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NO PERINATAL TRANSMISSION OF HIV-1 IN OVER 2600 WOMEN EFFICIENTLY TREATED SINCE CONCEPTION ANRS EPF CO1/11

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ABSTRACT

Background: The efficacy of prevention of perinatal transmission of HIV-1 is dependent on both viral load and treatment duration. The objective of this study was to determine whether initiating highly active antiretroviral treatment (HAART) before conception has the potential to eliminate perinatal transmission.

Methods: In the national prospective multicentre French Perinatal Cohort (EPF), perinatal transmission (PT) was analysed according to the viral load (VL) in maternal plasma near delivery and timing of HAART initiation in 8075 HIV-infected women from 2000 to 2011.

Results: The overall incidence of PT was 56/8075 (0.7%). No case of transmission occurred among the 2651 women who were on HAART before conception, without treatment interruption during the first trimester, and who delivered with a plasma VL <50 copies /mL (upper 95% confidence interval limit: 0.1%).

VL and timing of HAART initiation were independently associated with PT in logistic regression (Fig 3). Regardless of viral load, the transmission rate increased from 0.2% for women initiating HAART prior to conception to 0.4% during the 1st trimester, 0.9% during the 2nd trimester and 2.2% during the 3rd trimester; p<0.001. Regardless of timing of HAART initiation, the rate was higher for women with VL between 50 and 400 copies/mL near delivery than for those with < 50 copies/mL: adjusted odds ratio = 3.5 [95%CI: 1.7 -7.2].

Conclusion: Perinatal HIV-1 transmission is virtually zero in mothers who start antiretroviral therapy before conception and maintain suppression of the plasma viral load.

OBJECTIVE

French 2013 guidelines recommended initiating HAART at the latest gestational weeks 26-28, or earlier according to the maternal CD4 cell count, VL and the estimated risk of prematurity.

→ **to determine whether initiating HAART before conception has the potential to eliminate perinatal transmission.**

PATIENTS AND METHODS

▪ **The French Perinatal Cohort EPF (ANRS CO1/11):** HIV infected women and their children included since 1985 in 90 French centres.

•**Eligible for the study** ***(N=8075) :***
- HIV-1 infected mothers
- HAART in pregnancy : triple-drug combination (or cases of boosted-PI monotherapy)
- Infant liveborn between 2000 and 2011 with documented HIV-1 infection status
- No breastfeeding

▪ **Primary outcome: HIV transmission to the child**
▪ **Exposures:** type of ART during pregnancy, time at treatment initiation, HIV viral load nearest to delivery, gestational age at delivery

▪ **Statistical analysis**: Proportion of HIV transmission with exact 95% confidence interval

Fig. 1 –MTCT rate and ART trends – ***EPF 1991-2012***

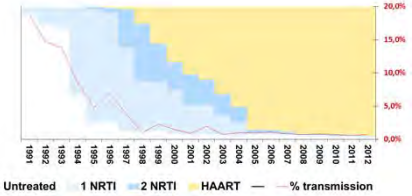


Fig. 2– Viral load at delivery – ***EPF 1997-2012***

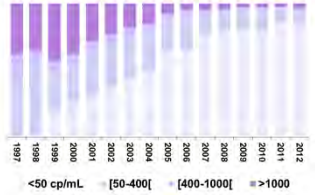


Fig. 3– Flow chart

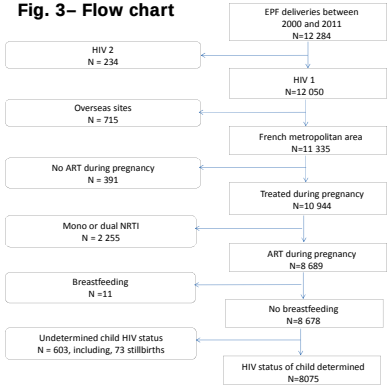
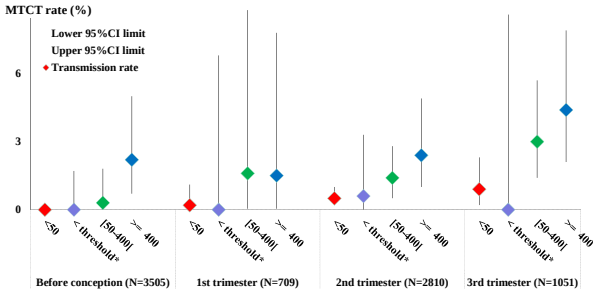


Fig. 3 – MTCT rate and exact 95% CI according to timing of the initiation of HAART and viral load at delivery – ***EPF 2000- 11***



RESULTS : Perinatal transmission (PT) rates

• **No case of transmission (95% CI: 0.0-0.1) among 2651 women who started HAART before conception and had a VL <50 copies/mL at delivery.**

• Overall PT, not considering timing of HAART and maternal VL was very low: 0.7% (95%CI: 0.5-0.9 : N=56/8075**)**

• PT increased from 0.2% for women initiating HAART prior to conception to 0.4% in the 1st trimester, 0.9% in the 2nd trimester and 2.2% during the 3rd trimester; p<0.001

• PT was higher for women with VL between 50 and 400 copies/mL near delivery than for those with < 50 cp/mL, independently of timing at HAART initiation: adjusted odds ratio = 3.5 [95%CI: 1.7 - 7.2].

CONCLUSION

Perinatal HIV-1 transmission is virtually zero in mothers treated since conception who maintain plasma viral suppression near delivery.

This supports :
- **starting HAART as soon as pregnancy is known or planned** even though MTCT is already low for women who start therapy in the second trimester and obtain viral load suppression before delivery.
- **targeting a viral load < 50 c/mL**

This more intensive strategy would require careful follow-up of children to determine the safety of prolonged exposure for each individual antiretroviral drug.

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