Disagreement Between Physician Estimated and Self-Reported Adherence to Antiretroviral Treatment in HIV-1 Infected Adults

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Disclosures

• The project received an unrestricted grant from the Merck Sharp & Dohme Foundation (Portugal), with no implications in the study design, research permission, data collection, discussion of results or report publication, which responsibility were attributable to the research team.

• The following personal or financial relationships relevant to this presentation existed during the conduct of the study:
  – Ana P Martins works in the external affairs department of pharmaceutical company Merck Sharp & Dohme, Portugal.
  – Other research studies conducted by the Institute of Preventive Medicine – Faculty of Medicine of Lisbon are funded by pharmaceutical companies.
Patient Adherence to Treatment

- **High adherence to combination antiretroviral treatment**
  - Slows progression to AIDS
  - Decreases the likelihood of virus transmission
  - Is associated with a decreased rate of viral resistance
  - Promotes superior viral load suppression
  - Promotes better immunologic outcomes
  - Decreases health associated costs
No Gold-Standard Method

- Self-report showed to be a reliable method of adherence measure, mainly due to its specificity.
- Agreement between physician and other methods ranges between 35 and 62% in previous studies with physicians tending to underestimate adherence.
- Some studies suggest that physician assessment of therapeutic adherence can affect the infection prognosis.
This Study Aims To

1. Determine the agreement between physician assessed and patient self-reported antiretroviral therapeutic (ART) adherence

2. Explore factors associated to disagreement between the two methods
Study Design

• Cross-sectional study, with questionnaires applied to both patients and physicians between May and July 2011.

• Systematic sampling at the HIV Outpatient Clinic Hospital de Santa Maria (HSM)
Methods

HIV-1 subjects followed at Infectious Diseases Outpatient Clinic (HSM), prescribed to cART

Systematic inclusion of patients with one medical appointment during the enrollment period (May-July 2011)

Exclusion criteria

1. Having started antiretroviral treatment at other hospital than HSM clinic
2. Having started antiretrovirals when aged <18 years-old
3. Having participated in clinical trials
4. Not having capacity to consent their participation
5. Depending on other person/institution to access/take medication.

The study was approved by the Ethics Committee of the HSM and the Portuguese Data Protection Authority

Invitation and Informed consent

10% refused
31% not eligible

Questionnaires applied to patients and their physicians
## Adherence

### Antiretroviral therapeutic self-reported adherence

**Adult AIDS Clinical Group Trial Score (AACTG)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>High adherence</th>
<th>Moderate adherence*</th>
<th>Poor adherence*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last 4 days</td>
<td>All days</td>
<td>All days</td>
<td>Missed a day</td>
</tr>
<tr>
<td>Last 4 days schedule</td>
<td>Always</td>
<td>Frequently or less</td>
<td></td>
</tr>
<tr>
<td>Last weekend</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Last 30 days</td>
<td>Always</td>
<td>Frequently or occasionally</td>
<td>Rarely or never</td>
</tr>
</tbody>
</table>

*Only one class is needed to classify the patient as moderate or poor adherence

### Antiretroviral therapeutic physician estimated adherence

One question asking to classify the patient as:

- High adherent
- Moderate adherent
- Poor adherent
Other variables collected

**Patient Questionnaire**
- Socio-demographic data
- Behaviors and habits
- Social support satisfaction – SSS Scale: 15–75 points
- Psychological status – Anxiety Depression Stress Scale: 0–21 points
- Disease beliefs

**Physician Questionnaire**
- Patient clinical data (time since diagnosis and under HAART, AIDS status, opportunistic infections, co-infections and co-morbidities)
- Adherence recommendations
Statistical Analysis

- Weighted kappa statistic for agreement between physician and patient
  - Agreement is significantly better than random if weighted kappa statistic > 0.4

- Bivariate analyses for association between independent variables and disagreement
  - Disagreement associated factors

Diagram:
- Physician questionnaire
- Estimated adherence
- Agreement
- Self-reported adherence
- Patient questionnaire
### Study participants

<table>
<thead>
<tr>
<th>N = 184</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (mean±sd, years)</strong></td>
</tr>
<tr>
<td><strong>Male (%)</strong></td>
</tr>
<tr>
<td><strong>Time since diagnosis (years, median)</strong></td>
</tr>
<tr>
<td><strong>Time on antiretroviral treatment (years, median)</strong></td>
</tr>
<tr>
<td><strong>Mode of acquisition for HIV/AIDS infection (%)</strong></td>
</tr>
<tr>
<td>Heterosexual intercourse</td>
</tr>
<tr>
<td>Men having Sex with Men</td>
</tr>
<tr>
<td>Injection Drug Users</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td><strong>AIDS classification (%)</strong></td>
</tr>
<tr>
<td><strong>HIV/AIDS direct complications or opportunistic infections (%)</strong></td>
</tr>
<tr>
<td><strong>Co-infections (%)</strong></td>
</tr>
<tr>
<td><strong>Non-infectious comorbidities (%)</strong></td>
</tr>
</tbody>
</table>
Estimated adherence by the physician

<table>
<thead>
<tr>
<th>Self-reported adherence [%]</th>
<th>Estimated adherence by the physician</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High (n=166)</td>
</tr>
<tr>
<td>High (n=98)</td>
<td>93.9 (50.0)</td>
</tr>
<tr>
<td>Moderate (n=70)</td>
<td>90.0</td>
</tr>
<tr>
<td>Poor (n=16)</td>
<td>68.8</td>
</tr>
<tr>
<td>Total (n=184)</td>
<td>90.2</td>
</tr>
</tbody>
</table>

Agreement = 53.8%

Weighted kappa = 0.098, CI95%: 0.002-0.194
Agreement between measures

Self-reported non-adherence | Non-adherence by both methods | Physician estimated non-adherence

80.5% n = 74

13.0% n = 12

6.5% n = 6

n=92
### Factors associated to disagreement

<table>
<thead>
<tr>
<th>Variable</th>
<th>Disagreement</th>
<th>Agreement</th>
<th>OR</th>
<th>CI&lt;sub&gt;95%&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being divorced [%]</td>
<td>65.4</td>
<td>34.6</td>
<td>2.50</td>
<td>1.05-5.95</td>
</tr>
<tr>
<td>Living alone [%]</td>
<td>60.4</td>
<td>39.6</td>
<td>2.18</td>
<td>1.11-4.27</td>
</tr>
<tr>
<td>Having addictive habits [%]</td>
<td>54.0</td>
<td>46.0</td>
<td>2.00</td>
<td>1.11-3.63</td>
</tr>
<tr>
<td>Chronic alcoholism [%]</td>
<td>70.0</td>
<td>60.4</td>
<td>4.02</td>
<td>3.56-10.68</td>
</tr>
<tr>
<td>Binge-Drinking [%]</td>
<td>67.6</td>
<td>32.4</td>
<td>2.97</td>
<td>1.35-6.53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Disagreement</th>
<th>Agreement</th>
<th>Dif.</th>
<th>CI&lt;sub&gt;95%&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety (EADS score average)</td>
<td>4.1</td>
<td>2.0</td>
<td>2.1</td>
<td>1.1-5.4</td>
</tr>
<tr>
<td>Stress (EADS score average)</td>
<td>4.6</td>
<td>2.9</td>
<td>1.7</td>
<td>1.3-4.7</td>
</tr>
<tr>
<td>Depression (EADS score average)</td>
<td>5.9</td>
<td>4.4</td>
<td>1.5</td>
<td>1.4-4.3</td>
</tr>
</tbody>
</table>
Other differences between measures

One direct question to assess self reported therapeutic adherence ≠ A therapeutic adherence score applied to the patient

Agreement between physician and self reported last 4 days
Kappa = 0.211 ≥ Agreement between physician and self reported last 30 days
Kappa = 0.074

All patients whose adherence was underestimated received adherence recommendations

Only 53.2% of patients whose adherence was overestimated received adherence recommendations
Limitations

• Self-reported adherence has known limitations and bias
  • A multi-methodological approach to compare with physician assessed adherence would be more reliable

• Evaluation of associated factors with disagreement and other determinants and outcomes
  • Lack of statistical power

• Long term consequences of disagreement between physician and patient are unknown
Main Findings

- Agreement between self-reported adherence and that estimated by physician is low (53%)
  - Physician tends to overestimate the self-reported adherence (in contrast to previous studies)

- Psychological status, living alone, being divorced and alcoholism are associated with disagreement between measures

- Measuring adherence is complex and difficult and may have consequences in disease management and prognosis
  - Ways to optimize physician estimated adherence seem to be needed
Acknowledgements

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- To all the collaborators involved in data collection.

Obrigado!