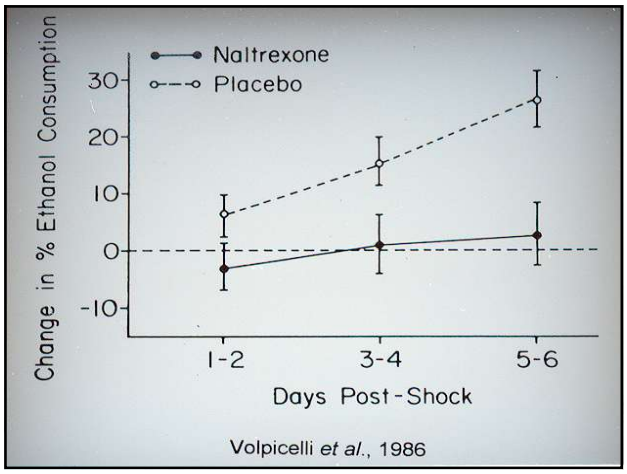
40

Naltrexone Pre-clinical Effects

Volpicelli *et al.*, 1986

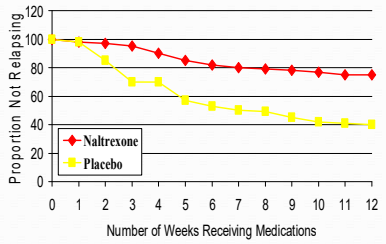
- 32 male rats with free access to H_2O and ETOH
- Received inescapable shocks
- Randomly assigned to naltrexone or placebo injections after the shocks

41



42

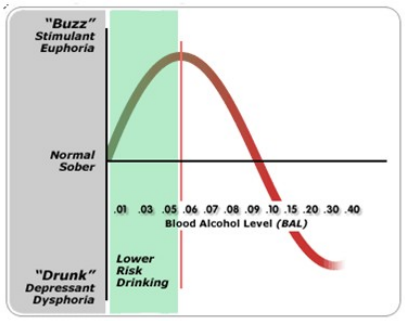
Effects of Naltrexone on Relapse Rates among Alcohol Dependent Outpatients



Volpicelli, et al., 1992

43

Biphasic Effects of ETOH



https://www.alcoholproblemsandsolutions.org/biphasic-curve-shows-how-alcohol-affects-us/

44

Naltrexone Human Lab Effects

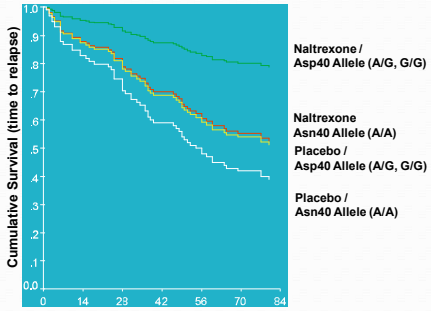
Swift *et al.*, 1994

- 19 non-alcoholic subjects
- Double Blind crossover study
- Subjects received naltrexone 50 mg or placebo followed by an intoxicating dose of alcohol
- Completed Biphasic Alcohol Effects Scale

	NTX	Placebo	p
Mean Stimulant Score	2.5± 2.1	3.4±2.2	<.04
Mean Sedative Score	4.1±2.6	3.2±2.2	<.03

45

Genetic Polymorphisms and Alcohol Treatment



Naltrexone / Asp40 Allele (A/G, G/G)

Naltrexone Asn40 Allele (A/A)

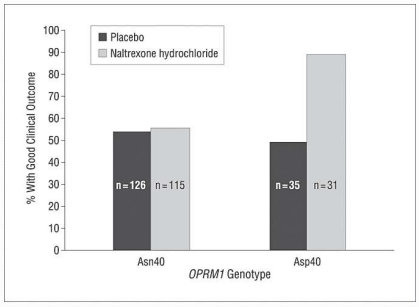
Placebo / Asp40 Allele (A/G, G/G)

Placebo / Asn40 Allele (A/A)

Oslin DW, et. al. 2003

46

Good clinical outcome based on OPRM1 and medication group in those receiving medical management alone (no combined behavioral intervention) (test of genotype x medication interaction, P = .005)



Anton, R. F. et al. Arch Gen Psychiatry 2008;65:135-144.

ARCHIVES OF GENERAL PSYCHIATRY

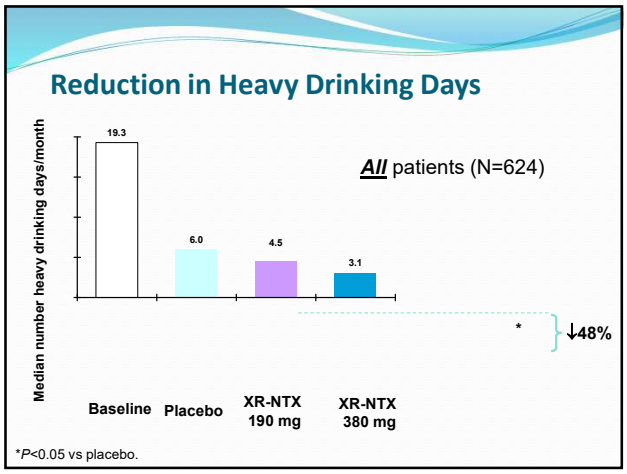
47

Long-Acting Injectable Naltrexone Clinical Trial

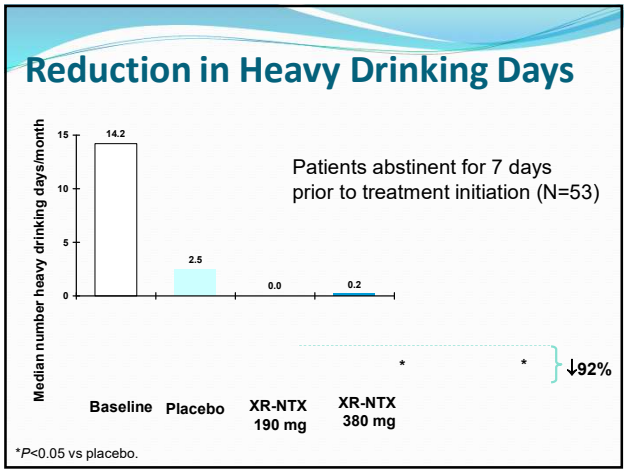
- 24-week multicenter, randomized, double-blind, placebo-controlled study
- 624 alcohol-dependent patients (DSM-IV)
  - Subgroup abstinent prior to treatment initiation
    - 82 patients (13.1%) abstinent for 4 days
    - 53 patients (8.5%) abstinent for 7 days
- Treatment – 12 sessions of low-intensity psychosocial intervention plus 6 monthly IM injections of either:
  - Placebo, XR-NTX 190 mg, or XR-NTX 380 mg

Garbutt et al., 2005

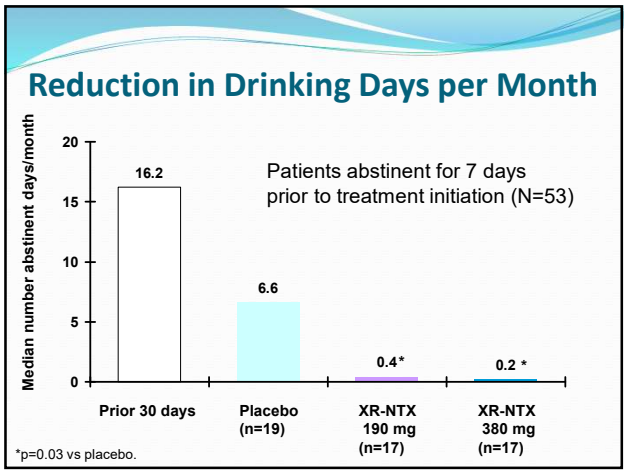
48


Reduction in Heavy Drinking Days
Median number heavy drinking days/month
19.3
6.0
4.5
3.1
All patients (N=624)
*
↓48%
Baseline
Placebo
XR-NTX 190 mg
XR-NTX 380 mg
*P<0.05 vs placebo.

49


Reduction in Heavy Drinking Days
Median number heavy drinking days/month
15
10
5
0
14.2
2.5
0.0
0.2
Patients abstinent for 7 days prior to treatment initiation (N=53)
*
*
↓92%
Baseline
Placebo
XR-NTX 190 mg
XR-NTX 380 mg
*P<0.05 vs placebo.

50


Reduction in Drinking Days per Month
Median number abstinent days/month
20
15
10
5
0
16.2
6.6
0.4*
0.2 *
Patients abstinent for 7 days prior to treatment initiation (N=53)
Prior 30 days
Placebo (n=19)
XR-NTX 190 mg (n=17)
XR-NTX 380 mg (n=17)
*p=0.03 vs placebo.

51

Nalmefene (Revex®)

- Analog of naltrexone
- Soyka, Friede, & Schnitker (2016) compared nalmefene with naltrexone for treatment of Alcohol Dependence and found:
  - Nalmefene performed better than naltrexone in reducing quantity and frequency of drinking
  - Both had benign side effect profiles
- Studies needed to see if OPRM gene polymorphisms moderate effect of nalmefene (as found with naltrexone)

52

52

Acamprosate (Campral®)

- ETOH inhibits NMDA receptors (a type of glutamate receptor)
- Chronic alcohol consumption leads to overproduction (upregulation) of NMDA receptors
- Sudden alcohol abstinence causes excessive NMDARs to be overactive and produce DTs and excitotoxic neuronal death – a surge in release of glutamate, which activates NMDARs
- Acamprosate reduces glutamate surge

53

53

Acamprosate (Campral®) – (*Cont'd*)

- Also works by indirectly stimulating GABAa receptors
- Dysphoria in early recovery is partially result of GABA depletion
- Used after person has stopped drinking
- First anti-relapse medication that normalizes alcohol-induced changes in brain function after alcoholic stops drinking
- May take drug up to a year after quit drinking

54

Acamprosate

- Calcium acetyl homotaurinate (Campral®)
- Available 1/2005
  - Delayed release tablets
  - Daily dose – two 333mg tabs tidEnhances abstinence and reduces drinking days
- **Very important factor:** Not metabolized in liver
- No significant drug-drug interactions

55

55

Acamprosate

- May restore receptor tone that usually can take up to 12 months to normalize on its own
- Thus, attenuates symptoms of acute ***and*** protracted alcohol withdrawal (Post-Acute Withdrawal Syndrome)

56

56

Acamprosate

- Whitworth et al. showed relapse rate of 19% in 12-week study period
  - (23% with naltrexone)
- Patients report they "seemed to lose interest in alcohol"

57

57

Acamprosate vs. Naltrexone

Meta-analysis by Maisel et al. (2012) showed:

- Acamprosate better than naltrexone for maintaining abstinence
- Naltrexone better than acamprosate on reducing heavy drinking and craving
- For naltrexone, requiring prior abstinence better for abstinence maintenance and reduced heavy drinking compared with placebo

58

58

Acamprosate vs. Naltrexone (*Cont'd*)

- For acamprosate, prior detox resulted in better abstinence than placebo
- Conclusions:
  - Acamprosate slightly better in promoting abstinence and naltrexone slightly better in reducing heavy drinking and craving.
  - Detox before treatment or a longer prior abstinence before treatment associated with larger medication effects for acamprosate and naltrexone respectively

59

59

Varenicline (Chantix®) and Med Mgmt of AUD with comorbid cigarette smoking

- High comorbidity of smoking in individuals with AUD
- Randomized, double-blind, placebo-controlled trial
- Participants met criteria for AUD and smoked
- Varenicline (1 mg b.i.d.) with med mgmt results:
  - Decreased heavy drinking among men (but not woman)
  - Increased smoking abstinence in overall sample

O'Malley, S. et al. (2018). JAMA Psychiatry, 75(2), 129-138.

60

60

Topiramate (Topamax®)

- Novel molecule – tx for seizures and off-label for bipolar disorder, now ***Alcohol Use Disorder***
- Mechanism(s) still uncertain, appears to suppress ETOH-induced DA release
- Reduced drinks per day, number of heavy drinking days
  - No difference in early or late onset alcoholics
  - Measured abstinence initiation not persistence
  - Perhaps different pharmacotherapies could be used for initiation, maintenance and prolonged abstinence

Johnson BA, Ait-Daoud N, Bowden CL, et al. Oral topiramate for treatment of alcohol dependence: A randomized controlled trial. Lancet. 2003;361:1677-1685.

61

61

Topiramate vs. Naltrexone

- Open-label – Topiramate or Naltrexone
- Assessed at intake, 3 months, 6 months
- Measured ETOH intake, cravings, disability, quality of life
- Topiramate ***better than*** Naltrexone at reducing alcohol intake and cravings, functioning and quality of life

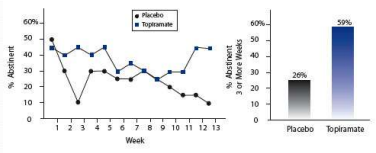
NOTE: All studies used topiramate as an adjunct to behavioral therapies

Florez G, Saiz PA, Garcia-Portilla P, Alvarez S, Nogueiras L, Bobes J. Topiramate for the treatment of alcohol dependence: comparison with naltrexone. Eur Addict Res. 2011;17:29-36.

62

62

Topiramate and Cocaine



More patients in topiramate group

- Abstinent than in placebo group
- Achieved 3 or more continuous weeks of abstinence from cocaine

(Kampman, K.M., et al. A pilot trial of topiramate for the treatment of cocaine dependence. Drug and Alcohol Dependence 75(3):233-240, 2004.)

63

63

Medications for Treating Alcohol Dependence – Under Investigation

Medication	Target (action)
Topiramate	GABA/Glutamate (multiple, agonist)
Valproate	GABA/Glutamate (multiple, agonist)
Ondansetron	5-HT_3 Receptor (antagonist)
Nalmefene	Mu Opioid Receptor (antagonist)
Baclofen	$GABA_B$ Receptor (agonist)
Antalarmin	CRF1 Receptor (antagonist)
Rimonabant	CB1 Receptor (inverse agonist)

64

Examples of NIAAA-Supported Clinical Pharmacotherapy Trials for AUDs and Comorbid Psychiatric Conditions

Comorbidities	Medication(s)
AD/Depression	naltrexone; sertraline
AD/Bipolar	valproate; naltrexone
AUD/anxiety disorders	venlafaxine (Effexor)
AD/schizophrenia	clozapine (Clozaril)
AD/tobacco dependence	bupropion (Zyban)
AD/cocaine dependence	topiramate (Topamax)

65

Glucagon-Like-Peptide 1 (GLP1)

- Released in small intestine
- Promotes blood glucose homeostasis, slows gastric emptying, reduces appetite
- GLP1 agonists (Ozempic®) Used to treat Type II Diabetes Mellitus and Obesity
- Mechanism appears to involve ghrelin suppression
- GLP1 agonists – show decrease in alcohol and drug intake – even at low, subclinical doses

66

66

Medication-Assisted Treatment of Tobacco Dependence

67

Co-occurrence of Alcohol and Tobacco Use

- Alcohol-dependent people 3 Xs more likely than general population to be smokers
- Tobacco-dependent people 4 Xs more likely than general population to be alcohol-dependent

68

68

Medications for Nicotine Dependence Tx

Nicotine replacement therapy (NRT)

- Reduces reinforcing effects of tobacco-delivered nicotine
- Reduces withdrawal sxs
- Delivers "positive effects" of nicotine
- Sustains desirable mood and attention
- Helps handle stressful or boring situations
- Manages hunger and weight gain
- Breaks "connection" between context, smoking and reinforcing effect

69

Medications for Nicotine Dependence Tx

Nicotine Replacement Therapy (NRT)

- Passive dosing
  - Transdermal patch (7-, 14-, & 21-mg/day dose)
- PRN dosing
  - Gum, lozenge, sublingual tablet, nasal spray
- Needs
  - Higher dosing
  - Use while continued smoking
- Use Fagerström Nicotine Dependence Scale to titrate dosing

70

Medications for Nicotine Dependence Tx

Bupropion (Zyban®)

- Antidepressant
- Indirect DA and NE reuptake inhibitor and antagonist on select nicotinic receptors
- Alters reinforcing properties of nicotine
- Reduces withdrawal sxs (depression, irritability, difficulty concentrating)
- Can combined with NRT

71

Medications for Nicotine Dependence Tx

Varenicline (Chantix®)

- Partial agonist of nicotine receptors
  - Reduces craving for nicotine
  - Reduces pleasurable effects of nicotine
- Does not greatly increase downstream release of DA
- Competitive binding blocks nicotine from binding and stimulate mesolimbic dopamine pathway (like buprenorphine in tx of opioid addiction)

72

Medications for Nicotine Dependence Tx

Nicotine vaccine

- Under development – (Use Google Scholar to see articles)
- Induces antibodies that prevent nicotine molecules from reaching receptors
- Smoking cessation, perhaps prevention

73

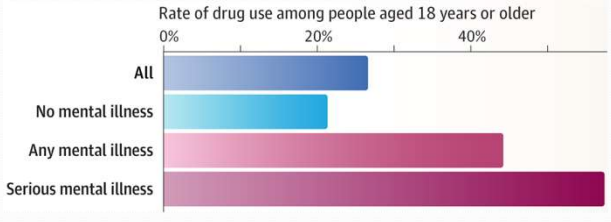
73

Treatment of Comorbid Psychiatric Disorders to Enhance SUD Recovery

74

74

Poor Mental Health Linked to increased Drug Use



Samantha, A. & Rekito, M.S. (2025). Mental Health and Substance Use Linked in New Survey. JAMA, published online September 26, 2025. doi:10.1001/jama.2025.15338

75

75

Odds of Co-Occurrence of Current (12-month) DSM-IV Alcohol Dependence and Selected Psychiatric Conditions

Disorder	Odds
Anxiety Disorders	2.6x
Mood Disorders (especially Major Depression)	4.1x
Personality Disorders	4.0x
Antisocial Personality Disorder	7.1x
Drug Dependence	36.9x
Nicotine Dependence	6.4x

NIAAA National Epidemiologic Survey on Alcohol and Related Conditions, 2004.

76

Combined Naltrexone and Ketamine – Depression and AUD

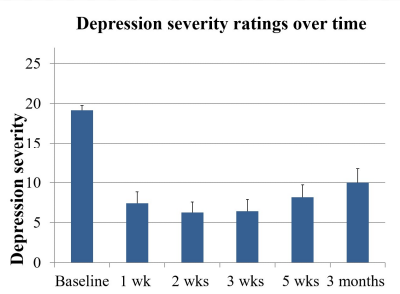
Ketamine

- Rapid, robust antidepressant effects
- Concerns about abuse liability
- Antidepressant effects
  - Might depend on opiate receptor stimulation
  - Not attenuated by naltrexone pretreatment
- Combined opiate receptor antagonism with ketamine may reduce addiction risk among depressed patients at risk for substance abuse

77

77

Psilocybin Tx for Tx-Resistant Depression

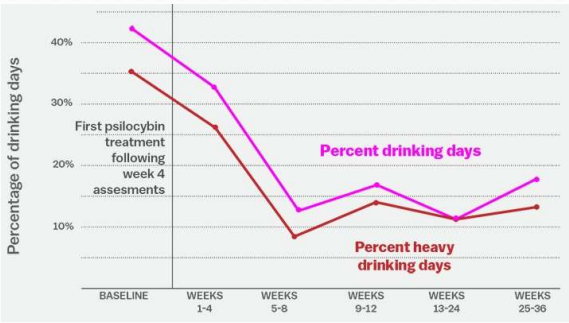


R. L. Carhart-Harris, R., Bolstridge,, M., Day, C., Rucker, J., Watts, D., Erritzoe, . . . & Nutt, D. (2018) Psilocybin with psychological support for treatment-resistant depression: six-month follow-up, *Psychopharmacology*,235, 399–408.

78

78

Psilocybin Tx for Alcohol Use Disorder



79

79

Treatment of Pain as an Adjunct to SUD Treatment

80

80

Discussion

- How do you distinguish between legitimate complaints about pain vs. "just drug-seeking?"
- How do you address legitimate pain issues without compromising recovery?
- What role (if any) does harm reduction play in this issue?

81

81

References / Handouts

Mehendale, A., Goldman, M., Cizerle, K., & Parvin, T. (2016). The problems of outcomes in addiction treatments, the inconvenient truths. *Journal of Addiction and Preventive Medicine, 1*, 1-6.

Strain, E., Kampman, K., & Weiss, R. (2021). Moving Beyond Medications That Act at the μ Receptor in the Treatment of Opioid Use Disorder. *JAMA Psychiatry, 78*, 701-702.

82

82

Questions, Discussion

83

83

TED Talk – "Rat Park" (Johann Hari)

84

84

85