

AMNIOCENTESIS AND MOTHER-TO-CHILD HIV TRANSMISSION IN THE FRENCH PERINATAL COHORT EPF (ANRS CO1/11)

L Mandelbrot ^{1,2,3}, C Jasseron ^{2,4}, D Ekoukou ⁵, A Batallan ⁶, A Bongain ⁷, E Pannier ⁸, S Blanche ^{9,10}, R Tubiana ¹¹,
C Rouzioux ^{9,10}, J Warszawski ^{2,4,12} ; for the ANRS French Perinatal Cohort EPF

¹ AP-HP, Hôpital Louis Mourier, Colombes; ² INSERM, INED U822, IFR69, Le Kremlin-Bicêtre; ³ Univ Diderot Paris 7, France; ⁴ AP-HP, Hôpital Bicêtre, Le Kremlin-Bicêtre; ⁵ Hôpital Delafontaine, St Denis, France; ⁶ AP-HP, Hôpital Bichat, Paris; ⁷ Hôpital L'Archet 2, Nice; ⁸ AP-HP, Hôpital Cochin, Paris; ⁹ AP-HP, Hôpital Necker, Paris; ¹⁰ EA 3620 Univ Paris 5, Paris; ¹¹ AP-HP, Hôpital Pitié Salpêtrière, Paris; ¹² Univ Paris-Sud, Le Kremlin-Bicêtre, France

ABSTRACT

Background: To study whether performing an amniocentesis in patients infected with HIV-1 was associated with an increased risk of mother-to-child transmission (MTCT).

Methods: The study was performed in the ongoing multicenter French Perinatal HIV Cohort, among HIV-1-infected women enrolled from 1985 to 2006 delivering at 28 weeks or more. We excluded multiple pregnancies. Specific data on whether or not amniocentesis was performed was available for a total of 9302 pregnancies. Only live-born singleton children were included in the analysis of MTCT

Results: The proportion of pregnancies in which an amniocentesis was performed increased from 1.0% (57/5835) in the period before 2001 to 4.7% (60/1277) in 2005-2006. Women who had an amniocentesis were more often treated with HAART (at least three drugs) than women who did not have an amniocentesis (58.4% vs 33.2% p<0.0001).

There was a trend towards a higher MTCT rate, though not statistically significant, in mothers who had an amniocentesis, compared with the others, among women who did not receive any antiretroviral therapy (25.0%; 3/12 versus 16.2% ; 343/2113; p=0.41), and among mothers who received zidovudine monotherapy or a double NRTI combination (6.1% ; 3/49 vs 3.3% ; 117/3556 ; p=0.22). For mothers who received HAART, there was no difference in MTCT rates: 0.0% (0/81 ; CI95%: 0.0%-4.4%) vs 1.2% (30/2528 ; CI95% :0.8%-1.7%) ; p=1.0. In most cases (94.9%), HAART were started before the amniocentesis.

Conclusions: Our results suggest that amniocentesis does not increase the risk of mother-to-child transmission of HIV if the mother is treated with an effective antiretroviral therapy.

OBJECTIVE

To determine whether performing an amniocentesis was a risk factor for MTCT, with regards to the use of antiretroviral therapy (ART)

PATIENTS AND METHODS

The ANRS French Perinatal Cohort (EPF)

Prospective multicenter national cohort of HIV-infected mother/child pairs

Follow up every 6 months :

→ 2 years old for uninfected children

→ 18 years old for infected children

Study population

(n = 9302 / 99 EPF centres)
- all singletons born to HIV-1 women between 1985 and 2006

Table 1 - Mother-to-child transmission (MTCT) rate according to amniocentesis, stratified on the type of last antiretroviral therapy during pregnancy (EPF 1985-2006)

All	N	n	MTCT rate	Crude OR	95% CI	p
Amniocentesis	142	6	4.2	0.7	0.3 - 1.6	0.38
No amniocentesis	8197	490	6.0	1		
No ARV during pregnancy						
Amniocentesis	12	3	25.0	1.7	0.5-6.4	0.41
No amniocentesis	2113	343	16.2	1		
Monotherapy or 2 NRTI						
Amniocentesis	49	3	6.1	1.9	0.6 -6.5	0.22
No amniocentesis	3556	117	3.3	1		
HAART (≥ 3 drugs)						
Amniocentesis	81	0	0	-	-	1.0
No amniocentesis	2528	30	1.2	-	-	

Table 2 - Relation between mother-to-child transmission (MTCT) rate and amniocentesis among women treated without HAART: univariate and multivariate analysis (EPF 1985-2006)

	Univariate Analysis for MTCT rate			Logistic regression ^(b)			
	N ^(a)	n	%	Crude OR (CI 95%)	p-value	Adjusted OR (CI 95%)	p-value
Amniocentesis							
No	5669	460	8.1	1		1	
Yes	61	6	9.8	1.2 (0.5-2.9)	0.62	2.6 (0.7-8.7)	0.14
Last ART before pregnancy							
No ART during pregnancy	2125	346	16.3	12.3 (8.2-18.5)	<0.001	10.6 (6.8-16.3)	<0.001
Monotherapy	1928	94	4.9	3.2 (2.1-5.0)		3.2 (2.0-5.1)	
2 NRTI	1677	26	1.5	1		1	

ART = antiretroviral therapy ; HAART = highly active antiretroviral therapy ; NRTI = Nucleoside reverse transcriptase inhibitor

(a) data not collected at each period of the cohort

(b) also adjusted on CD4 lymphocyte count, mode of delivery, gestational age at delivery and parity

RESULTS

➤ Trends in the amniocentesis rate

Overall : 1.8% (166/9302)
1985- 94 : 0.8% (16/1984)
2005-2006 : 4.7% (60/1277)

➤ Maternal characteristics according to amniocentesis

- Primary indication of amniocentesis : Fetal caryotyping
- 78.9% were receiving therapy at the time of amniocentesis (72% HAART)

Women who had an amniocentesis (compared with the others):

- more often treated with HAART and were treated earlier
- higher CD4 cell counts
- higher proportion of planned cesarean section and premature deliveries

➤ Relation between MTCT and amniocentesis (Table 1 and 2)

- **In lack of HAART** : MTCT rate tended to be higher in case of amniocentesis.
→ Adjusted OR = 2.6 (0.7-8.7); p=0.14

• Among mothers receiving HAART during pregnancy:

MTCT rates was similar in both groups
→ No case of transmission in women treated with HAART who had an amniocentesis: **0%** ; **95% CI: 0% - 4.4%**

CONCLUSION

• Risk of MTCT of HIV is not increased in case of amniocentesis among mothers treated with HAART during pregnancy.

• A higher transmission rate tended to be observed in women not treated with HAART (no ARV, monotherapy or 2 NRTI).

• HIV testing should be offered and recommended to all women before performing an invasive prenatal diagnosis. HAART should be started prior to performing an amniocentesis in an HIV-infected woman.