Adaptive Treatment for Cocaine Dependence

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Collaborators

- Penn
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  - Debbie Van Horn
  - Dave Oslin
  - Kevin Lynch
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- Consultants
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Problems in cocaine treatment

- High dropout rate
- PTs’ mixed reactions to “standard care” in the treatment system:
  - Behavioral interventions
  - Group counseling
  - 12-step model (i.e., AA approach)
- Currently, treatment-seeking individuals with cocaine dependence really do not have many TX options
Adaptive Intervention Study

Research Questions

- Does offering patients who do not engage in treatment a choice of other interventions improve outcomes?
- Does offering patients who engage but then drop out a choice of other interventions improve outcomes?
- Does a second attempt to offer TX choice to non-engagers improve outcomes?

Questions best addressed through SMART study
Tailoring Variable

- We are tailoring on IOP attendance (rather than cocaine use)
- Definition of “disengaged” was derived through an expert consensus process
  - At 2 weeks: failure to attend any treatment in the second week following intake
  - During weeks 3-7: failure to attend any IOP sessions for two consecutive weeks
  - At week 8: Failure to attend any IOP sessions for two consecutive weeks
Treatment Sites and Patients

- Participants recruited from IOPs in publicly funded and VA programs
- Participants enrolled as close to intake as possible
- All cocaine dependent, most with co-occurring alcohol dependence (76%)
- Typical participant: African-American male, around 40yo
SMART Design With Patient Choice

**Week 2**

- Monitor for Two weeks
  - Self-Selection
    - Non-Engaged Patients
  - Randomization
    - Telephone MI With *Choice* of TX Option

**Week 8**

- Still Non-Engaged
  - Second Randomization

- CBT
- Medical Management
- Stepped Care
- IOP
- TEL MI W/Choice
Participants engaged at 2 wks

- IOP attendance monitored wks 3-8
- Participants who stop attending IOP for *two consecutive weeks* in that time period are randomized to:
  - MI-IOP, or
  - MI-PC
Medication Options

- Originally offered the following:
  - Patients with cocaine dependence only: *Modafinil*
  - Patients with both cocaine and alcohol dependence: *Naltrexone*

- Change to protocol at about 150 Ss:
  - Dropped Modafinil
Study Participation

- Total N=300 at baseline
- Week 2: 188 engaged/112 non-engaged
- Weeks 3-7: Of 188 initially engaged Ss, 43 become disengaged
- Week 8: Of 112 initially non-engaged Ss, 66 are still non-engaged
- Follow-up rates: 87% at 12 weeks
Treatments selected by PTs disengaged either at week 2 or in weeks 3-7 and randomized to MI-PC (# of participants)
TX selections of PTs disengaged at weeks 2 and 8 and re-randomized at 8 wks to MI-PC (#)

NOTE: These are PTS disengaged at 2 weeks and again at 8 wks
Main Effects Analyses

Cocaine and Alcohol Use (self-reports)
PTs Disengaged at Week 2: Cocaine Use in Weeks 9-12

**Any Cocaine Use**

<table>
<thead>
<tr>
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<th>OR</th>
<th>Significance</th>
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<tbody>
<tr>
<td>IOP</td>
<td>1.1</td>
<td>ns</td>
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<tr>
<td>PC</td>
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**Days Cocaine Use**

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<tbody>
<tr>
<td>IOP</td>
<td>1.63</td>
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<tr>
<td>PC</td>
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</tbody>
</table>

*** p< .001
PTs Disengaged at Week 2: Alcohol Use in Weeks 9-12

**Any Alcohol Use**

- OR = 3.13*  
- OR = 1.67***

**Days Alcohol Use**

- OR = 1.67***

* p < .05; *** p < .001
Initially Engaged PTs Disengaged in Weeks 3-7: Cocaine Use Weeks 9-12

**Any Cocaine Use**

- IOP: [Graph showing 1.1, ns]
- PC: [Graph showing 1.1, ns]

**Days Cocaine Use**

- IOP: [Graph showing 3.82***]
- PC: [Graph showing 3.82***]

*** p< .001

NOTE: These are PTs who were engaged at 2 weeks
Initially Engaged PTs Disengaged in Weeks 3-7: Alcohol Use Weeks 9-12

**Any Alcohol Use**
- IOP: 30
- PC: 40
OR = 2.07 ns

**Days Alcohol Use**
- IOP: 1
- PC: 4
OR = 2.22***

*** p< .001
PTs Disengaged at Week 2 & 8: Cocaine Use in Weeks 9-12

**Any Cocaine Use**

- PC: 80
- Nothing: 40

OR = 2.44 ns

**Days Cocaine Use**

- PC: 6
- Nothing: 2

OR = 1.82***

*** p < .001

NOTE: these PTs were disengaged at week 2 AND week 8
PTs Disengaged at Week 2 & 8: Alcohol Use in Weeks 9-12

Any Alcohol Use

Days Alcohol Use

OR = 2.30 ns

OR = 2.07***

*** p < .001
Analysis of Algorithms

Cocaine and Alcohol Use in Non-Engagers
Four algorithms generated by two randomizations in non-engagers

NOTE: All PTs in these analyses were disengaged at week 2
Four algorithms, cont.

Days of Cocaine Use

All pair-wise comparisons ns

Initial Randomization at 2 weeks/Further Efforts at 8 weeks
Four algorithms, cont

**Any Alcohol Use**

- IOP/No vs. PC/Yes: $p = 0.01$
- IOP/No vs. PC/No: $p = 0.09$
- IOP/Yes vs. PC/Yes: $p = 0.09$

Initial Randomization at 2 weeks/Further Efforts at 8 weeks
Four algorithms, cont.

Days of Alcohol Use

All pair-wise comparisons ns

Initial Randomization at 2 weeks/Further Efforts at 8 weeks
Cocaine Urine Toxicology Results

- Initial examination indicates very good agreement between urine toxicology results at 12 weeks and self-report results of any cocaine use in weeks 9-12
  - Similar percentages are cocaine positive
  - As in self-report, no group differences
Conclusions So Far...

- For PTs who do not initially engage in IOP, or drop out after engaging, telephone MI focused on getting PTs back into IOP appears more effective than MI with a choice of IOP or alternative interventions.

- Further efforts to engage PTs still not engaged at 8 weeks were not effective.

- Results somewhat stronger with alcohol outcomes than with cocaine outcomes.

- It should be noted that these results are the opposite of what had been hypothesized.
Possible explanation for unexpected results

- Most participants had been through traditional treatment several times.
- Option of alternative treatments, provided outside of the IOP, may have generated some confusion for PTs or otherwise decreased their focus on recovery.
- This would be consistent with results of Cocaine Collaborative Study.
Caveats

- Preliminary report
  - Analyses focused on outcomes in weeks 9-12. Does not include earlier data (weeks 1-8) or later data (weeks 13-26)
  - Does not include PTS who stayed engaged throughout the trial
  - Does not include data on number of treatment sessions received
Challenges in Adaptive Interventions for Substance Dependence

- PTs who are doing badly are hard to reach and are often unwilling to participate further in treatment of any sort, particularly “step-up”
- Mechanisms of action in behavioral treatment options may not be sufficiently different that PT doing poorly in one will respond to another
- Points toward need to develop alternative interventions that are more appealing in some way, and feature different mechanisms of action
Future Directions

- Consider tailoring on substance use, or a combination of substance use and attendance
- Consider a more delayed second engagement effort
- Consider replicating the adaptive intervention study in a different setting where choice may be more important—primary care.
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