MPYA
Monitoring Pre-exposure Prophylaxis in Young Adult Women

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Comparison of TFV-DP and Electronic Monitoring among Young Kenyan Women Using PrEP

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BACKGROUND

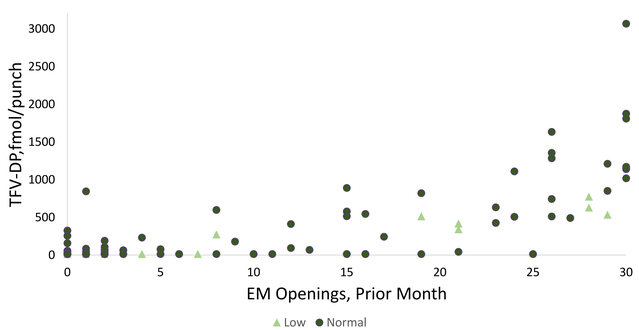
- Understanding PrEP use requires accurate measures of PrEP adherence
- We compared electronic monitoring with tenofovir-diphosphate (TFV-DP) assessed from dried blood spots (DBS) to assess concordance of both measures

METHODS

- 18-24-year-old women at high risk for HIV in Kisumu and Thika, Kenya were enrolled in an open-label PrEP study
- Adherence was measured by daily electronic monitoring (EM) using Wisepill devices
- A random sample (15%) of DBS from non-pregnant participants receiving PrEP were tested for TFV-DP
- Adherence was categorized as
  - High (6+ doses/week; >1,050 fmol/punch)
  - Moderate (4-5 doses/week; 700-1,050 fmol/punch) or
  - Low (<4 doses/week; <700 fmol/punch)

  for electronic monitoring and DBS, respectively
- Concordance was calculated as percent agreement between DBS and corresponding EM openings over the prior 30 days; a secondary analysis was performed for women with anemia (hemoglobin <11g/dL) as TFV-DP thresholds for this population may be lower
- Analysis includes 174 samples from 133 women from months 3 through 24 of follow-up

Figure 1. TFV-DP Concentrations vs EM openings, by hemoglobin



Concordance was strong between TFV-DP and electronic monitoring, with possible ***moderation*** by ***hemoglobin levels***, among African women.

Table 1. Overall concordance between TFV-DP and EM openings (over prior month)

	<4 doses/week	4-5 doses/week	6-7 doses/week
<700 fmol	**142 (81.6%)**	11 (6.3%)	4 (2.3%)
700-1049 fmol	2 (1.2%)	**1 (0.6%)**	4 (2.3%)
≥1050 fmol	0 (0%)	1 (0.6%)	**9 (5.2%)**
Average TFV-DP	58	391	1182

Table 2. Concordance between TFV-DP and EM openings (over prior month), by hemoglobin

Normal Hemoglobin	<4 doses/week	4-5 doses/week	6-7 doses/week
<700 fmol	**130 (83.3%)**	8 (5.1%)	2 (1.3%)
700-1049 fmol	2 (1.3%)	**1 (0.6%)**	3 (1.9%)
≥1050 fmol	0 (0%)	1 (0.6%)	**9 (5.8%)**
Average TFV-DP	60	382	1297
Low Hemoglobin (<11 g/dl)	**<4 doses/week**	**4-5 doses/week**	**6-7 doses/week**
<700 fmol	**12 (66.7%)**	3 (16.7%)	2 (11.1%)
700-1049 fmol	0 (0%)	**0 (0%)**	1 (5.6%)
≥1050 fmol	0 (0%)	0 (0%)	**0 (0%)**
Average TFV-DP	34	423	645

RESULTS

- 87% concordant overall (Table 1)
  - 90% concordant among women with normal hemoglobin (Table 2)
    - Mean hemoglobin 13.1 g/dl; Median 13.2 g/dl
  - 67% concordant among women with anemia (<11 g/dl) (Table 2)
    - Mean hemoglobin 9.9 g/dl; Median 9.7 g/dl
- For women with 6-7 doses/week by EM, average TFV-DP was significantly higher among those with normal hemoglobin (1297 fmol/punch) compared to those with anemia (645 fmol/punch), p=0.003

CONCLUSIONS

- We found strong consistency between both adherence measures
  - TFV-DP thresholds were established in participants with hematocrit 35-50 (hemoglobin ≥11)
  - TFV-DP thresholds did not perform as well in the low hemoglobin group
- We found no evidence that women were taking PrEP by DBS without concurrent dosing by electronic monitoring
- Future analysis will test the hypothesis that concordance is moderated by hemoglobin levels

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