Treatment Options? What Treatment Options? -- Making Sense of the Methamphetamine Mess

Jeffrey DeVido, MD, MTS
3/12/2020; 12pm
Behavioral Health Clinical Director, PHP
Chief, Addiction Services, Marin County BHRS
12:00 to 12:05 PM  
**Welcome/Housekeeping Rules**  
*Liezel Lago, Continuing Education Program Coordinator*

12:05 to 12:10 p.m.  
**Introduction**  
*Jeffrey DeVido, MD, MTS*  
*Behavioral Health Clinical Director, Partnership Health Plan of California*

12:10 to 12:55 p.m.  
**Treatment Options? What Treatment Options?**  
**Making Sense of Methamphetamine**

12:55 to 1:00 p.m.  
**Question & Answer Discussion**

1:00 p.m.  
**Adjourn**
No Conflict of Interest

• Presenter has signed the Conflict of Interest form and has declared there is no conflict of interest and nothing to disclose for this presentation.

- CME – Approved for 1.00 AAFP elective credits.

• **CME credit is for physicians, physician assistants and other healthcare professionals whose continuing educational requirements can be met with AAFP CME.

- CE - Provider approved by the California Board of Registered Nursing, Provider #CEP16728 for 1 hours.
To avoid echoes and feedback, we request that you use the telephone instead of your computer audio for listening and talking during the webinar.

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Click ***Switch Connection*** to change from computer to phone.
Housekeeping

- All participants have been muted to eliminate any possible noise interference/distraction.
- Participants are encouraged to type questions in the “Q&A” box and comments in the “Chat” box.
Jeffrey DeVido, MD, MTS
Mission:
To help our members, and the communities we serve, be healthy.

Vision:
To be the most highly regarded managed care plan in California.
Resources

http://thecartbeforethehorse.blogspot.com
What is Methamphetamine

Prevents degradation in bloodstream

Amphetamine

Methamphetamine
What is Methamphetamine

D-Methamphetamine
(dextro-Methamphetamine, S(+)–Methamphetamine)

L-Methamphetamine
(levo-Methamphetamine, R(−)-Methamphetamine)
What is Methamphetamine

Racemic mixture = “methamphetamine”
Schedule 2:
Indications: ADHD, treatment refractory obesity
What is Methamphetamine

Racemic mixture = “methamphetamine"

Schedule 2: Desoxyn®

Indications: ADHD, treatment refractory anxiety
How does Methamphetamine work?
How does Methamphetamine work?
How does Methamphetamine work?

Methamphetamine

- Dopamine
- Norepinephrine
- Serotonin
- Sigma receptor activity
Methamphetamine

More so than other substances, the currency of stimulant use disorders is REWARD.

Figure 2. Partial Recovery of Brain Dopamine Transporters in Methamphetamine (METH) Abuser After Protracted Abstinence

More so than other substances, the currency of stimulant use disorders is:

**REWARD**

What do addiction studies normally assess?

- Negative urine toxicologies
- Decreased cravings
- Retention in treatment
- Frequency of use
- Amount used
- Abstinence at end of treatment
2018: systematic review and network meta-analysis

- 50 Clinical Studies; 6943 participants
- 12 different interventions
- Contingency Management + Community reinforcement approach best for efficacy and acceptability

SF’s Scott Wiener wants to fund financial rewards for meth addicts who stop using drugs

Democratic Sen. Scott Wiener introduced SB888, which would expand the substance abuse treatment options that qualify for Medi-Cal, the state’s health care program for the poor, to include contingency management. These programs use vouchers or small cash prizes to motivate people to stay off drugs.
Methamphetamine—Behavioral Treatments

Exercise!?

- STRIDE: NIDA CTN
  - 9 residential SUD sites, 12 weeks
  - N = 302 (Stimulant abuse)
  - TAU + Exercise or health education
  - Exercise 3x/week
  - Outcome: abstinent days via Utox and self report during weeks 4-12

Methamphetamine—Behavioral Treatments

Exercise!?

- STRIDE: NIDA CTN
  - No difference in primary outcome measure... BUT...
  - Those who actually adhered to the intervention had more abstinent days
  - ALSO, overall abstinence (75%) was higher for BOTH groups relative to most studies (50%)

Methamphetamine—Behavioral Treatments

Exercise!?  

- NIDA, inpatient methamphetamine specific  
  - 8 weeks, exercise vs. health education  
  - N = 135  
  - 3x/week, structured 60 minutes exercise  
  - 30” aerobic, 15” resistance  
- Outcomes: reduction in depression/anxiety

Rawson RA, et al, The Impact of Exercise On Depression and Anxiety Symptoms Among Abstinent Methamphetamine-Dependent Individuals in A Residential Treatment Setting  
Journal of Substance Abuse Treatment Volume 57, October 2015, Pages 36-40.
Methamphetamine—Behavioral Treatments

Exercise!? 

- NIDA, inpatient methamphetamine specific 
  - Dose effect observed (decrease in depression and anxiety severity)  
  - No decrease in post-release meth use overall
  - Secondary analysis: lower severity of meth use at baseline @ 1, 3, 6 months DID have reduction in use

Rawson RA, et al, The Impact of Exercise On Depression and Anxiety Symptoms Among Abstinent Methamphetamine-Dependent Individuals in A Residential Treatment Setting 
Journal of Substance Abuse Treatment Volume 57, October 2015, Pages 36-40.
Methamphetamine—Medication Treatments

Party Line = No FDA-Approved medications for stimulant use disorders

What should I do?

Studies have been small, underpowered, design flaws (adherence), high attrition, haven’t looked at combinations
Methamphetamine—Medication Treatments

• **Generally negative:**
  • Sertraline (lower retention and more adverse effects)
  • Aripiprazole (may make it worse—trial halted, INCREASE use)
  • Imipramine
  • Desipramine
  • Ondansetron
  • Tyrosine
  • Fluoxetine
  • Paroxetine
  • Gabapentin
  • N-acetylcysteine
  • D-amphetamine (mixed—less effect on relapse, but perhaps effects on withdrawal and cravings)
  • Modafinil (mixed, perhaps better in high severity users?)
Methamphetamine—Medication Treatments

- **Generally positive**:  
  - Bupropion  
  - Topiramate  
  - Methylphenidate  
  - Naltrexone  
  - Mirtazapine
2018, Chan, et al:

- 14 RCTs, 1 Systematic Review
- Low-strength evidence:
  - Topiramate (better for those who can produce negative Utox at baseline, reduction in use)
  - Bupropion (better for less severe at baseline, ?men)
  - Methylphenidate (reduction in use, severe)

**Methylphenidate:**

- N = 110, DB, PC, RCT
- 10 weeks active phase, 4 weeks placebo, 54mg/day MPH-SR
- Outcome: self-reported days of MA use during the last 30 days of the active phase
- Negative trial... BUT
  - HEAVY users at baseline, when taken out, DID have sig effect

Ling W, et al. Sustained-Release Methylphenidate in a Randomized Trial of Treatment of Methamphetamine Use Disorder.
Methamphetamine—Medication Treatments

- **Methylphenidate:**
  - Criminal offenders with ADHD, amphetamine use disorder
  - N = 54; 72mg OROS MPH, then 180mg
  - In lower dose, no effect; higher dose saw effect in negative urines and retention in treatment

• **Methylphenidate:**

• **Bupropion:**
  • “Lower severity” = <18 days/month
  • SR 150mg BID
  • Overall, no effect, BUT…
  • Only 1/3rd adherent.
    • Of those:
      • Adherent (13) → 54% abstinent
      • Non-Adherent (28) → 18% abstinent
  • Replicated by Shoptaw, et al.

Methamphetamine—Medication Treatments

- **Topiramate:**
  - N = 140, DB, PC, RCT
  - 13 weeks, 25mg start then escalated to 200mg/daily
  - Outcome: negative "methamphetamine use weeks" in weeks 6-12
  - Negative study, BUT… if urine was negative at baseline, then topiramate arm did have effect on increasing neg urines

- **Naltrexone:**
  - N = 55, DB, PC, RCT
  - 12 weeks, 50mg daily
  - Outcome: negative urines (abstinence)

Methamphetamine—Medication Treatments

**Naltrexone:**

- N = 100, DB, PC, RCT/active users/MSM
- 12 weeks, LAI
- Outcome: change in level of positive urines

**Mirtazapine:**

- **N = 60, DB, PC, RCT/active users/MSM**
- **12 weeks, 30mg Daily**
- **Outcome:** change in level of positive urines

Colfax GN. *Mirtazapine to reduce methamphetamine use: a randomized controlled trial.* Arch Gen Psychiatry. 2011 Nov;68(11):1168-75.
• **Mirtazapine:**
  • N = 120, DB, PC, RCT/active users/MSM
  • 24 weeks + 12 follow up, 30mg Daily
  • Outcome: change in level of positive urines

• **Biological approaches… not yet ready for prime time:**
  • Vaccines
    • Antibody-mediated sequestration
    • Have to mount big enough immune response
  • metabolism augmentation
    • Cholinesterase augmentation in cocaine users
On the shoulders of giants...

Francis Levin
John Mariani
Larissa Mooney

Tom Kosten
Rick Rawson
Tim Wilens
Resources

- https://cme.csam-asam.org
- https://www.asam.org/education
- https://attcnetwork.org
- https://www.aaap.org/clinicians/education-training/
- https://pcssnow.org/education-training/