Pilot Controlled Trial of the Adherence Readiness Program

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Background

Â Premium on patients being ready to adhere well at start of treatment

ï Initial learning re. pill taking is more resistant to change

ï Limit the development of adherence problems down the road

ï Limit the need for increasingly limited resources to support adherence

ï Increased risk of greater resistance pool in community
(treatment as prevention; starting ART ASAP)
Background

- There are no established methods for determining adherence readiness prior to a patient starting ART
  - Providers cannot accurately predict
  - Self-report measures not accurate enough to inform decisions to prescribe or defer treatment

- Safest approach is to provide adherence training to all patients starting treatment
  - But need to tailor amount to individual needs of the patient, so that training is more effective and conserves limited resources
Adherence Readiness Program

Â Based on IMB model of health behavior
Â Pre-treatment: up to 4 one-week practice trials that mimic ART plus counseling to determine readiness
  ï 85+% adherence needed in a single PT to start ART
Â Early treatment: Adherence counseling to sustain readiness
  ï Weeks 2 and 4 after start of ART
  ï Education about importance of adherence
  ï Problem solving to overcome barriers
  ï Enhance social support for adherence
  ï Use of MI to address negative attitudes
  ï Tailor regimen to daily routine
  ï Side effect management
Â Maintenance: Periodic check-ins (Weeks 8 and 16) with added biweekly counseling support as needed (tailoring)
Study Design

- Study setting: CARE Clinic in Long Beach, CA

- Eligibility criteria
  - Starting or restarting ART (at least 2 months off)
  - Detectable viral load

- Primary assessments at Week 8 (post core training sessions) and Week 24 (post maintenance)

- Primary outcomes:
  - Undetectable HIV viral load
  - MEMS adherence
    - Dose-taking (% prescribed dose taken)
    - Dose-timing (% prescribed doses taken on time)
    - 85% used as cutoff for "optimal" adherence
Study Design

• 60 participants randomized (29 ARP; 31 usual care)
  • 54 started ART (24 ARP; 30 usual care)

• ITT analysis included only those starting ART
  • 5/6 non-starters had indicators of non-readiness
  • 11/54 dropped out prior to Week 24 (4 ARP; 7 UC)

• Interpretation of intervention effects focused on:
  • Effect size estimates
  • Clinical meaningfulness (10% difference for continuous; 15% difference for group proportions)
  • Not statistical significance (due to low power)
## Sample Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Total (N=54)</th>
<th>ARP (N=24)</th>
<th>Control (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>38.6</td>
<td>39.2</td>
<td>38.2</td>
</tr>
<tr>
<td>Male</td>
<td>94%</td>
<td>96%</td>
<td>93%</td>
</tr>
<tr>
<td>Some college education</td>
<td>52%</td>
<td>63%</td>
<td>43%</td>
</tr>
<tr>
<td>Non-white</td>
<td>70%</td>
<td>71%</td>
<td>70%</td>
</tr>
<tr>
<td>Employed</td>
<td>26%</td>
<td>17%</td>
<td>33%</td>
</tr>
<tr>
<td>Frequent substance use</td>
<td>52%</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>Mean CD4 count</td>
<td>306</td>
<td>283</td>
<td>325</td>
</tr>
<tr>
<td>ART naive</td>
<td>70%</td>
<td>67%</td>
<td>73%</td>
</tr>
<tr>
<td>Once-a-day dosing</td>
<td>82%</td>
<td>82%</td>
<td>83%</td>
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</tbody>
</table>
## Intervention Effects at Week 8

<table>
<thead>
<tr>
<th></th>
<th>ARP</th>
<th>Usual Care</th>
<th>p</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean doses-taking adherence %</td>
<td>89.4</td>
<td>83.4</td>
<td>.21</td>
<td>.41</td>
</tr>
<tr>
<td>Optimal (85+) dose-taking adherence</td>
<td>75.0%</td>
<td>56.7%</td>
<td>.27</td>
<td>.39</td>
</tr>
<tr>
<td>Mean dose-timing adherence %</td>
<td>78.3</td>
<td>70.7</td>
<td>.20</td>
<td>.39</td>
</tr>
<tr>
<td>Optimal (85+) dose-timing adherence</td>
<td>45.8%</td>
<td>23.3%</td>
<td>.09</td>
<td>.50</td>
</tr>
</tbody>
</table>
## Intervention Effects at Week 24

<table>
<thead>
<tr>
<th></th>
<th>ARP</th>
<th>Usual Care</th>
<th>p</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean doses-taking adherence %</td>
<td>88.8</td>
<td>83.0</td>
<td>.20</td>
<td>.40</td>
</tr>
<tr>
<td>Optimal (85+%) dose-taking adherence</td>
<td>54.2%</td>
<td>43.3%</td>
<td>.58</td>
<td>.22</td>
</tr>
<tr>
<td>Mean dose-timing adherence %</td>
<td>81.0</td>
<td>67.0</td>
<td>.04</td>
<td>.67</td>
</tr>
<tr>
<td>Optimal (85+%) dose-timing adherence</td>
<td>50.0%</td>
<td>16.7%</td>
<td>.02</td>
<td>.75</td>
</tr>
<tr>
<td>Undetectable HIV viral load</td>
<td>62.5%</td>
<td>43.3%</td>
<td>.18</td>
<td>.41</td>
</tr>
</tbody>
</table>
### Adherence and Viral Load at Week 24

<table>
<thead>
<tr>
<th></th>
<th>Detectable</th>
<th>Undetectable</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean doses-taking adherence %</td>
<td>86.6</td>
<td>83.9</td>
<td>.56</td>
</tr>
<tr>
<td>Optimal (85+%) dose-taking adherence</td>
<td>60.7%</td>
<td>60.0%</td>
<td>.99</td>
</tr>
<tr>
<td>Mean dose-timing Adherence %</td>
<td>76.6</td>
<td>67.8</td>
<td>.21</td>
</tr>
<tr>
<td>Optimal (85+%) dose-timing adherence</td>
<td>50.0%</td>
<td>20.0%</td>
<td>.10</td>
</tr>
</tbody>
</table>
Summary

• Our findings revealed mostly medium to large effect sizes on pill taking adherence
  ï Strong effects on dose-timing adherence (d = .40 - .75)
  ï More modest effects on dose-taking adherence (d = .22 - 40)

• A clinically meaningful effect (and medium effect size) of the intervention on undetectable viral load

• Observed effect sizes compare favorably to the average effect size (d= .19) found in the meta-analysis by Amico et al. of HIV adherence interventions like ARP that do NOT first screen for adherence problems
Summary

Dose-timing adherence was more closely related to complete viral suppression compared to dose-taking adherence.

- Dose-timing is a more precise measure (of which dose-taking is a subcomponent).

- Few studies focus on dose-timing adherence, though some (Gill et al., 2010) have shown similar results.
Limitations

- Intervention administered by clinic’s adherence counselor
  - Generalizability
  - Contamination risk (conservative estimate)
- Small sample size and limited power
  - Findings are only preliminary
  - Unable to examine potential confounders among variables that differentiated the groups
Conclusions

- Findings provide support for promising effects of ARP on both adherence and viral suppression

- Evaluation in larger RCT is warranted, but:
  - Need to strengthen effects on dose-taking adherence
  - Strengthen durability of effects

- Need for greater emphasis on dose-timing adherence in ART adherence research
Acknowledgements

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