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RESIDUAL MOTHER-TO-CHILD TRANSMISSION OF HIV IN BURKINA FASO

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ABSTRACT

Background: Burkina Faso is one of the countries in West Africa most affected by the HIV/AIDS pandemic, despite the implementation of a mother-to-child HIV transmission prevention program as a strategy to reduce the risk of vertical transmission of the disease.

Objective: To assess the current risk of mother-to-child transmission of HIV in Burkina Faso.

Materials and methods: A prospective study was conducted between December 2014 and July 2016, in the 13 health regions of Burkina Faso. Women who were screened HIV-positive during a prenatal consultation were followed until delivery. Their babies received dry blood spot (DBS) at birth, at week 6 and at 1year, to screen for HIV.

Results: Overall, 186 pregnant women were included in the study, with a mean age of 29.17±6.13 years. Of their children, 430 DBS actually received a PCR test, giving a 91.1% PCR implementation rate. After analyses, 6 (1.3%) babies were identified as carriers of HIV1. The newborn's serological status was associated with delivery pattern (p=0.000), the administration of antiretroviral drugs to the mother after delivery (p=0.0064), the administration of Nevirapine to the newborn at birth (p=0.022), the use of contraceptive methods after delivery (p=0.028) and the presence of breast affections/infections since delivery (p=0.013).

Conclusion: The results of our study are encouraging and demonstrate the effectiveness of interventions in the mother-to-child prevention program (PMTCT) for HIV-positive pregnant women can be improved through early initiation of triple therapy in early pregnancy and improved adherence to antiretroviral (ARV) therapy.

Keywords: Burkina Faso, HIV/AIDS, mother-to-child transmission, antiretroviral drugs, pregnant women

RÉSIDUS DE LA TRANSMISSION MÈRE-ENFANT DU VIH AU BURKINA FASO

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RÉSUME

Contexte : Le Burkina Faso fait partie des pays les plus touchés par la pandémie du VIH/sida, malgré la mise en place d'un programme de transmission mère/enfant du VIH comme stratégie de prévention de la transmission verticale.

Objectif : l'objectif était d'évaluer le risque résiduel actuel de transmission du VIH de la mère à l'enfant au Burkina Faso.

Matériel et Méthode : Il s'agit d'une enquête prospective simple à visée descriptive et analytique réalisée entre décembre 2014 et juillet 2016, dans les 13 régions sanitaires du Burkina Faso. Les femmes reçues en consultation prénatale dépistées séropositives ayant donné leur consentement éclairé étaient suivies jusqu'à l'accouchement. Leurs enfants ont bénéficiés d'un prélèvement Dry Blood Spot (DBS) à la naissance, à la 6ème semaine de vie et à un an pour la recherche du VIH par la PCR.

Résultats : Au total 186 femmes enceintes ont été enregistrées dans l'ensemble des sites de l'étude dont l'âge moyen était de 29,17 ans avec un écart type de ± 6,13. A partir des enfants nés de ces femmes, 430 DBS ont effectivement bénéficié d'un examen PCR soit 91,1% de taux de réalisation de PCR. A la suite des analyses six (06) enfants étaient porteurs de VIH1 soit 1,3% de la population d'enfants testés. Le statut sérologique du bébé était associé au mode de délivrance (p = 0,000), à l'administration de médicaments antirétroviraux à la mère après l'accouchement (p = 0,0064), à l'administration de la névirapine au nouveau-né à la naissance (p = 0,022), à l'utilisation de méthodes contraceptives après l'accouchement (p = 0,028) et à la présence des affections/infections au sein depuis l'accouchement (p = 0,013).

Conclusion: Les résultats de notre étude sont encourageants et démontrent que l'efficacité des interventions dans le programme de prévention de la transmission mère l'enfant (PTME) pour les femmes enceintes séropositives peut être améliorée par l'initiation précoce de la trithérapie au début de la grossesse et l'amélioration de l'observance des antirétroviraux (ARV).

Mots-clés: Burkina Faso, VIH / SIDA, transmission mère-enfant, médicaments antirétroviraux, femmes enceintes

INTRODUCTION

Burkina Faso is one of the countries in West Africa most affected by HIV/AIDS. The first estimate of HIV seroprevalence in the general population in 1997 was7.1% (1,2). In the pregnant population, mean HIV seroprevalence in seroprevalence sites (sentinel sites in the health district where mother-to-child transmission of HIV is actively monitored) was 6.5% in 2002 (3, 4). In 2006, this figure was estimated at 2.5% and at 2% in 2010, according to a joint United Nations Program on HIV/AIDS/World Health Organization (UNAIDS/WHO). This reduction in seroprevalence required a series of measures to control the disease, initially based on education sensitization and information. Since the mid-1980s, several researchers have studied mother-to-child transmission of HIV. These studies were needed to provide estimates on mother-to-child HIV transmission, demographic forecasts, to compare rates of transmission in different epidemiological contexts and to understand the determinants of mother-to-child transmission to identify factors amenable to interventions and counseling services (individual counseling and care for mothers and children) (2).

As of 2000, a strategic plan to combat HIV/AIDS and sexually transmitted infections (STIs) was adopted by the Burkina Faso government. The strategic plan identified areas for action, including reducing the spread of HIV as a result of a national program to prevent mother-to-child transmission of HIV (PMTCT/HIV). Since 2002, Burkina Faso has implemented a program to prevent mother-to-child transmission of HIV, aimed at increasing the number of women giving birth to children free from HIV/AIDS. The first PMTCT/HIV program was implemented between 2002 and 2005 and was used as a prevention strategy against vertical transmission. The program included the provision of higher-quality and lower-risk obstetric care, the administration of Nevirapine to the mother peripartum (2 mg/kg bodyweight) and the choice between exclusive breast milk substitutes or exclusive breastfeeding for up to 4 months, followed by early weaning (5,6).The second program, implemented between 2006 and2010,used the same strategies, except the antiretroviral (ARV) regimen, which included the administration of three ARVs: one from the 28thweek of pregnancy, three peripartum and two postpartum (5,6,7). This program reduced the risk of vertical transmission to less than 5%, when properly applied (WHO, 2004). The third PMTCT/HIV program, for the period between 2011 and2015, proposed prophylaxis or ARV treatment protocols form others, to reduce mother-to-child transmission of HIV. Secure feeding and ARV prophylaxis were also offered to the newborn infant. This program uses two sequential protocols in options A and B, (initially 3years for option A and 2years for option B). Option A was introduced in 2010 and includes a single dose of ARVs for women (if their CD4 count is over 350) from the 14th week of pregnancy, as well as ARV during labor and delivery, and for 1week after birth. Option B, introduced by WHO at the same time as option A, consists of antiretroviral combination therapy from the 14th week of pregnancy until 1week after the end of breastfeeding, to 1year (8).A requirement for moving from one option to the next is to bring together the human, material and financial means necessary to make this change. In the end, option A lasted for 4years, from 2011 to 2014.Other innovations include early prophylactic care that corresponds to the 14thweek of pregnancy and the concept of safe breastfeeding. The aim of this program, which is based on WHO option B+ (tri-therapy as soon as the mother is notified of her HIV-positive status and treatment of the child (NVP/AZT) for 4 to 6 weeks), is to eliminate mother-to-child transmission of HIV in Burkina Faso.

A previous residual transmission cross-sectional study, conducted in 2008, highlighted a very high prevalence of 3.3% (9). It is in this context the present study was initiated; with the aim of assessing the impact of the intervention on residual vertical transmission of HIV and to identify its determinants, to reduce the risk of further transmission.

MATERIALS AND METHODS

Study design and sampling

This prospective study was conducted between December 2014 and July 2016, in the Central and Hauts-Bassins regions of Burkina Faso. Convenience sampling at two levels (district and region) was performed and took into account all 13 health regions in the country. Health districts with the highest HIV prevalence among pregnant women were selected. In addition, PMTCT sites with the best immunization coverage (at 6 or 10 weeks) were also selected. Overall, 10 PMTCT sites in each of the three major districts of the Central and Hauts-Bassins regions and one or two PMTCT sites in other areas of the country were selected. Data collection involved 34 PMTCT sites in 14 health districts.

Target population

The target population was pregnant women identified as HIV-positive during the prenatal consultation screening and HIV-positive breastfeeding women and their babies, who gave their informed consent to participate in the study.

Sample size

The sample size was estimated at 155 pregnant women and 132 children. The number of HIV-positive women needed was estimated as follows: The total number of HIV-positive women expected in the district on the number of PMTCT sites in the district should be divided by four (the number of quarters in a year).Total number of HIV-positive women expected in the district = number of HIV-positive women expected per PMTCT site during the recruitment phase, which is 3 months. The number of children needed was estimated on the basis of the expected number of children born to HIV-positive mothers in PMTCT sites retained for 3 months.

Data collection

Enrollment of pregnant women was done during the prenatal consultation, regardless of the stage of pregnancy. A questionnaire was developed to gather data on socio-demographic characteristics and to identify risk factors for mother-to-child transmission. This included monitoring of women in the study from pregnancy to postpartum, compliance with refocused schedules for prenatal consultations, compliance with the applicable PMTCT protocol (by infected pregnant women, infected parturients, nursing mothers, exposed children), type of delivery (surgery or vaginal delivery, at home or at the health center) and invasive practices during childbirth, newborn and infant feeding patterns and the evolutionary phase of HIV infection.

Dry blood spot (DBS) samples were obtained from babies and used for PCR at birth, at 6 weeks of life when screened negative at birth, and finally at 1year, when the first two tests were negative by PCR. A child was declared negative after three negative PCR tests.The sampling was performed on the newborn's heel on the lateral or medial side of the foot. Cards (DBS) were dried at laboratory temperature, out of direct sunlight on a rack, for at least 3 hours or overnight. They were then stored in plastic bags with a desiccant at -20° C.

Laboratory analysis

In the laboratory, DNA extraction was performed using the extraction kit on the DBS. After extraction, DNA amplification was performed using the real-time PCR kit for the qualitative or quantitative detection of HIV-1 cellular DNA. The evolution of the amplification is represented by a sigmoid-like curve, which can be divided into two phases. At the beginning of the exponential amplification phase, the time when the signal leaves the background noise corresponds to a number of cycles called Ct (threshold cycle); during this exponential amplification phase, the quantity of PCR products obtained at each moment directly depends on the initial copy number. The second phase is a plateau phase, which corresponds to a slowing-down of the amplification of the reaction because of depletion of reagents.

Reading and interpretation of results

The PLC is equipped with a system enabling analysis of the results. It determines the threshold value of the reaction as well as the Ct value of each standard of the range i.e. the intersection between the threshold value and the amplification curve. The Ct values corresponding to the samples of unknown values are reported on the right of the abscissas, and then the number of copies of DNA/PCR is extrapolated. Results are qualitative.

Ethical Considerations

The study was approved by Burkina Faso Ethics Committee for Health Research through proceedings N° 2014-8-101.

RESULTS

Socio-demographic characteristics

A total of 186 pregnant women were enrolled on the study, across all the study sites. Of the participants, 70.4% were from the central region, 9.7% from Hauts-Bassins and 7.5% from the northern regions. Age ranged from 17–43 years, with a mean age of29.17±6.13 years. Overall, 47.8% of women had not attended school, 21.5% had primary and 25.2% had secondary school level education. Less than 2% of participants had a higher education level. **Mother's medical history**

More participants who shared their positive serology results with their partner gave birth to uninfected newborns, compared with those who did not share their results (p=0.009).

Information on delivery

In this study, 95.5% of women had a full-term pregnancy and 96% delivered in a health center (63.2% in the health center where they had their prenatal consultations and 32.8% in other health centers). In total, 90.9% of women had vaginal deliveries however, 4.5% of the study population gave birth prematurely and 4.01% gave birth at home.

TABLE 1: BIVARIATE ANALYSIS OF A SAMPLE OF HIV-POSITIVE PREGNANT WOMEN IN BURKINA FASO (N=186)

Variable	Terms	Newborn's Serology			Chi-square Value	P Value Meaning
		Negative (%)	Positive (%)	Aggregate (%) (All women irrespective of the serology of the baby)		
Age group of surveyed individuals	Under 25 years	20.4	33.3	20.9	0.678	0.712 (ns)
	25-34 years	53.5	50.0	53.4		
	Above 35 years	26.1	16.7	25.8		
Literacy Level	Illiterate	48.8	33.3	48.3	2.078	0.721 (ns)
	Primary school	20.3	16.7	20.2		
	Secondary school	25.0	50.0	25.8		
	Higher education	1.7	0.0	1.7		
	Other	4.1	0.0	3.9		
Marital Status	In couple without co-spouse	73.3	50.0	72.5	8.087	0.044 (**)
	In couple with co-spouse	17.4	16.7	17.4		
	Single /divorced	5.2	33.3	6.2		
	Other	4.1	0.0	3.9		
Residence Area	Urban	73.8	83.3	74.2	0.273	0.512 (ns)
	Rural	26.2	16.7	25.8		
Occupation	Public Sector employee	4.7	16.7	5.1	11.529	0.073 (ns)
	Private Sector employee	4.1	0.0	3.9		
	Merchant	14.5	0.0	14.0		
	Farmer	1.2	0.0	1.1		
	Pupil /student	1.2	16.7	1.7		
	Housewife	67.4	66.7	67.4		
	Other	7.0	0.0	6.7		

ns = not significant, ** = significant at 5% ; Marital status (couple, or divorced/single) was significantly associated with the newborn's positive serological status (p=0.044).

TABLE 2: BIVARIATE ANALYSIS OF THE MOTHER'S MEDICAL HISTORY IN A SAMPLE OF HIV-POSITIVE WOMEN IN BURKINA FASO (N=186.

Variable	Terms	Newborn's Serology			Chi-Square Value	Meaning
		Negative	Positive	Aggregate		
Number of prenatal consultations corresponding to the start of ARV treatment.	CPN 1	62.4	40.0	61.4	3.287	0.349 (ns)
	CPN 2	25.7	40.0	26.3		
	CPN 3	7.3		7.0		
	CPN 4	4.6	20.0	5.3		
How many weeks do you estimate the length of this ARV treatment before childbirth	Less than 4 weeks	7.8		7.5	0.419	0.674 (ns)
	At least 4 weeks before delivery	92.2	100.0	92.5		
Sharing results with your partner	Yes	55.7	0	53.7	7.211	0.009 (**)
	No	44.3	100.0	46.3		

ns = not significant, = significant at 5%**

There was a significant association between the newborn's serological status and the pattern of delivery (p=0.000); the risk is high when it comes to a guided delivery. Managing the woman without the partner's support increased the risk of HIV transmission for the newborn (p=0.009). Antiretroviral drug administration to the mother after delivery (p=0.044) and administration of Nevirapine to newborns at birth was associated with a lower rate of seropositivity in newborns receiving Nevirapine at birth, compared with those who did not receive this treatment (p=0.022).

PCR results

Three (1.96%; 95% confidence interval [CI] 0–4.6) babies were HIV-positive at birth. Two (1.34%; 95%CI 0–3.4) babies were HIV-positive at 6weeks of age (both of these babies were born negative). One baby (0.78%; 95%CI 0–2.3) was HIV-positiveat 12 months of age.This baby was negative at birth but could not be tested at 6 weeks of agebecause his mother was missing.

TABLE 3: BIVARIATE DATA ANALYSIS ON DELIVERY

Variable	Terms	Newborn's Serology			Chi-Square value	Meaning
		Negative	Positive	Aggregate		
Provide information on delivery pattern	Natural	8.6	0.0	8.3	20.527	0.000 (***)
	Artificial	10.5	0.0	10.1		
	Guided	79.0	66.7	78.6		
	Don't know	1.9	33.3	3.0		
Were there any complications during the delivery?	Yes	12.9	0.0	12.4	0.883	0.445 (ns)
	No	87.1	100.0	87.6		
Mother's treatment during labor	Nvp	13.3	20.0	13.5	1.709	0.635 (ns)
	AZT/3TC	10.1	0.0	9.8		
	None	20.9	40.0	21.5		
	Other	55.7	40.0	55.2		
Did the mother receive antiretroviral drugs after delivery	Yes	93.6	66.7	92.6	10.106	0.044 (**)
	No	6.4	33.3	7.4		
Did the newborn receive nevirapine at birth	Yes	96.8	66.7	95.7	12.686	0.022 (**)
	No	3.2	33.3	4.3		
Did the newborn received other ARV than Nevirapine since his birth	Yes	9.7		9.3	0.640	0.551 (ns)
	No	90.3	100.0	90.7		
Did the newborn already make HIV test (PCR) at birth	Yes	90.7	100.0	91.1	0.610	0.565 (ns)
	No	9.3	0	8.9		

ns = not significant,** = significant at 5%

FIGURE 1: MOTHER-TO-CHILD TRANSMISSION RATE

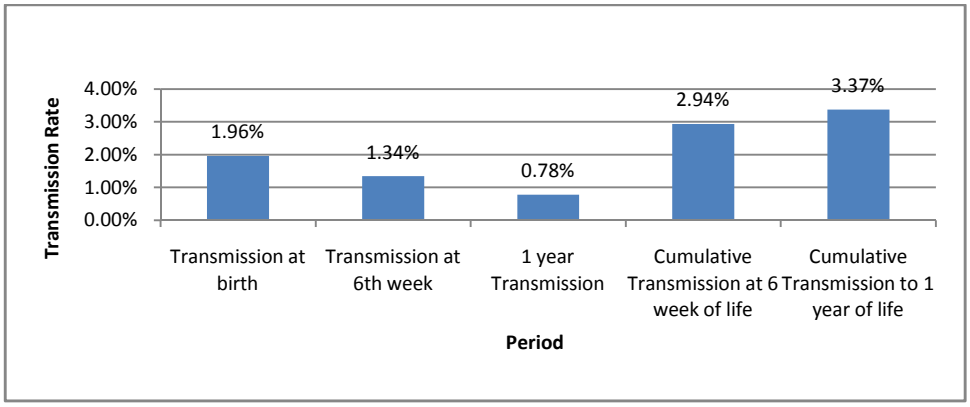

TABLE4A: BREASTFEEDING AND POSTPARTUM MONITORING.

Variable	Terms	Newborn's Serology			Chi-Square Value	Meaning
		Negative	Positive	Aggregate		
Newborn feeding pattern since his birth	Exclusive breastfeeding	90.8	66.7	89.9	4.174	0.126 (ns)
	Mixed breastfeeding	8.6	55.5	9.5		
	Artificial feeding	0.7		0.6		
Has he drunk water, fruit juice, traditional products since his birth?	Yes	36.5	50.0	37.0	0.705	0.703 (ns)
	No	57.4	50.0	57.1		
	Don't know	6.1		5.8		
Has the newborn been sick since his birth?	Yes	44.1	60.0	44.7	0.492	0.399 (ns)
	No	55.9	40.0	55.3		
If AME is practiced, please specify the length	0-3 months	16.8	33.3	17.3	3.08	0.214 (ns)
	0-5 months	13.7		13.3		
	0-6 months	69.5	66.7	69.4		
After AME, how long has the woman screened seropositive proceeded with breastfeeding?	0 months	1.2		1.1	3.664	0.160 (ns)
	6 months	20.2	66.7	21.8		
	12 months	78.6	33.3	77.0		

TABLE 4B: BREASTFEEDING AND POSTPARTUM MONITORING

Variable	Terms	Newborn's Serology			Chi-Square value	Meaning
		Negative	Positive	Aggregate		
Did the mother have postnatal consultation	Yes	85.2	80.0	85.0	0.103	0.561 (ns)
	No	14.8	20.0	15.0		
ARV treatment used by the mother screened positive	Yes	93.0	100.0	93.1	0.227	0.806 (ns)
	No	7.0	0.0	6.9		
After delivery, does she use a family planning method	Yes	52.1	0.0	50.3	5.247	0.028 (**)
	No	47.9	100.0	49.7		
Is the newborn under prophylaxis with Cotrimoxazole	Yes	86.2	75.0	85.9	0.405	0.459 (ns)
	No	13.8	25.0	14.1		
Have you be subject to breast affections/infections since delivery	Yes	3.7	50.0	5.1	17.268	0.013 (**)
	No	96.3	50.0	94.9		

Ns = not significant, ** = significant at 5%

Table 4b shows that mothers who used contraceptive methods after delivery had fewer seropositive babies than those who did not (p=0.028). Mothers who reported having post-partum breast affections/infections had more positive babies than those who did not(p=0.013).

DISCUSSION

The main objective of our study was to assess the current residual risk of mother-to-child transmission of HIV in Burkina Faso. Out of a sample of 186 HIV-positive women, six (1.3%) of their children were positive forHIV-1.This national study involved 14 districts out of 13 health regions in Burkina Faso. However, it should be noted that the contribution of the Bobo Dioulasso districts to the study was quite small. Out of the three health districts, Do, Dafra and Karangasso-Vigué, which were expected to contribute a minimum of 60 samples, only Karangasso-Vigué district provided 16 samples, reducing the sample size of the study. More participants from the Hauts-Bassins region would have made it possible to obtain a larger sample enabling us to analyze data for both regions (Central and Hauts-Bassins) separately. However, all these data have helped to better understand the rate of residual HIV transmission in Burkina Faso.

In the present study, six exposed children were born HIV1-positive, three of them at birth and two were positive at 6 weeks. At 1 year, there was an additional positive child. These results are encouraging compared with previous sero-surveillance data in Burkina Faso, where the estimated percentage of children infected with HIV through vertical transmission from their HIV-positive mothers who have given birth in the last 12 months in2013, 2014, 2015 was 5.72%, 5.30% and 4.95%,respectively (10). In other countries such as China, the vertical transmission rate was reported as 6.7% in 2013 (11) and in Ukraine in 2010 it was reported as 4.1% (12), despite the implementation of PMTCT programs. In addition, similar vertical transmission rates have been reported in other countries, particularly South Africa, where surveys conducted in 2010 and 2011 revealed vertical transmission rates of 3.5% and 2.7%, respectively (13).

MTCT is responsible for the majority of HIV infections in children, with 10,000 new cases of infected newborns each year in Burkina Faso (UNDP, 2001). With a lack of specific action to reduce the risk of transmission, estimated rates of mother-to-child or vertical transmission range between 14% and 25% in Europe and United States and between 13% and 42% in developing countries (14). In 1997, the rate of MTCT was very high in developing countries, up to 25% and 35%, while in France and in the United States, the rate was less than 5% (15). The two main reasons for this are breastfeeding practices and access to drugs to reduce mother-to-child transmission. Furthermore, it is recognized that under a PMTCT intervention, the MTCT rate may fall below 5% (13). In developed countries, MTCT rates have declined recently, sometimes to less than 2%, because of the effectiveness of interventions to prevent this transmission (16). By 2015, some countries such as Cuba had already successfully eliminated MTCT (UNAIDS/WHO, 2015). In Burkina Faso, risk factors for mother-to-child transmission of HIV are related to pregnancy (nutritional status, sexually transmitted infections, anemia), labor/delivery (traumatic obstetric procedures) and extended breastfeeding until the age of 2years (6; 17).

It is important to note the difficulty of comparing different studies on the rate of mother-to-child transmission of HIV, because of the multiplicity of methodological approaches. In our study, all mothers of HIV-positive children started with triple therapy, at least 4 weeks before delivery. However, during and after childbirth, nearly 21.7% and 8.4% of women, respectively, received no ARV treatment. Among those who received it during labor, about 40% were on triple therapy, 13.3% treated with Nevirapine and about 10.8% with AZT/3TC.After delivery, only 50% of women benefited from triple therapy and 9% from dual therapy (AZT 3TC).Considering the above, the

B+ option was not respected, i.e. starting triple therapy, which will be continued for the remainder of their life time as soon as the diagnosis is made in the mother and child and administration of NVP or AZT (2 mg/kg/day) single-dose for 4 to 6 weeks, irrespective of the newborn feeding method.

One of the issues this study assessed as part of the mother's history was the sharing of her serological status with her spouse. Almost half of women surveyed (48.9%) already knew their serological status before pregnancy. Of these, 89% knew they were HIV-positive. However, 47.9% of women in the study were unable to share their HIV status with their partners and none of the HIV-positive women had shared their HIV status with their partners. The reasons given include fear of being rejected by their partner, stigmatization and conflicts in the home. This shows the importance of the community in supporting HIV-positive women and the involvement of men in the TME program. This family dimension of PMTCT is a reality. Indeed, previous studies and experiences of the actors showed that women have difficulty in revealing their HIV serological status to their partners, especially during pregnancy, even if access to treatment that now enables the diagnosis makes sharing less difficult than in early 2000 (18).

In this study, two variables were significantly associated with newborn positive serology: use of contraceptive methods after childbirth and breast affections/infections since childbirth. There were also higher rates of the following variables in mothers with HIV-positive children: mixed breastfeeding, ingestion of water, fruit juice and traditional products, an episode of disease in the newborn(skin infections were reported in three children),exclusive breastfeeding practice between 0 and 3 months, breastfeeding for 6 months and non-use of family planning (FP) by the mother.

According to data from the early 1990s, the estimated risk of breast milk transmission in HIV-positive women was about 15%, if breastfeeding was continued for 2years or more (19. The risk of transmission through breastfeeding in women with recent (postpartum) infection was nearly twice as high (20).

In our study, the two babies who were positive at 6 weeks were negative at birth. In the first case, exclusive breastfeeding was performed for 3months and in the second case, exclusive breastfeeding was continued for 6 months. Factors that may increase the risk of MTCT during breastfeeding, according to WHO, include oral thrush and/or oral ulcers of the newborn and cracks, crevices, mastitis and mammary abscesses in the mother. None of these factors were found in the two positive infants. There was no statistically significant correlation between breastfeeding and HIV serology in our study. This could be because of the limited number of babies found seropositive during the breastfeeding period.

In this study, triple therapy onset was delayed (after the third month of pregnancy) and the irregularity or even absence of ARV treatment during delivery and postpartum was observed in more than half of HIV-positive mothers. The first late prenatal consultation, ARV unavailability and insufficient sensitization of women on the need to take these drugs are elements that we found in this study. If the PMTCT protocol is followed appropriately, it can significantly reduce the risk of mother-to-child transmission of HIV-1 or even reduce the HIV-1 vertical transmission rate to 0.0% (21). Also, our study found that mother-to-child transmission of HIV was higher in women who had vaginal delivery;20% compared with 14% for women who gave birth by caesarian.

CONCLUSION

The residual MTCT rate was1.96% at birth, 1.34% at 6 weeks and 0.78% at 12 months. The cumulative rate at 6 weeks was2.94% and from birth to 12 months was3.37%.These results provide hope in the fight against HIV in Burkina Faso. The analysis of factors impacting MTCT has demonstrated the effectiveness of PMTCT interventions for HIV-positive pregnant women. These interventions could have been improved through the early commencement of triple therapy in early pregnancy and improved adherence to ARV therapy. No HIV-positive women in the study who gave birth to an HIV-positive baby shared her HIV status with her partner. Women's partners should be involved in the implementation of the program to help these women and ensure their proper care. Early and permanent community involvement must be effective throughout the continuum of the provision of integrated care (maternal neonatal and child health/PMTCT). The community plays an important role in HIV management within couples and therefore contributes to the success of the PMTCT program.

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