

The Outcome of Infants Born to HIV-Infected
Women Identified by Rapid HIV Testing
Late in Pregnancy or at Delivery:
The MIRIAD Study, 2001-2004

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Abstract

Background: Rapid HIV testing late in pregnancy or at delivery provides a final opportunity to identify HIV-infected women in order to initiate antiretroviral (ARV) prophylaxis to prevent mother-to-child transmission.

Methods: MIRIAD is a CDC-funded study conducted since November, 2001 at 18 hospitals in 6 US cities. Eligible women included those with undocumented HIV status who were (1) not in labor at ≥ 34 weeks gestation (LP); (2) in labor at ≥ 24 weeks gestation (PP); or (3) women who seroconverted during pregnancy (SC). Following written informed consent, the OraQuick Rapid HIV-1 Antibody Test and conventional EIA/WB were performed on maternal blood. Women and infants were managed according to the local standard of care. HIV-1 DNA PCR was used to determine infant infection status.

Results: As of 9/17/04, 47 women were found to be HIV-infected; 2 were lost prior to delivery, leaving 45 evaluable women. Eight received prenatal ARV and 31 intrapartum (IP) ARV (17 ZDV, 13 ZDV/NVP, and 1 ZDV/3TC/NFV).

Of their 45 infants, 40 (89%) received preventive ARV (18 ZDV, 22 ZDV/NVP) after birth. Thirty-five infants (78%) had samples adequate to determine their infection status: 4 were infected (11%), 30 uninfected, and 1 remained with indeterminate HIV status. Of the 4 infected infants, 2 were DNA PCR positive on day 1, 1 on day 4, and 1 negative on days 1 and 18 but positive on day 47. Thus 3 of the 4 infected infants were presumed to have *in utero* infection. One of 3 infants born to a SC mother was infected (positive on day 1).

Conclusions: Rapid HIV-1 testing of women with unknown HIV status allowed for the initiation of preventive ARV in 69% of women and 89% of their infants. The observed overall (11%) and intrapartum (2.9%, 1/35) infection rates are similar to those of other studies of intrapartum ARV and suggest that this strategy is effective in preventing intrapartum transmission.

Group	N	C Section	Prenatal ARV	IP ARV	Infant ARV	Infected infants *
LP	10	6 (60%)	5 (50%)	9 (90%)	8 (80%)	0/8 (0%)
PP	32	9 (28%)	3 (9%)	20 (62%)	30 (94%)	3/24 (12%)
SC	3	2 (67%)	0	2 (67%)	2 (67%)	1/3 (33%)
Total	45	17 (38%)	8 (18%)	31 (69%)	40 (89%)	4/35 (11%)

* evaluable infants

Background

Rapid HIV testing late in pregnancy or at delivery provides a final opportunity to identify HIV-infected women in order to initiate antiretroviral (ARV) prophylaxis to prevent mother-to-child transmission.

Methods - 1

- MIRIAD is a CDC-funded study conducted since November, 2001 at 18 hospitals in 6 US cities to evaluate the feasibility of rapid HIV testing of pregnant women of unknown HIV status.
- Eligible women included those with undocumented HIV status who were:
 - (1) Not in labor at ≥ 34 weeks gestation (LP)
 - (2) In labor at ≥ 24 weeks gestation (PP)
 - (3) Seroconverted during pregnancy (SC)

Methods - 2

- Following written informed consent, the OraQuick Rapid HIV-1 Antibody Test and conventional EIA/WB were performed on maternal blood.
- Women and infants were managed according to the local standard of care.
- HIV-1 DNA PCR was used to determine infant infection status.

Results - Maternal ARV

- 47 HIV-infected women
 - 2 were lost to follow-up prior to delivery
 - 45 evaluable women
 - 8 received prenatal & intrapartum ARV
 - 1 ZDV/3TC
 - 3 ZDV/NVP
 - 1 ZDV/3TC/ABC
 - 1 ZDV/3TC/NVP
 - 1 ZDV/3TC/NFV
 - 1 ZDV/3TC/ABC/NVP
 - 23 received intrapartum (IP) ARV only
 - 14 ZDV
 - 9 ZDV/NVP

Infant ARV

- 45 infants
 - 40 (89%) received preventive ARV after birth
 - 18 ZDV
 - 22 ZDV/NVP

Infection Status of Infants

- 35 (78%) had samples adequate to determine their infection status
 - 4 (11%) infected
 - 3 *in utero* infections
 - 2 PCR positive day 1
 - 1 PCR positive day 4
 - All got intrapartum ARV plus infant ARV
 - 1 intrapartum infection
 - PCR negative days 1 & 18, positive day 47
 - Intrapartum ZDV, baby ZDV + NVP

Outcome of Study Groups

Group	N	C section	Prenatal ARV	IP ARV	Infant ARV	Infected infants *
LP	10	6 (60%)	5 (50%)	9 (90%)	8 (80%)	0/8
PP	32	9 (28%)	3 (9%)	20 (62%)	30 (94%)	3/24 (12%)
SC	3	2 (67%)	0	2 (67%)	2 (67%)	1/3 # (33%)
Total	45	17 (38%)	8 (18%)	31 (69%)	40 (89%)	4/35 (11%)

* Evaluable Infants

DNA PCR positive day 1.

Conclusions

- Rapid HIV-1 testing of women with unknown HIV status allowed for the initiation of preventive ARV in 69% of women and 89% of their infants.
- The observed overall (11%) and intrapartum (2.9%, 1/35) infection rates are similar to those of other studies of intrapartum ARV and suggest that this strategy is effective in preventing intrapartum transmission.