

Acute and early infection

PE50

High rates of non-reactive HIV serology after antiretroviral treatment initiated in acute HIV infection

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**Background:** Non-reactive HIV serology may be a marker of low HIV viral burden. We examined the evolution of HIV antibody in a cohort of individuals treated during acute HIV infection (AHI).

**Methods:** Between April 2009 and December 2014, adults attending voluntary HIV testing in Bangkok, Thailand, were screened for AHI, by either pooled nucleic acid testing (NAT) of 4th generation immunoassay (4G IA) non-reactive samples or by 3rd (3G) or 2nd generation (2G) enzyme immunoassay (EIA) of 4G IA reactive samples. Immediate antiretroviral therapy (ART) was offered. Western blot and p24 quantification were performed for Fiebig staging. HIV serology at baseline, weeks 12 and 24 were performed.

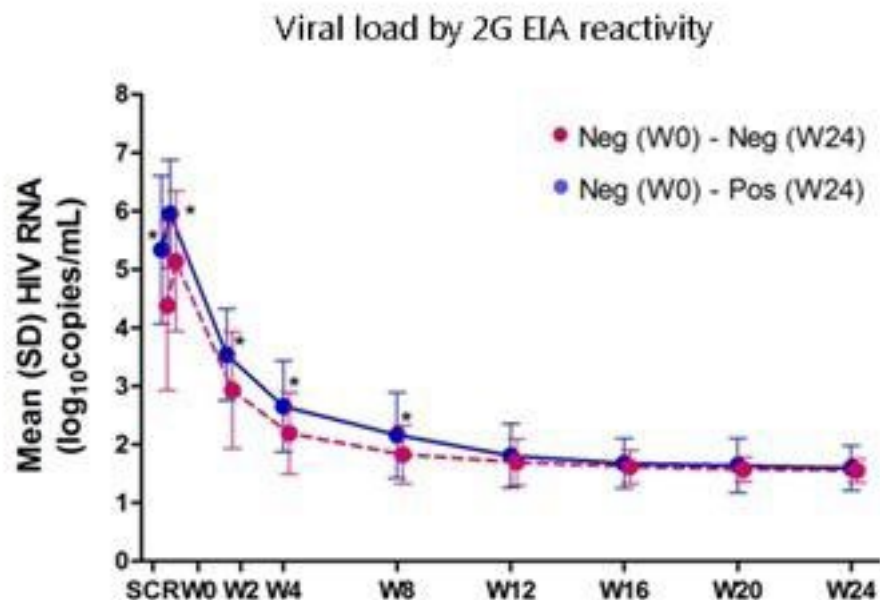
**Results:** 233 Thai adults were enrolled from 130,164 samples screened; 3 individuals did not initiate ART and were excluded from analysis. The median age of the volunteers was 27 years and 95% were male. Median time from history of HIV exposure to enrollment was 18 days and median time from enrollment to ART initiation was 1 day. Of 207 baseline 2G EIA non-reactive subjects, results were available for 150 at week 12 and 135 at week 24 (Table 1). At week 12, 34% were non-reactive by 2G, 3% by 3G and 20% by 4G IA; at week 24, 39% were non-reactive by 2G, 5% by 3G and 18% by 4G. Baseline HIV RNA < 5 log<sub>10</sub> copies/ml (p=0.02), CD4 count >350 cells/μL (p=0.01) and Fiebig stage 1 or 2 (p=0.03) were predictive of non-reactive 2G EIA at week 24. Lower AUC<sub>0-24wk</sub> for HIV RNA was also associated with non-reactive 2G EIA at week 24 (p=< 0.001, Figure 1).

Seroreversion was uncommon. 1 of 23 individuals with reactive 2G EIA at baseline was non-reactive at week 24; 11 of 207 demonstrated transient 2G EIA reactivity at week 12.

| Non-reactivity to HIV enzyme immunoassay [N(%)] |                  |                 |                 |
|---|------------------|-----------------|-----------------|
|   | Baseline (N=207) | Week 12 (N=150) | Week 24 (N=135) |
| 2nd generation EIA                              | 207 (100)        | 51 (34)*        | 53 (39)*        |
| 3rd generation EIA                              | 99 (48)          | 5 (3)*          | 7 (5)*          |
| 4th generation IA                               | 43 (21)          | 30 (20)         | 24 (18)         |

\* McNemar's test, p<0.001, compared to baseline [Note: No significant difference between week 12 and week 24]

[Table 1: Non-reactivity to enzyme immunoassay]



[Figure 1: Plasma viral load by 2G EIA reactivity]

**Conclusions:** Approximately 40% of individuals who initiated treatment in AHI maintained non-reactivity to 2G EIA after 24 weeks of ART. Rapid ART initiation and HIV RNA decline as well as low HIV RNA and high CD4 at baseline predicted subsequent serological nonreactivity. HIV serologic non-reactivity is likely due to low viral burden, further supporting the benefits of early initiation of ART.

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