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Predictive Factors of HIV Status Disclosure to Sex Partner in Pregnant Women in Cayenne, French Guiana

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Abstract

Background: The aim of this study was to identify the predictive factors of HIV disclosure to the sex partner in HIV pregnant women in Cayenne (French Guiana).

Methods: A case control study was conducted including all deliveries in Cayenne from 2003 to 2010. For each case, a standardized questionnaire including epidemiological, clinical, and biological data was administered. Thirty-four women in the first group and 95 in the control group were included in the study.

Results: The logistic regression showed that the variables that independently predicted HIV disclosure to the sex partner were the existence of a profession (OR=5.62, IC95% =1.3-24.26, p=0.021), disclosure to the doctor (OR=12.65, IC95% =2.87-55.8, p<0.001), the negative representations of HIV (OR=5.99, IC95% =1.17-30.69, p=0.032). The partner's HIV status was also linked to the outcome (OR=0.01, IC95% =0.001-0.07, p<0.001).

Conclusion: These predictive factors should be considered in positive prevention programs and prevention of mother to child transmission.

Keywords: Human immunodeficiency virus infection; Pregnant women; HIV disclosure to the sex partner; French Guiana

Introduction

French Guiana is a French overseas territory of 229, 000 inhabitants neighboring Brazil and Suriname in the Amazonian region. This region is characterized by a high HIV prevalence and a high birth rate, notably in the most vulnerable populations. The transmission of HIV occurs mostly through heterosexual sex and women represent half of the HIV cohort in Cayenne [1-5]. A recent study suggested that a significant proportion of new infections may have been transmitted by patients who knew their diagnosis and thus emphasised the importance of "positive prevention" [6]. Immigrants account for 40.5% of the adult population of Cayenne, which had 58,004 inhabitants [7]. Eighty percent of patients are foreigners and they are often diagnosed at a later stage than French patients [8]. When diagnosed there is also a high rate of follow up interruption [9]. Prevention is complicated by the fact that a number of persons are illiterate [10] or do not understand the language. The health priorities of migrants are often overridden by daily struggles to obtain food, shelter, papers. In 2009, 1.3% of pregnant women were infected with HIV, and in certain communities the HIV prevalence reached 4 % (Rapport COREVIH Guyane 2009), which, according to UNAIDS, corresponds to a generalized epidemic. In Cayenne, the vertical transmission rate of HIV was 3 %, which is well beyond the transmission rate in metropolitan France. HIV-positive pregnant women often do not disclose their serostatus to their partners, family and friends, creating potential barriers to preventing sexual transmission to partners and mother-to-child transmission through breastfeeding [11-14]. In some past studies, the main risk factors for non-disclosure of serostatus to their sexual partners were: being nulliparous or unmarried, fear, regarding the spread of the information, stigmatization and deterioration in the relationship with the spouse [15], fear of abandonment; fear of relationship break-up and fear of stigma [16], fear of stigma and divorce [14], fear of stigma and discrimination [17].

A recent study of sociodemographic predictive factors of insufficient antiretroviral treatment in HIV-infected pregnant women in Cayenne showed that 70% of women had not disclosed their HIV status to the father of their child [18]. Another study in French Guiana showed lower proportion of non disclosure (16%) possibly reflecting the particular vulnerability of pregnant women [19]. Although there was no significant link between disclosure and insufficient treatment, most programmes of mother to child HIV transmission prevention advice women to disclose the result of their test to the partner and to incite the partner to get tested. Studies have investigated disclosure, when it occurs, the partner's reactions, and the repercussions on the couple's life and condom use [20,21]. Given the staggering proportion of women failing to reveal their HIV status, the present study aimed to identify predictive factors of HIV disclosure to the sex partner in pregnant women in Cayenne, French Guiana.

Methods

Study population

The study concerned HIV-infected pregnant women having delivered at Cayenne General Hospital between 2003 and 2010. The total number of HIV-infected pregnant women delivering in Cayenne Hospital from 2003 to 2010 was 280.

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Type of study

The study was an exploratory matched case control study. Cases were HIV-infected mothers having delivered in Cayenne General Hospital between 2003 and 2010 and disclosed their HIV status to their sexual partner. Controls were mothers not having revealed their HIV status to their sex partner. Women having delivered at home in Cayenne or during transport were also included if they fitted the inclusion criteria. The status of the child was determined, depending on the child's age, either using viral load or using serology after 24 months of age. A child was considered as not infected if he had either two negative viral loads or a negative serology.

Exclusion criteria

Were excluded from this study, all mothers having refused to participate in the study, or when the children's final HIV status was undetermined or unknown.

Identification of cases

The outpatient department centralizes the follow-up of HIV-positive mothers, and the pediatric outpatient department centralizes the follow-up of children born from HIV-positive mothers. To identify cases according to the above inclusion criteria, the list of mothers having delivered at the Cayenne Hospital was established according to their children followed in pediatrics. The perinatal registry of the maternity ward allowed to verify the place of delivery and the identity of the mother. The eNADIS computerized HIV patient file [22] allowed us to collect maternal data and to cross-check data from other sources. Altogether, there were 36 eligible cases but one refused to participate and was thus excluded. Among these women, two were excluded because they refused to participate and denied having a HIV infection.

Data collection

Strategy: In the absence of centralized information on both mothers and children, data from different sources were gathered to be as thorough as possible and to cross-check information.

Identification of controls: All mothers having agreed to participate in the study and their children were followed. The HIV status of all participants was known during the pregnancy for two-thirds of women and during delivery for one third. The present study was conducted by a paediatrician who followed up the children born from the participating women. It was more logical to start by compiling the list of infected women from the list of children born from an HIV-infected mother, in order to invite them to participate. Subsequently, additional data sources were used (i.e., the computerized patient files eNADIS* (Fedialis Medica, France), pregnancy registry). Through the use of multiple sources, an exhaustive list of all deliveries of HIV-positive women at Cayenne hospital was made. Incomplete files were excluded. From this list, women having disclosed their HIV status to their sexual partner were randomly sampled in order to obtain three controls per case matched by year of delivery. When the number of controls in a given year was not sufficient, the control was taken from the year following the delivery of the case.

Information on cases and controls: Once cases and controls were identified, available information was collected from the eNADIS file, the paediatric files, the blood bank, and obstetrical files.

Structured questionnaire: All eligible patients were then invited to the outpatient clinic to answer a structured questionnaire delivered by the pediatrician, the paediatric nurse, and the public health mediator of the department of paediatrics. Theses individual interviews were conducted from March to May 2010.

Data collection: A structured data collection form compiled all elements susceptible to influence access to care, HIV status disclosure and treatment. Maternal data on sociodemographic factors (residence, age, nationality, duration of residence in French Guiana, education level, languages spoken, possession of health insurance and residence permit, marital status, partner information, number of children, number of persons in the home, income, profession, transport used and distance from the hospital, and religion), the HIV infection (diagnosis date, knowledge of the father's status, disclosure of HIV status to the father, CD4 count, and treatment history), obstetrical factors (history, number of HIV positive pregnancies, parity, gravidity, desired pregnancy, planned pregnancy, number of prenatal consultations, follow-up location, quality of follow-up, alcohol use, tobacco use, drug use during pregnancy, breastfeeding, and difficulties to get milk powder), and factors such as disclosure to the family, the perception of others, representations on HIV/AIDS, knowledge of HIV transmission, and condom use. The interviews were conducted by trained professionals. After the training a guidebook for the surveyor was given. The questionnaire was pretested to evaluate its clarity. Before interviewing, each patient's information was given about the purpose of the study and the patient's right to refuse. The data collection forms used anonymous eNADIS numbers as patient ID. The database was notified to the National committee of computing and liberties.

Data analysis

Data were entered into Microsoft Excel 2007 and analyzed using R.2.10.0 (R project, CRAN R 2.10.0 version 2010) statistical software. After a descriptive analysis, some variables were categorized according to their distribution, the literature, or the study objectives. Matched bivariate analysis then studied covariates and their relation to the outcome measure by a crude odds ratio and its confidence interval. The covariates that were associated with the outcome ($p<0.2$) were then included in a multivariate conditional logistic regression model. The initial model included 10 variables (Education level, mode of transport, profession, Information and sharing of HIV status with close ones, use of condoms, desired pregnancy, disclosure to doctor, negative representations of HIV, partner's HIV status and HIV related diseases during pregnancy) and no interaction term. The most parsimonious model was obtained using the likelihood ratio test. An automated stepwise ascending and backward technique based on the AIC was also used. Finally, the adequation between the data and the model was tested.

Results

The study concerned 34 cases and 95 controls. The results are presented in table 1.

The median age of cases and controls was 31 years, with the majority of 26-35 years (50% of cases and 54 % of controls). Most women were of foreign origin (76% of cases and 90% of controls) with 38 % Haitian in cases and 55 % in controls. Most women had unprotected sex (50% in cases, 83% in controls).

The distribution of cases and controls according to age, country of birth, education level, marital status, residence permit and housing was identical. For the women whose professional activity was available, 84 % had no steady job (74 % of cases against 93 % of controls). Only 24% of cases and 36% of controls of foreign origin did not have a residence permit.

Variables	Cases (%)	Controls (%)	Bivariate analysis		Multivariate analysis	
			Crude OR (95% CI)	p	Adjusted OR (95% CI)	p
Demographic characteristics						
Mother's age at the beginning of the pregnancy						
< 26 years	6 (18)	22 (23)	1		-	-
26 – 35 years	17 (50)	51 (54)	1.22 (0.42-3.52)	0.710	-	-
≥ 35 years	11 (32)	22 (23)	1.83 (0.58-5.83)	0.360	-	-
Country of birth						
Other	13 (38)	33 (35)	1		-	-
Guiana/France	8 (24)	10 (10)	2.02 (0.66-6.28)	0.220	-	-
Haiti	13 (38)	52 (55)	0.63 (0.26-1.54)	0.310	-	-
Education level						
Never schooled	7 (21)	28 (29)	1		-	-
Schooled	27 (79)	67 (71)	1.61 (0.63-4.13)	0.320	-	-
Matrimonial status						
Single	12 (35)	48 (51)	1		-	-
Couple	22 (65)	47 (49)	1.87 (0.83-4.21)	0.120	-	-
Administrative status of foreigners						
No residence permit	6 (24)	31 (36)	1		-	-
Residence permit	19 (76)	54 (64)	1.82 (0.66-5.03)	0.240	-	-
Housing						
House/appartment	29 (85)	86 (91)	1		-	-
In someone's house	5 (15)	9 (9)	1.65 (0.51-5.32)	0.400	-	-
Socio-economic characteristics						
Type of health insurrance						
AME	5 (15)	29 (33)	1		-	-
CMU	19 (56)	23 (26)	4.79 (1.55-14.79)	**0.006**	-	-
ALD	10 (29)	37 (41)	1.57 (0.48-5.09)	0.460	-	-
Profession						
No	25 (74)	88 (93)	1		**1**	
Yes	9 (26)	7 (7)	4.53 (1.53-13.37)	**0.006**	**5.62 (1.30-24.26)**	**0.020**
Number of children to care for						
≤ 1 child	5 (15)	12 (13)	1		-	-
2-6 children	6 (17)	38 (40)	0.38 (0.1-1.47)	0.160	-	-
≥ 6 children	23 (68)	45 (47)	1.23 (0.39-3.9)	0.730	-	-
Mode of transport						
Other modes	20 (59)	82 (86)	1		-	-
Private car	14 (41)	13 (14)	4.42 (1.8-10.85)	**0.001**	-	-
Disclosure to the Doctor						
No	22 (65)	90 (95)	1		**1**	
Yes	12 (35)	5 (5)	9.82 (3.13-30.78)	**<0.001**	**12.65 (2.87-55.8)**	**<0.001**
Desired pregnancy						
No	18 (53)	80 (84)	1		-	-
Yes	16 (47)	15 (16)	4.74 (1.99-11.32)	**<0.001**	-	-
Use of condoms						
No	17 (50)	79 (83)	1		-	-
Yes	17 (50)	16 (17)	4.94 (2.09-11.68)	**<0.001**	-	-
Partner's HIV status						
Infected	16 (47)	1 (1)	1		1	
No infected	18 (53)	94 (99)	0.01 (0.005-0.1)	**<0.001**	**0.01 (0.001-0.07)**	**<0.001**
Additional income						
No	5 (15)	17 (18)	1		-	-
Yes	29 (85)	78 (82)	1.26 (0.43-3.74)	0.670	-	-
Benefitted from food parcels						
No	32 (94)	88 (93)	1		-	-
Yes	2 (6)	7 (7)	0.79 (0.16-3.98)	0.770	-	-
Perceptions towards HIV and addictions						
Negative image to others						
Absence	4 (12)	4 (4)	1		-	-
Presence	30 (88)	91 (96)	0.33 (0.08-1.4)	0.130**	-	-

HIV gives a negative representations of HIV						
Absence	7 (21)	9 (9)	1		1	
Presence	27 (79)	86 (91)	6.48 (1.99-21.08)	**0.002****	**5.99 (1.17-30.69)**	**0.032**
Alcohol or tobacco use during pregnancy						
No	29 (85)	77 (81)	1		-	-
Yes	5 (15)	18 (19)	0.16 (0.02-1.27)	0.084	-	-
Marijuana, crack or cocaine use						
No	29 (85)	89 (94)	1		-	-
Yes	5 (15)	6 (6)	0.48 (0.1-2.27)	0.350	-	-
Faiths and attitudes towards the HIV						
Practice of religion						
No	4 (15)	11 (12)	1		-	-
Yes	30 (85)	84 (88)	0.95 (0.28-3.21)	0.930	-	-
Type of religion practiced						
Catholic	11 (37)	32 (38)	1		-	-
Evangelical	19 (63)	52 (62)	1.06 (0.45-2.52)	0.890	-	-
Use of traditional healer						
No	29 (85)	82 (86)	1		-	-
Yes	5 (15)	13 (14)	1.06 (0.45-2.52)	0.900	-	-
The woman has a new partner						
No	33 (97)	76 (80)	1		-	-
Yes	1 (3)	19 (20)	0.12 (0.02-0.94)	0.044****	-	-
Disclosure of HIV status to close ones						
No	25 (74)	92 (97)	1		-	-
Yes	9 (26)	3 (3)	11.04 (2.78-43.86)	<0.001	-	-
Persons who were told about HIV status						
Friends	1 (11)	2 (67)	1		-	-
Siblings, parents	8 (89)	1 (33)	16 (0.67-383.01)	0.087	-	-
Clinical follow up and immunovirological status						
Followed						
No	2 (6)	4 (4)	1		-	-
Yes	32 (94)	91 (96)	0.7 (0.12-4.03)	0.690	-	-
Place of follow up						
Private practice	11 (34)	25 (27)	1		-	-
Hospital	21 (66)	66 (73)	0.82 (0.35-1.93)	0.660	-	-
Modalities of follow up						
Irregular	2 (6)	15 (16)	1		-	-
Regular	30 (94)	76 (84)	2.04 (0.55-7.54)	0.260		
HIV related diseases during pregnancy						
No	29(85)	92(97)	1		1	
Yes	5(15)	3(3)	5.29 (1.19-23.48)	0.029	6.57 (0.66-64.93)	0.136
Number of prenatal visits						
≤ 6	7 (22)	25 (27)	1		-	-
>6	25 (78)	83 (73)	1.38 (0.53-3.56)	0.510	-	-
Viral load, CD4 measured						
No	13 (38)	17 (18)	1		-	-
Yes	21 (62)	78 (82)	0.35 (0.15-0.84)	**0.018**	-	-

* Obtained using conditional logistic regression with indicator variables for non binary variables
* Low power (29%)
*** Low power (28%)
**** Low power (30%)

Table 1: Case and control description, bivariate and multivariate analysis*.

Bivariate analysis

Demographic and socioeconomic risk factors: Factors associated with HIV status disclosure were the existence of a steady job, having a private car for transportation, having informed the doctor, the desire of pregnancy and the use of condoms. On the other hand, when the partner was HIV-negative, it influenced negatively the HIV status disclosure. The partner change also influenced negatively the HIV status disclosure.

Factors without a significant effect: Health insurance was not significantly different between cases and controls. There was no significant difference regarding residence permits for foreign mothers. Transport duration, educational level, understanding of French language and the number of children at home were not significantly associated with the outcome. Partner change and multiple sexual partnerships were not significantly associated with the outcome. The number of pregnancies, the number of known HIV-positive

pregnancies, breastfeeding (four women breastfed their babies), alcohol and tobacco use were not associated with the outcome.

Perceptions towards HIV and addictions: The negative representations of HIV had a positive influence on the disclosure of HIV status. Knowledge about HIV, using tobacco, alcohol or drugs (marijuana, crack, cocaine) were not significantly associated with the outcome.

Faiths and attitudes towards the HIV: The disclosure of the HIV status to other than the partner was significantly associated with the outcome. The proportion of women practicing religion was identical in cases and controls. The practice of religion had no influence on the HIV status disclosure.

Multivariate analysis

The saturated model included education level, mode of transport, profession, disclosure of HIV status to close ones, use of condoms, desired pregnancy, disclosure to the doctor, negative representations of HIV, partner's HIV status and HIV related diseases during pregnancy. The variables that independently predicted for HIV disclosure to the sex partner were the existence of a steady job, disclosure to the doctor, the negative representations of HIV, the partner's HIV status. The number of prenatal visits was not linked to the outcome.

Discussion

Non disclosure of this sexually transmitted infection is a challenging problem for health professionals. So much, there is a vast word literature on HIV disclosure [23-31], so much little is known about HIV disclosure among perinatal women [32-36]. Although the retrospective design and small sample size are weaknesses of the present study, to our knowledge, it is the only study that has studied the topic in this vulnerable group. Prevention of the mother to child transmission of HIV implies knowledge of the interaction of geographic, demographic, cultural, socioeconomic and sanitary factors but, with 70% of fathers unaware of the pregnant women's HIV status, the desire for pregnancy and a family may also lead to the risk of infecting the potential father. Interestingly, nationality, educational level or religion where not associated with differences in disclosure of the pregnant mother's HIV status. Housing conditions or the administrative situation were also not associated with differences in disclosure. However, as described by others [15,32,34], having a job, possession of a personal vehicle, having discussed the desire for pregnancy with a physician, a desired pregnancy for the couple and condom use were factors associated with disclosure of the pregnant woman's HIV status to the father of her child. Having health insurance also seemed associated with greater disclosure. Negative representations of HIV (HIV as a curse), having a new partner and the fact that the father was HIV negative were independently risk factors for not disclosing the HIV status.

Although, it often reflects poverty and cause problems to conceal one's illness (treatments, prescriptions may reveal the disease…), living in someone else's home was not a risk factor for not disclosing the HIV status.

Foreign populations often have different representations of health and diseases. Religion and supernatural beliefs are often at the forefront. The first priority is daily survival and the search for local integration, and the struggle to obtain a residence permit and avoid expulsion. However, these variables did not evidently seem to relate to disclosure in pregnant women. This is at odds with the VESPA study, in the general HIV cohort that found that there were differences between nationalities in disclosure and condom use.

A regular follow up of HIV-infected patients is mandatory for the initiation of appropriate antiretroviral therapy and pregnancy follow up [37]. HIV representations in French Guiana are still very negative. Stigma and discrimination remain major obstacles to HIV disclosure [15-17,34]. Economic dependency makes the announcement of a woman's HIV status a gamble where she can be abandoned, without a home and without resources [15-17,38]. Delay to disclose the diagnosis adds a layer of lies to disclose to the father in addition to the diagnosis itself. Nearly 20% of infected persons living in a couple do not disclose their status to their partner [14,39]. Apparently, this figure is even higher in pregnant women. This is problematic for the follow up of women and their children after delivery, because of the potentially revealing questions of the child's father.

The promotion of HIV disclosure and the greater implication of the future father seem intuitive responses; however they could backfire and lead to pregnant women avoiding care altogether [40-41].

Conclusion

The present study showed, despite its shortcomings, the rarity of HIV disclosure and factors associated with it. Non-disclosure is a risk factor for treatment and follow up avoidance, and potential transmission of the virus to the father and the child. Knowing these factors may help in preventing loss to follow up and ensuring optimal care and treatment as prevention.

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