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HIV infection among young parturient women in Brazil: prevalence and associated risk factors

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Abstract

Our goal was to estimate prevalence of HIV among young women in labor. A national, probability-based, cross-sectional study was performed among pregnant women, aged 15–24 years, who were attending Brazilian public hospitals. The study included 2,071 of 2,400 women selected (86.3% participation). Mean age was 20.2 years (SD = 2.7). HIV prevalence was 0.7% (95% CI, 0.4%–1.1%). Living in the North region of the country and having previous sexually transmitted infections were associated with HIV infection. Our survey of young pregnant women found higher prevalence than expected for women of all ages in Brazil (0.42%), indicating that the epidemic persists among heterosexuals.

Keywords

HIV; pregnancy; Brazil; risk factors; youth

INTRODUCTION

According to the 2008 UNAIDS report on HIV, only 38% of young women worldwide have accurate and comprehensive knowledge of HIV/AIDS, and norms related to femininity can prevent women, especially young women, from accessing HIV information and services (1). Brazil has a large HIV epidemic, with 608,230 cumulative cases of AIDS reported through June 2011 (2). Nationally, HIV prevalence among adult women is 0.42%, and among men 0.82% (2,3). Although men account for the majority of infections, women account for a larger share of cases since the early years of the epidemic, with the male-to-female ratio of AIDS cases shrinking from 15:1 in 1986 to 1.5:1 in 2009. However, among younger groups, this gender ratio is inverted, with more women under the age of 24 years infected than their male counterparts (1,2).

A consequence of young women being HIV infected is mother-to-child transmission (MTCT). At the end of 2009, slightly more than half of HIV-infected pregnant women in Brazil received antiretroviral therapy (ART) for prevention of mother-to-child transmission (PMTCT) (2). While large numbers of infected pregnant women are still not accessing treatment, particularly in poorer areas, the availability of ART has had an impact. The national MTCT rate fell fourfold between 1997 and 2004 (2).

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The benefits of PMTCT in Brazil could therefore be greatly increased by the implementation of universal and voluntary antenatal testing (4–6). Voluntary counseling and HIV testing is a key element of all programs for reduction of mother-to-child sexually transmitted infections (STI) transmission (5,6). In Brazil, many women still do not have access to adequate counseling, and rates of HIV transmission remain above the proposed goals set by the Ministry of Health for 2011 (1).

In order to estimate the unmet need for HIV testing and PMTCT services, we conducted a national survey to determine the prevalence of HIV infection, its associated risk factors, and uptake of HIV testing among young women in labor attending Brazilian public maternity units.

METHODS

A cross-sectional study of women in labor at Brazilian public hospitals was carried out in 2009. Women who attended selected maternity units in five geographic macroregions of Brazil between March and November 2009 were invited to take part in the study. Each participant was interviewed by a trained health professional. A face-to-face questionnaire was used for collection of socio-demographic, behavioral and clinical information. The participants were screened for HIV infection during labor.

Sampling was performed in two stages. In the first stage, 24 of 1070 public health system maternity units were randomly chosen, with probability proportional to size, established by the number of childbirths in the year prior to the study. The choice of maternity units was organized by geographic macro-region (North, Northeast, Midwest, Southeast, and South). One hundred women were selected in each health facility. At the time of their admittance for childbirth, an interview was conducted to complete a standardized questionnaire.

Chi-square (χ^2) and Fisher's exact tests were used to assess differences in proportions, and the Student *t* test and variance analysis were used for testing differences between mean values. Independent risk factors for HIV were assessed through multiple logistic regression, with .15 as the critical P value for variable entry and .10 as the criterion for variable elimination.

This project was reviewed and approved by the Research Ethics Committee of the Health Sciences Centre of the Federal University of Espírito Santo (approval no.112/07) and the ethical committee of each maternity unit in the study. All women selected were invited to take part voluntarily in the study, and those who accepted signed a written consent form.

RESULTS

A total of 2,400 women in labor were invited to participate, and 2,071 (86.3%) of them consented. No specific information was gathered on nonrespondents. The mean age was 20.2 years (SD = 2.7), and the mean years of formal education was 8.0 (SD = 2.4). HIV prevalence was 0.7% (95% CI, 0.4%–1.1%).

Table 1 describes associations with HIV in this group of young women. Living in the North region, reporting more than one partner in the last year, and previous STI were associated with HIV infection.

A total of 1,974 women (95.5%) attended antenatal care; of these, 7.1% (141) did not test for HIV during pregnancy and one was HIV positive. Fourteen (0.7%) reported injectable drug use, and 16 (0.8%) had a history of commercial sex work; none tested HIV positive. A total of 18 (0.9%) had a positive VDRL test result.

Multiple logistic regression analysis found that living in the North region [AOR = 2.0 (95% CI, 1.07–3.73)] and having a previous STI [AOR = 42.5 (95% CI, 1.89–168.49)] remained independently associated with HIV infection.

DISCUSSION

Our data indicate that the HIV epidemic among women, mothers, and heterosexuals in Brazil is far from over. We found a prevalence of 0.7% among young pregnant women - a figure higher than the prevalence reported in the general population of women (2) and all the more worrisome because of their young age. Our study also found that most did not report individual risk factors, which suggests they became infected due to their male partners' risk behaviors (2,3).

Young people remain significantly affected by HIV, accounting for 41% of all new infections among 15- to 49-year-olds (1). Young women between the ages of 15 and 19 years are particularly vulnerable to HIV because of gender inequalities, sexual violence, early marriage, intergenerational relationships, and more limited access to education.

Despite free access to ART in Brazil, a considerable number of HIV-infected pregnant women do not benefit from the preventive measures recommended by the Brazilian Ministry of Health (2). HIV testing may be skipped or omitted due to social status or regional discrepancies in the health system. Late detection of HIV infection during antenatal care represents a missed opportunity for intervention among infected pregnant women, and it limits the possibilities for reducing the incidence of pediatric cases by MTCT (7,8).

Access to a diagnosis of HIV infection and to proper voluntary counseling and testing services offers women of childbearing age a valid option to discuss reproductive health issues and thereby reduce the frequency of unwanted pregnancies (5,6). Counseling services can play a dual role of preventing HIV transmission and other STI as well as improving access to reproductive health information and care (8).

MTCT of HIV decreased from 16% in 1997 to less than 4% in 2010 (2). However, there are large geographic differences in the risk factors, as suggested by the significantly higher prevalence of HIV in the North region. The overall vastness of Brazil, difficulty of traveling to health care facilities, and socioeconomic inequalities are likely contributors to this higher prevalence. In addition, a disproportionate share of national resources is concentrated in the metropolitan areas of the Southeast region rather than in the North and Northeast regions and the Amazon basin.

Given the low prevalence of HIV and certain risk factors in this sample, the number of women studied was not sufficient to identify statistical associations between certain independent variables and the outcome. The possibility of biased answers cannot be ruled out due to the general tendency to give socially acceptable responses during face-to-face interviews. Furthermore, we cannot determine the time of HIV diagnosis in order to determine if it occurred "late". Our point was to highlight that some of these women did not receive their diagnosis during antenatal care.

A nearly complete eradication of MTCT of HIV is within reach; however, adequate coverage has not yet been ensured for all women with positive HIV test results. To broaden coverage, the Brazilian government has set in motion a series of initiatives that aim to improve the quality of care for pregnant women. PMTCT of HIV is highly feasible but requires multiple strategies at different levels. Public AIDS education and reproductive health services must develop effective prevention strategies that target young women, enabling them to avoid HIV infection and other STI.

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Table 1

Characteristics and risk factors for HIV infection among young women in labor attending public hospitals in 5 geographic regions of Brazil (n = 2071)

Variables	HIV positive N (%)	HIV negative N (%)	P value
Education			
<= 8 years	10 (0.8)	1214 (99.2)	.550
> 8 years	5 (0.6)	842 (99.4)	
Monthly income			
<= 2 BMI*	6 (0.5)	1193 (99.5)	.159
> 2 BMI	9 (1.0)	863 (99.0)	
Marital status			
Stable partner	8 (0.5)	1489 (99.5)	.100
No stable partner	7 (1.2)	567 (27.6)	
Geographical region			
North	6 (2.2)	263 (97.8)	.012
Northeast	5 (0.7)	691 (99.3)	
Southeast	2 (0.3)	712 (99.7)	
South	0 (0.0)	233 (100.0)	
Midwest	2 (1.3)	157 (98.7)	
Age at first sexual intercourse			
< 15 years old	6 (0.9)	674 (99.1)	.553
>= 15 years old	9 (0.6)	1382 (99.4)	
Number of partners in last year			
More than one	3 (2.9)	102 (97.1)	.037
Only one	12 (0.6)	1954 (99.4)	
Previous STI			
Yes	12 (11.7)	91 (88.3)	.001
No	3 (0.2)	1965 (99.8)	
History of sexual assault			
Yes	1 (1.9)	51 (98.1)	.318
No	14 (0.7)	2005 (99.3)	
Illicit drug use			
Yes	2 (1.6)	124 (98.4)	.231
No	13 (0.7)	1932 (98.4)	