Intentional Non-Adherence to Antiretroviral Medications among Alcohol Drinkers: Prospective Study of Interactive Toxicity Beliefs

Supported by an America Reinvestment and Recovery Act (ARRA) Challenge Grant from the National Institute of Alcohol Abuse and Alcoholism (NIAAA) RC1AA018983
Alcohol interferes with adherence…

- Intoxication
- Impaired memory
- Over Sleeping
- Hangovers
Interactive Toxicity Beliefs

Beliefs that mixing alcohol with medications will lead to adverse reactions.

Can result in......

Abstinence from alcohol when on ART

Intentionally interrupting ART when drinking
Interactive Toxicity Beliefs

85% “ART and alcohol do not mix”

90% “It’s common knowledge that you should never drink alcohol with any type of prescription medication.”

53% heavy drinkers believe it is harmful to mix alcohol and ARVs

Sankar et al., AIDS & Behavior, 2007
Cross-sectional studies show that one in five people taking ART endorse the belief…

“A person should stop taking their HIV medications if they are going to be drinking.”

Kalichman et al., AIDS Patient Care & STDs, 2010
We also found that interactive toxicity beliefs predict ART non-adherence over and above drinking.
Purpose of the current study...

To examine the whether interactive toxicity beliefs predict non-adherence in prospective and day-level analyses.
PARTICIPANTS

139 men and 39 women

All participants were HIV+, taking ART & current drinkers

Community recruited by word-of-mouth

93% African-American

58% have incomes under $10,000/year

Mean age 45 years
**KEY MEASURES**

ACAS-Interview

- Demographics
- Substance use
- Alcohol Use Identification Test (AUDIT)
- Alcohol Interactive Toxicity Beliefs
ART Adherence: Monthly unannounced cell-phone pill counts & 3-day self-report

Drinking: Daily cell-phone text surveys of alcohol use
**Study Design**

- **Initial screening for alcohol use**
  - (N = 449)

- **Currently treated with ART and reported current alcohol use**
  - (N=178)

- **Baseline Interview**
  - (N=178)

- **12-Month Interview and blood draw**
  - (N=174, 97%)

- **Daily drinking diaries linked to telephone adherence assessments**
  - Completion rates:
    - First block, 85%
    - Fourth block, 84%
    - Final block, 70%
  - (Mean 82% completion)

- **Unannounced pill counts and telephone adherence assessments**
  - (6 month completion, N =176, 98%)
  - 12 month completion, N = 171, 96%)
RESULTS

52% endorsed either of two items that defined intentional non-adherence:

“I skip taking my medicine if I have been drinking”

“I stop taking my HIV medications if I will be drinking alcohol”
## Characteristics of Intentionally Non-Adherent Groups

<table>
<thead>
<tr>
<th></th>
<th>Not Intentionally Non-Adherent (N = 88)</th>
<th>Intentionally Non-Adherent (N = 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>X²</td>
</tr>
<tr>
<td>Men</td>
<td>71</td>
<td>81</td>
</tr>
<tr>
<td>Women</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>African American</td>
<td>79</td>
<td>90</td>
</tr>
<tr>
<td>Marijuana (4-mos)</td>
<td>29</td>
<td>33</td>
</tr>
<tr>
<td>Cocaine (4-mos)</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Liver Disease</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Viral Load &gt; 75</td>
<td>28</td>
<td>33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>46.7</td>
<td>7.4</td>
<td>45.1</td>
<td>6.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Education</td>
<td>12.7</td>
<td>1.2</td>
<td>12.4</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>AUDIT (alcohol)</td>
<td>score</td>
<td>4.2</td>
<td>4.2</td>
<td>7.2</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Note: * p < .05, ** p < .01
## Alcohol-ART Behaviors among Intentionally Non-Adherent Groups

<table>
<thead>
<tr>
<th></th>
<th>Not Intentionally Non-Adherent (N = 88)</th>
<th>Intentionally Non-Adherent (N = 90)</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>I wait at least a couple hours after I take my medicine to drink.</td>
<td>48/54%</td>
<td>67/74%</td>
<td>7.7**</td>
</tr>
<tr>
<td>I get sick if I mix HIV medications and alcohol together.</td>
<td>15/17%</td>
<td>39/44%</td>
<td>14**</td>
</tr>
<tr>
<td>I do not mix alcohol and HIV medications because it is not safe.</td>
<td>27/31%</td>
<td>47/52%</td>
<td>8.5**</td>
</tr>
</tbody>
</table>
Pill Count Adherence for Intentionally Non-Adherent Groups

GEE Wald $X^2 = 4.90$, $p < .05$; controlling for AUDIT score and drug use
## Day-Level Self-Report Adherence and e-Diary Drinking among Intentionally Non-Adherent Groups

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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Days Non-Adherent</td>
<td>1.9</td>
<td>3.4</td>
</tr>
<tr>
<td>Number of Drinking Days</td>
<td>2.9</td>
<td>3.6</td>
</tr>
<tr>
<td>Drinks Per Day</td>
<td>9.0</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Note: Logistic Regressions
Day-Level Non-Adherence When Drinking

GEE Wald $X^2 = 90.7, p < .001$; controlling for AUDIT score and drug use
Conclusions

Interactive toxicity beliefs are common among people living with HIV/AIDS.

Prospective analyses confirm beliefs that medications should be stopped when drinking predict non-adherence over and above alcohol and drug use.

Interventions to correct erroneous beliefs about mixing medications with substances may be easily implemented in clinical settings.
The SHARE Project

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