

Adherence Approaches 100% with Excellent Viral Load Suppression When All HIV Infected Household Members Receive Antiretroviral Treatment

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Background

- Prevention of mother to child transmission (PMTCT) is a global priority but not inclusive of continued ARV therapy. The Mother to Child Transmission Plus (MTCT+) Program provides free antiretroviral therapy (ART) to all HIV infected members in a household with the mother as the index patient.
- Some have suggested that “people must pay to give value to the treatment and thus be adherent.”
- We determined the distribution of adherence using multiple measures in a setting where all HIV+ eligible patients in a household were receiving treatment.

Methods

Study Setting

- MTCT+ Program Kampala, Uganda

Study Population

- Members of the MTCT+ program initiating ARV therapy

Design

- An observational prospective cohort study

- Patients recruited from MTCT+ program at treatment initiation and followed for 12 weeks

Monthly Adherence Measures

- 3-day self-report (3-day SR)
- 30-day visual analogue scale (30-d VAS)
- Unannounced home pill counts (PC)

Baseline and 12-Week Biologic Measures

- HIV-1 viral load
- CD4 cell count

Analyses

- Proportion 95% adherent
- Mean adherence over 3 months
- Proportion undetectable 12 week viral load (≤ 400 copies/ml)
- Pearson correlation of mean adherence across adherence measures

Results

- 99.2% of scheduled visits were completed.
- 76.2% of participants had $\geq 95\%$ adherence by pill count.
- 84.4% of participants with $\geq 95\%$ adherence by pill count had undetectable viral load (≤ 400 copies/ml) at 12 weeks.

Table 1. Patient Characteristics N=42

| | |
|---------------------------------------|-----|
| Age (years, median) | 30 |
| Female (%) | 69 |
| Children (%) | 17 |
| Household members (#, median) | 4 |
| Household members with HIV (% mean) | 25 |
| Household members on ART (% mean) | 13 |
| Pretreatment CD4 (median) | 150 |
| Pretreatment log Viral Load (median) | 5.6 |
| Viral Load < 400 copies @12 weeks (%) | 79 |
| Monthly Income (USD, median) | 35 |

Table 2. Adherence by Measure

| Measure | Mean(%) | 95% CI | >.95 adherence (%) |
|------------|---------|--------|--------------------|
| 3-day SR | 95.4 | 91,100 | 85.7 |
| 30-day VAS | 96.6 | 93,100 | 90.5 |
| PC | 94.0 | 90,99 | 76.2 |

Table 3. Comparison of Mean Adherence between Adults and Children

| Measure | | Adults (N=35) | Children (N=7) | X ² p value* |
|---------------|------------|---------------|----------------|-------------------------|
| pill count | $\geq .95$ | 30 (86%) | 2 (29%) | 10.5, 0.005 |
| | <.95 | 5 (14%) | 5 (71%) | |
| visual analog | $\geq .95$ | 33 (94%) | 5 (71%) | 3.5, 0.123 |
| | <.95 | 2 (6%) | 2 (29%) | |
| self report | $\geq .95$ | 32 (91%) | 4 (57%) | 5.6, 0.048 |
| | <.95 | 3 (9%) | 3 (43%) | |

*Fisher's Exact Test

Table 4. Adherence by 12 week Viral load

| Measure | | VL>400 | VL \leq 400 | X ² p value* |
|---------------|------------|-----------|---------------|-------------------------|
| pill count | $\geq .95$ | 5 (55.6%) | 27 (81.8%) | 2.69, 0.18 |
| | <.95 | 4 (44.4%) | 6 (18.2%) | |
| visual analog | $\geq .95$ | 7(77.8%) | 31 (93.9%) | 2.14, 0.20 |
| | <.95 | 2 (22.2%) | 2 (6.1%) | |
| self report | $\geq .95$ | 7(77.8%) | 29 (87.9%) | 0.59, 0.59 |
| | <.95 | 2 (22.2%) | 4 (12.1%) | |

*Fisher's Exact Test

Table 5. Correlation Between Measures

| Measure | PC | 3-day SR | 30-day VAS |
|----------|----|----------|------------|
| PC | 1 | 0.85 | 0.96 |
| 3-day SR | | 1 | 0.89 |
| 30-d VAS | | | 1 |

Limitations

- Small sample size
- Individuals in this program may not be representative of general population on ARV therapy.

Conclusions

We observed exceptional levels of antiretroviral adherence when all HIV-infected members in a household receive free therapy.

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