



Prognostic of the New Nests of Seropositive Mothers Beneficiaries of the Prevention of Mother-Child Transmission in the City of Mbuji-Mayi/Drc

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Abstract

Objective: The objective of this study is to evaluate the success of Mother-to-Child Transmission Prevention (PMTCT) in reducing the morbidity and mortality of newborns related to HIV/AIDS. **Materials and Methods:** This is a descriptive correlational study whose data collection is done in a transversal way from 01 to 30 June 2017 among HIV-positive women screened and we antiretroviral treatment in the health area targeted by this study. To collect this data, we used the semi-structured technical interview face-to-face using a questionnaire. **Results:** The results of the bivariate analysis revealed the HIV positive outcome in newborns of HIV-positive mothers is significantly related to the following factors (*i.e.* $p < 0.05$): the parity of more than 5 children; lack of knowledge of some HIV infection pathways; lack of knowledge of some factors that promote the transmission of HIV from mother to child, such as: several infections in the mother; mixed feeding; lack of treatment of the mother; multiple pregnancies; non-monitoring of PMTCT activities; childbirth at home; mixed feeding and non-monitoring of PMTCT services with all pregnancies after-positive HIV diagnosis; lack of knowledge of the center offering the PMTCT service in

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service within its radius; poor monitoring of antiretroviral therapy and the effect of not HAVING applied to family planning method. **Conclusion:** The WHO advises inside this box to promote education, information and communication services for health that are ignored by the population using the available communication channels in the respective areas; apply mass communication to inform pregnant women about the existence of PMTCT services in health centers or hospitals.

Subject Areas

Gynecology & Obstetrics, HIV, Public Health

Keywords

Prognosis, Newborns, HIV-Positive Mothers, PMTCT

1. Introduction

While encouraging progress has been observed in countries where the disease burden is high and in low- and middle-income, efforts are deployed in the mother-child transmission of HIV worldwide, [1].

The mother-child transmission in the absence of prevention is estimated at 40% of children born to HIV-infected mothers who are infected. Among them, an estimated two-thirds are infected during pregnancy and childbirth, a third during breastfeeding [2].

In the world, 17.5 million women are infected with HIV/AIDS and every year, about 1.4 million women living with HIV in low- and middle-income countries become pregnant (8.0%), and about 2.3 million children under 15 are infected [3]. The same source indicates that more than 90% of infections in infants and young children are due to mother to child transmission, either during pregnancy, labor and delivery, or during breastfeeding. If nothing is done, almost one in three children born to mothers with HIV will be infected himself (in Europe for example, new HIV infections in children are estimated at 190,000 of which 15,000 are from Ukraine, the countries occupying the first place in the European continent).

In Africa, the situation analysis and response to the AIDS epidemic in 2006 reveals that 30% of children born to HIV-positive mothers are infected (the distribution of the frequency of pregnancies and children infected is different from one country to another), and countries pay heavily are: South Africa, Zimbabwe 45% 41% [4].

In the Democratic Republic of Congo, DRC, the joint report of the national program against STI/AIDS and WHO reported 20.5% seroconversion in children born of HIV positive mothers HIV [5]. This area is less exploited by researchers in the DRC.

Also in Kasai Oriental, particularly in the city of Mbuji-Mayi, the results pre-

sented by the provincial coordinating fight against STI/AIDS reveal that in 2014, among children followed, 15 samples were taken of which 4 children were HIV + 26.6%, while in 2015, 10 of 115 children positive sample is 8.7% while in 2016, 92 samples taken among which 7 are positive 7.6% [6].

So to prevent mother to child transmission of HIV, the PMTCT program was considered an access response to antiretroviral (ARV) having the best cost/efficiency and one of the most relevant approaches to preventing HIV infection in children [7].

Our objective is to evaluate the impact of PMTCT into health zones having in their interventions; the prevention of HIV transmission from mother to child finally helps the program to adjust prevention and achieve the goal 4 and 5 of the millennium “reduce maternal and child mortality related to HIV/AIDS 90%”.

2. Material and Method

This is a descriptive correlational study in which data collection is done in a transversal way of 1 to 30 June 2017 among screened women with HIV and on antiretroviral treatment in the targeted area health study. To get to collect these data, we used the technique of semi interview—structured face to face with a questionnaire.

3. Results

3.1. Presentation of the Results

It appears from this **Table 1** that 52.0% of respondents had positive women age over 30 years, 73.1% were married which 55.7% was polygamous, 36.0% had a secondary level of study, 92 1% were Christian, 55.4% had less than 5 children.

After analysis of these results (**Table 2**), we find that 94.2% of respondents knew about the modes of transmission of HIV/AIDS, compared to the knowledge of practices favoring transmission from mother to child, 21.5% had mentioned multiple maternal infections, 18.6% spoke of mixed feeding; 77.8 M evoked the absence of maternal treatment, 80.8% spoke of multiple pregnancies and 82.3% spoke of sexual multistakeholder. In connection with the knowledge of practices to prevent transmission from mother to child 97.2% evoked voluntary testing for HIV, 94.2% evoked monitoring PMTCT program, 88.5% had also spoken to the non-delivery home, 79.3% spoke of avoidance of mixed feeding, 83.6% of them were applicable all three proposals given above. 95

Regarding the results of this **Table 3** and **Table 4**, 94.2% of respondents knew the center offering PMTCT services within its range, 43.3% was embarrassed to go to the NPC, 93.2% felt that there were privacy in service, 95.7% received regular ARVs, 87.6% was regularly the cotrimoxazole and 90.4% had received a proposal for contraception.

Compared to this **Table 5**, 69.3% of respondents were engaged in a professional activity. Regarding the knowledge of sexual practices at risk of contamina-

tion, 97.4% spoke of unprotected sexual practice, 21.6% also spoke of homosexuality and 94.9% spoke of early sexual intercourse. In connection with the practical knowledge to avoid contamination of the child, 77.4% had spoken mother of voluntary testing and 67.2% evoked mixed feeding; 87.0% were prepared to implement a family planning method and 64.0% had no income generating activity.

3.2. Results of Bivariate Analyzes

It appears from this **Table 6** that the parity of more than 5 children ($X^2 = 10.05$; $p = 0.001$) was the only factor that was the basis of HIV status of children born to HIV positive mothers.

After analysis of these results (**Table 7**) should be said that ignorance of certain HIV modes of transmission ($X^2 = 70.06$; $p = 0.000$), lack of knowledge: several maternal infections ($X^2 = 91.16$, $p = 0.000$), mixed feed ($X^2 = 76.5$; $p = 0.000$), the absence of treatment of the mother ($X^2 = 74.17$; $p = 0.000$), multiple pregnancies ($X^2 = 85.98$; $p = 0.000$) and multiple sex partners as factors promoting HIV transmission from mother to child. What are factors that are associated with the child's infection from HIV-positive mothers.

These results also show that the lack of knowledge of PMTCT ($X^2 = 7.00$, $p = 0.008$), home delivery ($X^2 = 44.57$, $p = 0.000$), avoid mixed feeding ($X^2 = 70.06$, $p = 0.000$) as a practice to prevent mother-to-child HIV transmission and non-follow-up of PMTCT service with all pregnancies after positive HIV diagnosis ($X^2 = 68.01$, $p = 0.000$). What are some of the factors that are associated with the contamination of the child from HIV-positive mothers?

Given these results (**Table 8**), the conclusion is that it is links of association between HIV seropositivity among children born to HIV positive mothers and the center of ignorance offering PMTCT services in its radius ($X^2 = 10.82$; $p = 0.001$), poor monitoring of antiretroviral treatment ($X^2 = 18.88$; $p = 0.000$), the absence of cotrimoxazole by time ($X^2 = 12.62$; $p = 0.000$) and the effect of not implementing a FP method ($X^2 = 17.36$; $p = 0.000$).

After analysis of these results (**Table 9**) consistent that certain characteristics influence the HIV status of HIV children born to HIV positive mothers, they are: ignorance of sexual violence ($X^2 = 16.11$; $p = 0.000$), ignorance of the early sex before the age of majority ($X^2 = 5.46$; $p = 0.019$) as sexual risk of HIV infection/AIDS from mother to child and ignorance of mixed feeding as a way to avoid contamination from mother to child.

4. Discussion

The risk of transmission from mother-to-child is a permanent concern faced by health professionals and all partners involved in the fight against HIV/AIDS. Due to the possibility of vertical contamination and therefore void the dream of an HIV/AIDS. The contamination of the transmission of mother-to-child has been documented in several countries.

Table 1. Distribution of subjects by socio-demographic categories.

Characteristics	Employees (n = 469)	Percentage
Age		
≤30 years	244	52.0
≥31 years	225	48.0
Civil status		
Married	343	73.1
Unmarried	126	26.9
Marital status		
Monogamous	207	44.1
Polygamous	262	55.9
Level of education		
Primary	142	30.2
Secondary	169	36.0
University	56	11.9
Without level	102	21.7
Religion		
Christian	432	92.1
Muslim	37	7.9
Parity		
1 to 5 children	260	55.4
6 and children	209	44.6
Have a professional occupation		
Yes	323	68.9
No	145	31.1

Table 2. Distribution of subjects according to their knowledge about the mode of transmission of HIV and practices favoring contamination HIV.

Characteristics	Category	Effective	%
Mode of knowledge of HIV contamination	Yes	442	94.2
	No	27	5.8
Number of pregnancies where the PMTCT service was followed	All pregnancies	447	95.3
	some	22	4.7
Knowledge practices that promote the transmission of mother to child			
Several maternal infections	Yes	101	21.5
	No	368	78.5
Mixed feeding	Yes	87	18.6
	No	382	81.4

Continued

No treatment of the mother	Yes	365	77.8
	No	104	22.2
Multiple pregnancies	Yes	379	80.8
	No	90	19.2
Having multiple partners	Yes	386	82.3
	No	83	17.7
Knowledge of practices to prevent transmission from mother to child			
Getting tested CS	Yes	456	97.2
	No	13	2.8
Follow the PMTCT program	Yes	442	94.2
	No	27	5.8
Is not birth at home	Yes	415	88.5
	No	54	11.5
Avoid mixed feeding	Yes	372	79.3
	No	97	20.7
All options are applied	Yes	392	83.6
	No	77	16.4
No options are applied	Yes	47	10.0
	No	422	90.0
Attitude to pregnancy			
Refer to CS with the PMTCT service	Yes	413	88.1
	No	56	11.9
Follow the treatment at home	Yes	351	74.8
	No	118	25.2
Both options are made	Yes	365	77.8
	No	104	22.2
No options are made	Yes	354	75.5
	No	115	24.5

Table 3. HIV prevalence among children of HIV positive mothers.

HIV status of children born HIV-positive mother	Effective	Percentage
Negative	419	89.3
Positive	50	10.7

The prevalence was 10.7%.

Table 4. Distribution of subjects by organizational factors.

Characteristics	Categories	Employees (n = 469)	Percentage
Knowledge center offering PMTCT services within its range	Yes	442	94.2
	No	27	5.8
Have the embarrassment of going to the CPN	Yes	203	43.3
	No	266	56.7
Guaranteed confidentiality in service	Yes	437	93.2
	No	32	6.8
Have ARVs regularly	Yes	449	95.7
	No	20	4.3
Have cotrimoxazole regularly in clinic	Yes	411	87.6
	No	58	12.4
Receiving a proportion of family planning method	Yes	424	90.4
	No	45	9.6

Table 5. Distribution of cases socio-professional characteristics.

Characteristics	Categories	Employees (n = 469)	%
Knowledge of sexual practices contamination			
Unprotected sexual practice	Yes	457	97.4
	No	12	2.6
Homosexuality	Yes	10	2.1
	No	459	97.9
Sexual violence	Yes	462	98.5
	No	7	1.5
Early sex before age eater	Yes	445	94.9
	No	24	5.1
Knowledge of practices to avoid contamination of the child			
Screening the mother	Yes	363	77.4
	No	106	22.6
Treatment of the mother and child	Yes	359	76.5
	No	110	23.5
Mixed feeding	Yes	315	67.2
	No	154	32.8
Be near to apply the methods of family planning	Yes	408	87.0
	No	61	13.0
Have an income generating activity	Yes	169	36.0
	No	300	64.0

Table 6. Association between socio-demographic categories of HIV-positive mothers and become the child of these mothers.

Characteristics	Become of the child		GOLD	P	S
	Positive	Negative			
Age					
≤30 years	22	222	0.70	0.23	NS
≥31 years	28	197			
Civil status					
Married	40	303	1.34	0.246	NS
Unmarried	10	116			
Marital status					
Monogamous	34	228	3.34	0.067	NS
Polygamous	16	191			
Level of education					
Without primary level and	24	220	0.36	0.546	NS
Secondary and university	26	199			
Religion					
Christian	46	386	0.00	0.975	NS
Muslim and pagan	4	33			
Parity					
1 to 5 children	26	183	10.05	0.001	S
6 more children	24	236			

Table 7. Association between knowledge of HIV transmission mode, practice promoting HIV contamination and become the child of these mothers.

Characteristics	Become of the child		X ²	P	S
	Negative	Positive			
Correct knowledge of HIV contamination modes					
No	64	33	70.06	<0.001	S
Yes	355	17			
Knowledge practices that promote the transmission of mother to child					
Several maternal infections					
Yes	355	13	91.16	<0.001	S
No	64	37			
Mixed feeding					
Yes	364	18	76.5	<0.001	S
No	55	32			

Continued

Without treatment of the mother and child						
Yes	350	15	74.17	<0.001	S	
No	69	35				
Multiple pregnancies						
Yes	363	16	85.98	<0.001	S	
No	56	34				
Having multiple partners						
Yes	366	20	68.76	<0.001	S	
No	53	30				
Knowledge of practices to prevent transmission from mother to child						
Getting tested CS						
Yes	407	49	0.12	0.725	NS	
No	12	1				
Follow the PMTCT program						
Yes	399	43	7.00	0.008	S	
No	20	7				
Is not birth at home						
Yes	385	30	44.57	<0.001	S	
No	34	20				
Avoid mixed feeding						
Yes	355	17	70.06	<0.001	S	
No	64	33				
Attitude to pregnancy						
Refer to CS with the PMTCT service						
Yes	372	41	1.95	0.162	NS	
No	47	9				
Follow the treatment at home						
Yes	318	33	2.32	0.127	NS	
No	101	17				
No options are made						
Yes	321	33	2.71	0.099	NS	
No	98	17				
Number of pregnancies where the PMTCT service was followed						
All pregnancies	411	36	68.01	<0.001	S	
Some	8	14				

Table 8. Association between certain organizational characteristics and become the child of these mothers.

Characteristics	Become of the child		X ²	p	S
	Negative	Positive			
Knowledge center offering PMTCT services within its range					
Yes	400	42	10.82	0.001	S
No	19	8			
Have the embarrassment of going to the CPN					
Yes	176	27	2.61	0.105	NS
No	243	23			
Guaranteed confidentiality in service					
Yes	390	47	0.05	0.807	NS
No	29	3			
Proper monitoring of ARV treatment					
Yes	407	42	18.88	<0.001	S
No	12	8			
Have cotrimoxazole regularly in clinic					
Yes	375	36	12.62	<0.001	S
No	44	14			
Receiving a proportion of family planning method					
Yes	387	37	17.36	<0.001	S
No	32	13			

Table 9. Association between certain socio-professional characteristics and become the child of these mothers.

Characteristics	Become of the child		X ²	p	S
	Negative	Positive			
Have a professional occupation					
Yes	294	31	1.40	0.236	NS
No	125	19			
Knowledge of sexual practices contamination					
Unprotected sexual practice					
Yes	409	48	0.46	0.494	NS
No	10	2			
Sexual violence					
Yes	416	46	16.11	<0.001	S
No	3	4			

Continued

Early sex before age eater						
Yes	401	44	5.46	0.019	S	
No	18	6				
Knowledge of practices to avoid contamination of the child						
Maternal screening lack						
Yes	326	37	0.36	0.543	NS	
No	93	13				
Lack of treatment of the mother and child						
Yes	326	33	3.46	0.062	NS	
No	93	17				
Mixed feeding						
Yes	302	13	43.00	<0.001	S	
No	117	37				
Be near to apply the methods of family planning						
Yes	368	40	2.41	0.119	NS	
No	51	10				
Have an income generating activity						
Yes	142	27	7.83	0.005	S	
No	277	23				

It appears from this study that 10.7% of children born to HIV positive mothers were also infected. With the success of multiple therapies, in industrialized countries, a growing number of women start PMTCT pregnancy while they are receiving highly active antiretroviral therapy. Transmission rates observed with these treatments are extremely low, in the order of 1% to 3% [8]. Our results are far superior to those of a French study ANRS 075, with AZT treatment as soon as possible after starting 14 weeks of pregnancy associated with lamivudine (3TC) from 32 weeks, the transmission rate was 1.6% [9] [10]. Finally, a multi-center study conducted in the United States, France, Brazil and the Bahamas, PACTG 316, confirmed in more than 2000 pregnant women, when they receive optimal antiretroviral therapy for their own health (HAART if necessary) the transmission rate is extremely low, in the order of 1.5% [1]. For their hand UNICEF *et al.*, the estimated growth rate in the number of cases of HIV-AIDS among under 15 between 4% and 5% and more than half of these infected children die before their first birthday and most before the age of five [11].

The mother-child transmission of HIV can be done either during pregnancy or during labor and delivery, or during breastfeeding. Schematically, in the ab-

sence of preventive treatment, approximately 25% - 40% of children are infected with 5% - 10% during pregnancy, 15% during labor and about 5% - 15% through breastfeeding. By 1994, the PACTG 076-ANRS 024 study demonstrated the remarkable efficacy of AZT to reduce mother to child transmission of HIV by 26% to 8% in women not breastfeeding their children. To test the effectiveness of anti-retroviral drugs in the mother and/or child to reduce transmission during breastfeeding [12] [13].

Many factors have been studied in the hope of preventing mother-child transmission of HIV/AIDS. The correction of these factors is unfortunately not always associated with a reduction in transmission. The risk of transmission during pregnancy and childbirth is higher when the mother is at an advanced stage of the disease, their immune system is already impaired or it has a micro-nutrient deficiency such as vitamin A [13].

However it is the association between viral load and transmission, which is the most significant: the higher the viral load, the higher the risk of transmission is high. Some evidence suggests that transmission is more common with certain subtypes of HIV-1 as subtype C, particularly widespread in East Africa, but these results were not confirmed (16). Due to its rapid mutational capabilities, HIV gradually adapts better to escape the natural or artificial defenses (ART) host: thus, the absence of agreement between the mother and child for certain characteristics HLA would be protective for children [14].

The results of this study show that the HIV status of children born to HIV positive mothers is influenced by the following factors: parity of more than 5 children ($X^2 = 10.05$; $p = 0.001$), the ignorance of certain HIV modes of transmission ($X^2 = 70.06$; $p = 0.000$), the ignorance of certain factors favoring transmission of HIV from mother to child as: several maternal infections ($X^2 = 91.16$; $p = 0.000$), mixed feed ($X^2 = 76.5$; $p = 0.000$), the absence of treatment of the mother ($X^2 = 74.17$; $p = 0.000$), multiple pregnancies ($X^2 = 85.98$; $p = 0.000$); Besides these factors, the results also show that ignorance of certain practices to prevent transmission of HIV from mother to child as: failure monitoring PMTCT ($X^2 = 7.00$; $p = 0.008$), home delivery ($X^2 = 44.57$; $p = 0.000$), mixed feeding ($X^2 = 70.06$; $p = 0.000$) and not follow the PMTCT service with all the pregnancy after a positive HIV diagnosis ($X^2 = 68.01$; $p = 0.000$);

The same study also revealed that the center of ignorance offering PMTCT services in its radius ($X^2 = 10.82$; $p = 0.001$), poor monitoring of antiretroviral treatment ($X^2 = 18.88$; $p = 0.000$), the absence of cotrimoxazol by time ($X^2 = 12.62$; $p = 0.000$) and the effect of not implementing a method of family planning ($X^2 = 17.36$; $p = 0.000$);

The other factors identified in this study are: ignorance of sexual violence ($X^2 = 16.11$; $p = 0.000$), ignorance of early sex before the age of majority ($X^2 = 5.46$; $p = 0.019$) as sexual risk of HIV infection/AIDS from mother to child and ignorance of mixed feeding as a way to prevent contamination of the mother to her child.

5. Conclusion

The mother-child transmission in the absence of prevention is estimated at 40% of children born to HIV-positive mothers who are infected. Among them, an estimated two-thirds are infected during pregnancy and childbirth, a third during breastfeeding. Thus the WHO advises in this case to promote education, information and communication to health services that are ignored by the people using the communication channels available in the respective areas; apply the mass communication to inform pregnant women of the existence of PMTCT services at health centers or hospitals.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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