



SEROPREVALENCE AND FETAL PROGNOSIS OF HIV INFECTION DURING PREGNANCY AT COCODY CHU

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ABSTRACT

The objective of this work was to determine the prevalence and to evaluate the fetal prognosis of HIV infection during pregnancy.

Population and method: This was a retrospective descriptive and analytical study that took place from October 1, 2016 to July 31, 2017 in the delivery room of the Gynecology and Obstetrics Department of the Cocody CHU. Included were pregnant women who came to give birth and who tested positive for HIV. The parameters studied in pregnant women were: age, occupation, nationality, gestationality, parity, antenatal care (ANC), delivery mode, indication of cesarean section and CD4 count. The neonatal parameters studied were age of pregnancy, Apgar index at birth, weight, trophicity, vital status.

Results: Seroprevalence of HIV infection was 3.4%. The average age of the patients was 31.6 years. They exercised in the informal sector in 61% of the cases and had a majority of Ivorian nationality (82%). The CD4 count was less than 350 in 34% of the cases and delivery was 57% of the cases vaginally. Most newborns were born at term (72%), with a birth weight of between 2500 and 3500 grams in the vast majority of cases (73%). These neonates were stillborn in 11% of cases and the factors associated with death were CD4 count <350 items / ml ($p = 0.008$), lack of ARV treatment in the mother ($P = 0.0022$) and caesarean section for obstetric emergencies ($p = 0.02$)

Conclusion: The prevalence of HIV in pregnant women who are delivered at the CHU maternity hospital in Cocody is below the national average. This infection prevails in underprivileged environments or more than one four are not on ARV treatment with the risk of fetal death. Efforts remain to be made in the management of HIV-positive pregnant women. These efforts must focus on raising awareness among the population in order to make them accept the disease and benefit from early treatment.

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INTRODUCTION

Côte d'Ivoire is one of the countries with a high prevalence of HIV infection in sub-Saharan Africa with a rate of 3.7%; women are more affected than men, which is 4.6% of women compared with 2.9% of men in the population aged 15 to 49 [1]. The national seroprevalence of HIV infection among pregnant women was 4.5% and the estimated number of orphans and children vulnerable to HIV is over 440,000. The association of HIV with pregnancy exposes the fetus to the risk of contamination by this virus during the period of gravidipogerality, which can compromise the evolution of the pregnancy. Similarly, apart from any therapeutic intervention, the transmission rate from mother to child ranged from 20 to 30% [2]. The implementation of a program to prevent this transmission has been effective in Côte d'Ivoire since 2006.

This program provides effective antiretroviral treatment or prophylaxis. She is part of a monotherapy with Zidovudine (AZT) to achieve nowadays a tripletherapy [3]. The purpose of this work was to determine the prevalence of HIV infection in pregnant women and to assess the immediate fetal prognosis.

METHOD

It was a retrospective study with a descriptive and analytical aim that took place from October 1st, 2016 to July 31st, 2017 (10 months) in the delivery room of the Gynecology and Obstetrics Department of the Cocody CHU. It concerned all pregnant women in the delivery room who had accepted the HIV test after informed consent. Screening was performed with the 1st Determine® rapid test. Positive patients were tested for a second confirmation test with the 2nd Genie II rapid test. Subsequently, the patients declared positive in both tests were fully supported. The newborn received NEVIRAPINE^R at birth. The maternal parameters studied were socio-demographic characteristics (age, occupation, nationality), gestationality, parity, prenatal consultations, mode

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of delivery, indication of caesarean section and CD4 count. The neonatal parameters studied were age of pregnancy, Apgar index, birth weight, trophicity and vital status. Our data sources were prenatal consultation, test proposal, laboratory screening, dispensing, delivery, and PMTCT follow-up records. The data were entered on Excel 2010. They were analyzed by the Epi Info 2000 software. Comparisons were made using the chi-square (X2) statistical test and Fisher's test. The significance level chosen was 5% (p <0.05) and the 95% confidence interval.

RESULTS

The prevalence

During the study period, 5949 pregnant women had a test proposal and were screened for HIV; of these, 206 were screened positive, with a seroprevalence rate of 3.4%. HIV1 was found in 100% of cases. The socio-demographic characteristics of HIV-positive pregnant women are presented in Table I

Table I Characteristics of mothers

Characteristics of mothers	Parturients (n= 206)	Effective%
Age group (years)		
<20	4	2
20-35	138	67
>36	64	31
Professional status		
Informal sector	125	61
Housewives	55	27
Pupils / students	10	5
officials	16	8
Nationality		
Ivorian	168	82
Non Ivorian	3818	
Number of prenatal consultations		
0	6	3
1-3	60	29
≥ 4	14068	
Gravidity		
gravida	21	10
Paucigeste	88	43
multigravida	84	41
Large multigeste	13	6
Parity		
nulliparous	48	23
primipare	65	32
few previous deliveries	68	33
Mutipare	22	11
Great multipar	3	1,5
CD4 rate		
CD4< 350	70	34
CD4 ≥ 350	136	66
ARV treatment		
yes	148	72
no	58	28
Mode of delivery		
caesarean	89	43
Low way	117	57
Indication of cesarean section		
Obstetric emergency	68	76
Elective	21	24

The average age of HIV-positive pregnant women was 31.6 years with extremes of 18 and 45 years. The age group of 20 to 35 years old had a frequency of 67%. Women in the informal sector were represented in more than half of the cases with 61%. They were also predominantly Ivorian (82%). The paucigests and the pauciparas had respective frequencies of 43% and 33%. Mothers with a CD4 count of less than 350

items accounted for 34% of cases. Delivery occurred in 57% of cases by vaginal delivery versus 43% by caesarean section.

Status of the fetus at birth

Table II shows the condition of newborns at birth.

Parameter of newborns	Effectiveness=206%
Gestational age	
< 37	57 28
37-42	149 72
Sex	
Female	105 51
Male	101 49
Weight	
< 2500	56 27
2500-4500	150 73
APGAR index in the 5th minute	
3-6	115 195
7-10	94,5
Trophicity	
eutrophic	129 63
SGA	77 37
Evolution	
Living	184 89
deceased	22 11

Newborns were 72% of the time in the future. They had a birth weight between 2500 and 4500 grams in 73% of cases. An Apgar score of 7-10 was noted in 94.5% of them.

Table III Risk Factors for Fetal Death

Parameter	State of the newborn	p	OR
	deceased (n= 22) Living (n= 184)		
CD4 rate			
CD4< 350	13 (59%) 57 (31%)	0,008	3,21 (1,3-7,9)
CD4 ≥ 350	9 (41%) 127 (69%)		
	ARV treatment of the mother		
yes	10 (45,5%) 139 (75,5%)	0,0022	0,2 (0,10-0,6)
no	12 (54,5%) 45 (24,5%)		
Mode of delivery			
caesarean	14 (63,5%) 73 (40%)	0,0325	2,66 (1-6,6)
Low way	8 (36,5%) 111 (60%)		
Indication of cesarean section			
Obstetric emergency	14 (100%) 55 (72%)	0,02	
Elective	0 (00%) 21 (28%)		
Sex			
Female	8 (41%) 96 (52%)	0,1532	0,5 (0,2-1,3)
Male	14 (59%) 88 (48%)		
Weight			
< 2500	8 (41%) 47 (25,5%)	0,27	1,6 (0,6-4,2)
2500-4500	14 (59%) 137 (74,5%)		
Trophicity			
eutrophic	15 (68%) 112 (61%)	0,5	1,3 (0,5-3,5)
SGA	7 (32%) 72 (39%)		

Risk factors associated with fetal death were CD4 <350 (p = 0.008), no ARV treatment (P = 0.0022), caesarean section for obstetric emergence (p = 0.02)

DISCUSSION

Prevalence

The prevalence of HIV infection among pregnant women in our study was lower than that of the national average in Côte d'Ivoire [1] and that reported by Kizondé *et al.* [2] which were respectively 4.5% and 4.72%. Higher hospital prevalences were noted in Yamoussoukro in 2007 [4.] and in Abidjan in 2005 [5] with 9.2% and 12.9% respectively. In Africa, the same decline was observed in Togo, where prevalence increased from 8.7% in 2005 to 7% in 2006 and 4.2% in 2007 [6]. These findings attest to the impact of the many awareness campaigns that have helped to reduce the prevalence of HIV in the population of pregnant women.

Sociodemographic aspects

The average age of HIV-positive pregnant women in our study was comparable to that of other authors such as Ravoavison *et al.* [7], Azoumah *et al.* [8], and Kimbala *et al.* [9] who reported respectively 27.7 years, 28.3 years and 30.1 years. Most of the women in our study were housewives and without education, as in Ravoavison *et al.* [7] where they represented half of his series. While in the study of Azoumah *et al.* [8], pregnant women working as saleswomen and retailers dominated their study population with a rate of 42.2%. These results show a higher exposure of women without financial resources or living in precariousness in the face of HIV infection. The CD4 count determined the level of immunosuppression in pregnant women.

With the adoption of WHO's B + option since 2013, all HIV-positive pregnant women now benefit from three antiretrovirals regardless of the CD4 count [10]. As for the modalities of delivery, the patients in our study had more vaginal delivery (57%). It was also more privileged in the works of other authors at rates similar to ours [7, 8]. However, the work of Lasmé-Guillao *et al.* [11] showed a predominance of programmed prophylactic caesarean section, just as in those of Ravoavison *et al.* [7], with a rate of 50%. Prophylactic caesarean section for the prevention of MTCT of HIV is not a recommendation of the national HIV care program in Côte d'Ivoire [3]. Its implementation depends on parameters such as a viral load greater than 400 copies / ml, the delay or absence of ARV treatment or WHO clinical stages III and IV of the disease [12].

State of the fetus at birth

In our sample we noted a prematurity rate of 13.3%. The study by Millogo-Traoré *et al.* [13] found a lower preterm birth rate of 4.6%. However, only 5.5% of the fetuses in our study had a birth weight of less than 2500 grams, compared to a rate of 16.3% in the work of Millogo-Traoré *et al.* [13]. We noted 11% of stillbirths. Traore *et al.* mali found a lower rate than ours of 9% [14] The factors associated with these stillbirths were CD4 <350 elements / ml ($p = 0.008$), the lack of treatment with ARV ($P = 0.0022$), caesarean section for obstetric emergency ($p = 0.02$)

CONCLUSION

The prevalence of HIV in pregnant women who are delivered at the CHU maternity hospital in Cocody is below the national average. This infection predominates in underprivileged environments or more than one in four are not on ARV

treatment with the risk of fetal death. Efforts remain to be made in the management of HIV-positive pregnant women. These efforts must focus on raising awareness among the population to make them accept the disease in order to benefit from early treatment.

Conflicts Of Interest

The authors state that they have no competing interests.

Authorship

The authors have read and approved the final manuscript.

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