

Evaluation of The Prevention of Mother-to-Child Transmission (PTMC) of HIV at The Mame Abdou Sy Dabakh Hospital in Tivaouane (Senegal)

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Introduction: HIV can be transmitted from mother to child in Antepartum, Intrapartum and Postpartum. Without intervention, mother-to-child transmission (MTCT) affects 15 to 30% of pregnancies worldwide. In 2012, Senegal implemented the Prevention of Mother-to-Child Transmission (PMTCT) of HIV decentralized at the regional level. It is in this context that we conducted a study to evaluate PMTCT at the Mame Abdou Sy Dabakh hospital in Tivaouane.

Methodology: Retrospective descriptive study from December 2014 to December 2023 which focused on HIV PMTCT at Mame Abdou SY Dabakh hospital in Tivaouane. All pregnant women infected with HIV and children from their pregnancies were included. Failure was defined as a positive PCR at 6 weeks or a positive serology at 14 months in the child. Data collection was done from the PMTCT register and patient records, analysis via Epi Info version 7 software. Ethical considerations were respected.

Result: We collected 29 pregnant women with a total of 40 procedures for 41 parous women including one twin pregnancy. The average age was 31.4 years [22 – 41]. The diagnosis of HIV infection was made in thirteen (13) patients during a pregnancy assessment (48.27%). Twenty-three (23) patients were on ARV before pregnancy (three virologic failures). Five (5) were put on treatment during pregnancy and one during delivery. Prophylaxis was carried out in 39 children (97.5%). One child did not benefit from prophylaxis. Prophylaxis was administered directly after delivery in 85% of children. Twelve children benefited from PCR which returned negative. HIV serology was carried out in twenty-seven children including one positive followed in the department. Three child deaths were reported.

Conclusion: The decentralization of PMTCT has enabled the reduction of MTCT in Senegal. Efforts must be made to make available examinations and results of virologic data.

Keywords: PMTCT, HIV, decentralized area, Thiès.

Introduction

Globally, in 2023, 39.9 million people were living with HIV, 53% of whom were women and girls. That same year, 84% of pregnant women living with HIV had access to antiretrovirals to prevent HIV transmission to their child (UN AIDS, 2024).

HIV can be transmitted to the infant on three occasions: Antepartum by transplacental passage, Intrapartum during labor and delivery and Postpartum in the context of breastfeeding (Ransy, D. G, 2007) Without intervention, mother-to-child transmission occurs in 15–30% of pregnancies. This risk has been significantly reduced by the use of antiretroviral drugs (ARVs) by mothers during pregnancy and childbirth, and by children during the first weeks of life (Connor et al., 1994). Globally, coverage of antiretroviral therapy (ART) among pregnant women increased from 46% in 2010 to 81% in 2021.

As a result, annual new HIV infections among children aged 0–9 years decreased from 320,000 to 160,000 during the same period, a remarkable achievement in global health (UNICEF, 2023).

Since 2012, Senegal has implemented the Prevention of Mother-to-Child Transmission (PMTCT) decentralized at the regional level. PMTCT has gone from 4.20% in 2011 to 3.17% in 2017 (Ministry of Health and Social Action of Senegal. [MHSAS], 2018).

It is in this context that we are conducting a retrospective study from December 2014 to December 2023 in order to evaluate the management of the prevention of mother-to-child transmission at the Mame Abdou Sy Dabakh hospital in Tivaouane. The objective was to evaluate the outcome of HIV in infants.

Methodology

This was a descriptive retrospective study from December 2014 to December 2023. This study focused on the prevention of maternal-fetal transmission at the Mame Abdou SY Dabakh hospital in Tivaouane. All pregnant women infected with HIV were included in the study. Failure was defined as a positive PCR at 6 weeks or a positive serology at 14 months in the child. Data collection was done from the PMTCT register and patient records. Sociodemographic, clinical and virologic data were recorded as well as follow-up data from the different pregnancies. The analysis was done using Epi Info version 7 software. Ethical considerations were respected.

Result

We collected 29 pregnant women with a total of 40 procedures for 41 pares including one twin pregnancy.

Patient Characteristics

Patient characteristics are described in Table 1. The mean age was 31.4 years [22 – 41]. Seventeen women were followed for one pregnancy, eight for 2 pregnancies and two patients for 3 pregnancies. Thirteen patients were found to be HIV-positive during the pregnancy assessment, i.e. 44.82% of cases, including six patients during the period of our study period. Twenty-eight patients were infected with HIV-1, including 1 patient on second-line treatment.

Viral PCR was unavailable in more than half of the patients, i.e. 51.72%, three patients had a detectable viral load at the time of the study.

Table 1 : Characteristics of Mothers

Age	31.35 (22 – 41)	
Discovery		
PTME	14	48.27%
Other	15	51.72%
Parity		
1	20	68.96%
2	7	24.14%
3	2	6.90%
Serological profile		
1	28	96.55%
2	1	4.35%
Treatment		
1 st line	28	96.55%
2 nd line	1	4.35%
PCR in the mother		
Undetectable	11	37.93%
Weak	1	3.44%
Moderate	1	3.44%
Raised	1	3.44%
Not available	15	51.72%

Monitoring pregnancy and Children's Outcomes

The mean number of CPN was 2.46 [0.4]. Delivery was vaginal in 23 cases and by cesarean section in 8 cases. One patient had a vaginal delivery for the first twin and a cesarean section for the second twin (D2). Death was reported two days after CBT for D2. Prophylaxis was performed directly after delivery in 39 of our patients, i.e. 97.5%. One child did not benefit from prophylaxis although it was prescribed on D10 after delivery. The time to take prophylaxis was 85% directly after delivery, 7.5% within 5 days and 5% within 10 days as stipulated in Table 2.

Twelve children had a negative PCR test, i.e. 29.27% of cases. Only twenty-seven patients had HIV serology, of which the serology was positive, i.e. 2.44%.

A death was reported to M6 at home of undetermined cause. A child who had a positive serology is being followed in the department.

Table 2: Monitoring and outcome of pregnancies

CPN	2.46 (0 – 4)	
Delivery route		
Low	23	56.1%
Cesarean section	8	19.51%
Not specified	10	24.39%
Sex		
Male	20	48.78%
Female	10	26.39%
Not specified	11	26.82%
Taking prophylaxis		
Directly after childbirth	34	82.92%
Between 2 and 5 days post ac.	3	7.32%
Greater than 5 days	2	4.88%
Not taken	1	2.44%
Early death	1	2.44%
PCR		
Negative	12	29.26%
Not available	26	63.42%
Not realized (death)	3	7.32%
Child serology		
Negative	26	63.42%
Positive	1	2.44%
Not available/Transfer	11	26.82%
Death (unrealized)	3	7.32%
Becoming children		
Death	3	7.32%
Lost sight of	1	2.44%
Alive VP	37	90.24%

Discussion

We conducted a descriptive retrospective study of 40 procedures performed by HIV mothers. The mean age of mothers at delivery was 31.4 years [22–41]. This age range is similar to the work of (Azoumah et al., 2011) in Togo and Julia et al., in France, who found a mean age of 28.5 years [17–40 years] and 35 years [21– 44 years] respectively. The French study focused on a majority immigrant population, 83% of whom were from Sub-Saharan Africa Julia et al.

The average number of CPNs in our study was 2.6 [0-4] with 20% of pregnant women having at least 4 CPNs performed, a lower figure than that of Douaguibe (Douaguibe et al., 2017) in Lomé which found that 56% of patients had at least four CPNs. Thirteen patients discovered their HIV status during a pregnancy check-up, i.e. 44.82% of cases with six patients (20.68%) in our study period compared to 33% in the Togolese study of (Douaguibe et al., 2017). While in the study of (Schnack et al., 2016) in Uganda 80.8% of people had not been aware of their positive serological status before pregnancy. This can be explained by the difficulty of access to hospitals for patients and the non-proposal of systematic screening to patients by practitioners.

Viral PCR was unavailable in more than half of the patients, i.e. 51.72%. In the study by (Cissé et al., 2018) in Dakar, only 35.7% of patients had access to viral load testing. This can be explained by the systematic unavailability of HIV viral PCR in developing countries. Three patients had a detectable viral load at the time of the study, including 2 pregnant women on long-term treatment for several years. This can be explained by the non-compliance observed in some patients over time. A Cameroonian study found that the main reasons given for non-compliance were forgetfulness (32.9%), medication shortage (14.0%), and occupations (12.8%) (Essomba et al., 2015).

Vaginal delivery remains the recommended method when conditions are favorable and, in our study, it was 56.1% compared to 72.2% in that of (Cissé et al., 2018) in Dakar.

Prophylaxis was performed directly after delivery in 39 of our patients, i.e. 97.5%, with one early death of a newborn on day 2. This rate is similar to many studies such as those carried out by Azoumah (UN AIDS, 2024) in Togo with 99.4%, 98.6% by Girma (Douaguibe et al., 2018) in Ethiopia and 100% by the (Cissé et al., 2018) team.

HIV serology was performed at M18 in twenty-seven infants with a positivity rate of 2.44% (n=1). The child who did not benefit from well-prescribed prophylaxis is due to the mother's refusal, the same reason was reported by the (Girma et al., 2017) team in Ethiopia, refusal of the mother in an infant.

In the study of Soubeiga et al. (2015) in Burkina, the rate of vertical transmission of HIV-1 was 0.0% (0/160) as was that of Julia in France which found no cases of maternal-fetal transmission of HIV. A low rate of transmission was found by (Girma et al., 2017) in Ethiopia 0.7% and 6% in the study of

(Cissé et al., 2018) 6.6%. HIV- positive infants are followed by the appropriate services.

Conclusion

Our study demonstrated the effectiveness of preventing mother-to-child transmission of HIV in decentralized areas. Its success depends on patients' compliance and adherence to the treatment protocol. However, efforts must be made to make available the examinations and results of patients' virological data.

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