

# **Uptake of infant feeding interventions to reduce postnatal transmission of HIV-1 in Abidjan, Côte d'Ivoire**

## **The DITRAME PLUS ANRS 1202 project**

**Abidjan, Côte d'Ivoire**

**March 2001 - May 2002**

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# Background

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- It is urgent to evaluate safe interventions to reduce postnatal transmission of HIV and maximise the effect of perinatal interventions aimed to prevent mother-to-child transmission of HIV (PMTCT) of HIV-1 in Africa
- **The DITRAME PLUS ANRS 1201/1202 project is aimed:**
  - To evaluate in Africa the field efficacy of a package of interventions targeted on HIV-infected pregnant women and their children, combining:
    - a peripartum ARV intervention: ZDV + NVP
    - a post-partum intervention:
      - systematic proposal of safe and appropriate infant feeding methods
      - proper case management of infected children born to HIV+ mothers

# Objective

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To describe the uptake of alternatives to prolonged and predominant breastfeeding in HIV-infected women enrolled in the DITRAME PLUS project, in Abidjan, Côte d'Ivoire

# Methods (1): ANRS 1201/1202

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- Non randomized therapeutic cohort (N=1500) initiated in Abidjan, Côte d'Ivoire in March 2001
- Consenting pregnant women, age  $\geq 18$  years, HIV-1 infected (HIV+) and informed of their serostatus were included
- Peripartum ARV intervention: **DITRAME PLUS 1 (ThOrD1428)**
  - Pregnant women
    - From 36 weeks of gestation to delivery:
      - ZDV: 300 mg bid orally
      - Supplementation in multivitamins (Fawzi, Lancet, 1998), iron and folates, and malaria chemoprophylaxis
    - Labor dose: 600 mg of ZDV + 200 mg of NVP once orally, self administration at home
  - Children
    - ZDV syrup 2 mg/ kg every 6 hours during the first seven days
    - NVP: a single dose of 2 mg/Kg on Day 2 directly observed

# Methods (2): ANRS 1201/1202

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- Post-partum intervention: DITRAME PLUS 2
  - Systematic proposition from 36 weeks of gestation of two alternatives to prolonged breastfeeding, the common practice in Côte d'Ivoire:
    - **Formula feeding** (FF) from birth, (with a drug inhibiting lactation) or
    - **Exclusive breastfeeding** (EBF) with early cessation from three months of age completed
  - Pediatric micronutriments supplementation (vitamin A)
  - Postnatal contraception systematically proposed
- Assessment of HIV infection in children
  - Performed until two months after complete cessation of breastfeeding
  - Using plasma HIV RNA viral load: bDNA Quantiplex Chiron
  - Pediatric HIV infection: viral load > 5000 HIV-1 RNA copies/ ml with a subsequent confirmation (Rouet, AIDS, 2001)
  - HIV-infected children: Cotrimoxazole 25 mg/kg per day systematically from six weeks of age until at least their first birthday
- All treatments and related services provided free, including FF from birth or time of weaning to nine months of age completed
- Women and children are followed up during two years

# Methods (3): Analysis plan

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- Description of maternal infant feeding choice expressed before delivery then option practiced at Day 2
  - Among all HIV-pregnant women enrolled in DITRAME PLUS 1;
  - Who delivered ;
  - At least a live-born ;
  - Feed at least once ;
  - % and 95% Confidence Interval (CI)
- Determinants of prenatal choice
  - Logistic regression for refusing FF option
  - Variables:
    - Socio-demographic:
      - » Age, parity, gestational age,
      - » Living with a partner, with her mother-in-law, co-spouse
      - » Educational level, personal income, access to clean water
      - » Ethnic group, religion
    - Clinico-biological: WHO clinical staging, CD4 count at entry

# Methods (4): Analysis plan

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- Description of the compliance to maternal infant feeding choice practiced from birth at several points in time
  - Among children live-born before April 30th 2002,
  - Feed at least once,
  - According to the initial choice
- Description of reasons for switches
- Kaplan-Meier probability of formula feeding failure

# Results (1): Study population

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- From March 6th to May 31th 2001, among the 323 HIV+ pregnant women enrolled, 266 women have delivered:
  - 252 singletons of whom one was a stillbirth
  - 12 pairs of twins and 2 triplets, including one stillbirth
- Among the 256 mothers who gave a live-birth, feeding at least once, median CD4 cell count at inclusion was: 354/mm<sup>3</sup> (IQR, 239-517)

< 200/mm <sup>3</sup> :	18.4%
200-499/mm <sup>3</sup> :	55.3%
≥ 500/mm <sup>3</sup> :	26.3%
- All but one (0.4%) expressed a choice before delivery on their infant feeding intention:
  - 151 (59.2%) have chosen the FF option from birth,
  - 104 (40.8%) planned to breastfed

# Results (2):

## Initial infant feeding practice according to prenatal choice (n=256)

Infant feeding practice at Day 2 post-partum	Prenatal FF choice		Prenatal BF choice	
	n	(%)	n	(%)
Formula feeding (FF)	123	(81.5)	3	(2.9)
Exclusive breastfeeding (EBF)	8	(5.3)	54	(51.9)
Predominant breastfeeding (PBF)	14	(9.3)	46	(44.2)
Mixed feeding (MF)	6	(3.9)	1	(1.0)
<b>Total</b>	<b>151</b>	<b>(100)</b>	<b>104</b>	<b>(100)</b>

# Results (3):

## Determinants for refusing FF before delivery (n=256)

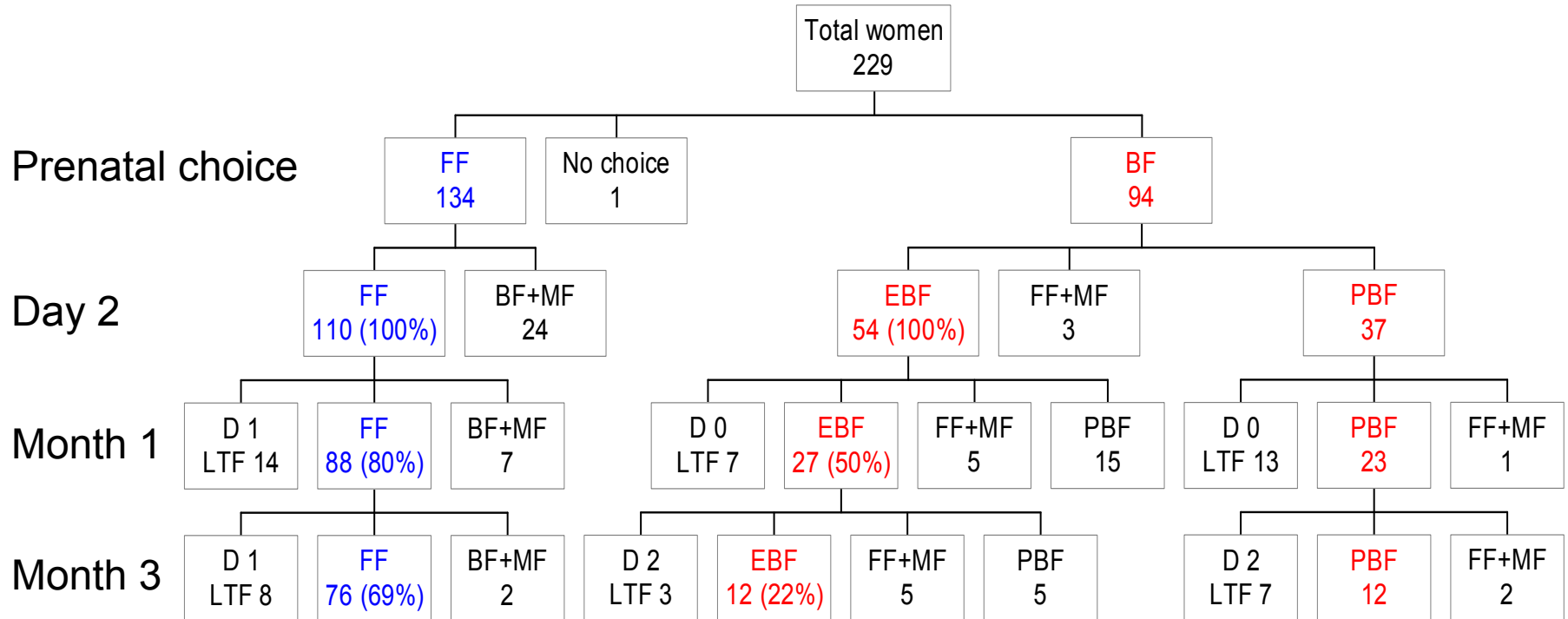
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	% among FF women N=151	% among BF women N=104	Odds ratio	95% Confidence Interval
Living with her partner (%)	56.0	70.9	2.44	1.3-4.5
Living with a co-spouse (%)	23.3	34.0	2.08	1.1-3.9
Educational level (%)				
No schooling	36.9	56.9	3.83	1.7-8.6
Primary school	37.6	32.4	2.10	0.9-4.8
Secondary school	25.5	10.8	ref	-
Personal income (%)	48.6	48.0	0.88	0.5-1.5
Access to water (%)				
Individual tap	25.5	22.5	1.37	0.6-3.2
Collective tap	50.3	55.9	1.07	0.5-2.2
Walking distance tap	24.1	21.6	ref	-

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# Results (4): Infant feeding modalities after birth

Among children born before April 30th 2002



FF: Formula Feeding; BF: Breast feeding; EBF: Exclusive Breast Feeding; PBF: Predominant Breast Feeding; MF: Mixed feeding (breast and formula feeding); D : death ; LTF : Lost to Follow Up or not yet seen.

# Results (5):

## Reasons for infant feeding switches after birth

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<u>Switches from FF</u>	9/110	8.1% of failure
To EBF	4	for familial pressure
To PBF or MF	5	for familial pressure
<u>Switches from EBF</u>	25/54	55% of failure
To FF	10	3 for medical indications (malnutrition, VZV) 2 for personal reasons
To PBF	20	

# Discussion

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- On this cohort with ongoing enrollment, uptake of this post-partum PMTCT intervention looks high in this context of breastfeeding population
  - Nearly all women expressed their choice before delivery
  - FF option is better accepted than anticipated, about 60%
- Women living with their partner or a co-spouse or illiterate are more likely to refused FF
- For women who choose FF
  - Postnatal compliance to their prenatal choice is high
  - Failures are mainly related to their partner or familial environment
- For women who choose BF
  - EBF seems to be more difficult to apply beyond the first weeks of life
  - Few women are exposed to mixed feeding

# Conclusion

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- Complete follow-up will allow to measure:
  - Acceptability of the nutritional interventions
  - Incidence of postnatal HIV transmission
  - Incidence of pediatric severe events (respiratory infection, diarrhea or malnutrition) leading to hospitalization or death according to the infant feeding method
  - Incidence of pediatric opportunistic infections
- There is an urgent need to find innovative approaches to
  - involve positively fathers in PMTCT intervention
  - to reduce stigmatization of people living with HIV/AIDS
- This work will be useful in providing safe and feasible recommendations in HIV+ pregnant women regarding their infant feeding choice

# DITRAME PLUS Study Group

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# Results (6): Infant feeding changes

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Probability of formula feeding failure among children formula fed at Day 2  
(n/N= 9/110) - Kaplan-Meier method