

# Epidemiological aspects of pregnant women with human immunodeficiency virus in Brazil

Elóisa A Galão<sup>1</sup>, José Maria Pereira de Godoy<sup>2</sup>, Lúcia Buchalla Bagarelli<sup>1</sup>, Lúcia Sílvia Aparecida Perea<sup>1</sup>, Antonio Helio Oliani<sup>1</sup>

<sup>1</sup>Department of Gynecology of São José do Rio Preto University School of Medicine, São Paulo, Brazil

<sup>2</sup>Department of Cardiology and Vascular Surgery, São José do Rio Preto University School of Medicine, São Paulo, Brazil

**Submitted:** 5 April 2007

**Accepted:** 29 May 2007

Arch Med Sci 2007; 3, 2: 142-144

Copyright © 2007 Termedia & Banach

**Corresponding author:**

José Maria Pereira de Godoy,  
MD, PhD

Rua Floriano Peixoto, 2950  
São José do Rio Preto, SP – Brazil  
CEP: 15010-020

E-mail:

godoyjmp@riopreto.com.br

## Abstract

**Introduction:** The aims of the current study are to report on preliminary epidemiological data of pregnant women with human immunodeficiency virus (HIV).

**Material and methods:** HIV tests of 4653 pregnant women from São José do Rio Preto, Brazil between May 1995 and May 1997 were assessed, and the following epidemiological aspects were noted: age ethnic background, number of gestations, marital status, type of delivery, and the patients' knowledge about the disease including: forms of transmission, diseases associated with positive cases, and the difficulties in and evolution of the approach to the disease in Brazil. Statistical analysis used percentages with means and standard deviation.

**Results:** HIV tests were positive in 48 (1.03%) of the pregnant women. The mean age was 24.3±0.6 years. 35 (72.9%) of the individuals were married and 13 (27.1%) had been pregnant one to four times previously. 52.0% knew they were HIV positive and in 23 (48.0%), diagnoses was made during the consultations for this pregnancy. In 25 (52.0%) the form of transmission was unknown; events and gravid diseases occurred in 4 (31.2%) cases. In 38 (79.2%) cases delivery occurred before the 36<sup>th</sup> week of gestation, with delivery being vaginal in 38 (79.2%) cases, and there were puerperal complications in 8 (16.7%).

**Conclusions:** The routine examination to test for HIV during pregnancy allows the identification of women who are unaware of infection by the virus and performance of medicinal prevention for these pregnant.

**Key words:** HIV, AIDS, pregnancy and HIV, vertical transmission.

## Introduction

The human immunodeficiency virus (HIV) was first identified in 1983 with the serological diagnosis achieved mainly by the Enzyme Linked Immunoassay (ELISA) and Western Blot methods [1, 2].

An important improvement in the treatment of the disease occurred in 1994 with the 076 protocol of the Aids Clinical Trial Group (PACTG 076) showing that the use of zidovudine (AZT) by pregnant women reduces vertical transmission by 67% [3, 4]. Currently, anti-retroviral therapy reduces the maternal plasma viral load to undetectable levels and also reduces transmission of HIV to the baby [5].

In this period the technical and financial difficulties and the approach to the disease and acceptance by patients were widespread in Brazil.

However, the Brazilian government took effective measures in the pre-natal period that allowed a reduction in the vertical transmission of HIV by making testing routine and providing zidovudine combined with other anti-retroviral agents to infected pregnant women [5].

The aim of the current study is to report on preliminary epidemiological data in the evaluation of pregnant women with HIV and improvements in the approach to the disease in Brazil.

## Material and methods

A prospective study was performed of pregnant women who attended the prenatal outpatients' clinic of Hospital de Base in São José do Rio Preto, Brazil between May 1995 and May 1997, when HIV-positive individuals being identified. After consenting to participate, 4653 pregnant women were tested for HIV as a routine examination in the first prenatal consultation. Epidemiological aspects were noted including age, ethnic background, number of gestations, marital status, type of delivery, and the patients' knowledge about the disease including: forms of transmission, diseases associated with positive cases, and the difficulties in and evolution of the approach to the disease in Brazil. Serological tests were made employing the ELISA method (DADE-BEHRING) and if positive, the test was repeated; if the second result was also positive, the *Western Blot method (Bio-Merieux)* was utilized to confirm the diagnosis. Data were inputted in the GraphPad InStat computer program, and statistical analysis used percentages with means and standard deviation.

## Results

HIV tests were positive in 48 (1.03%) of the pregnant women; the mean age was  $24.3 \pm 0.6$  years. 35 (72.9%) of the individuals were married and 13 (27.1%) had been pregnant one to four times previously. 52.0% knew they were HIV positive, and in 23 (48.0%), diagnoses was made during the consultations for this pregnancy. In 25 (52.0%) the form of transmission was unknown; events and gravid diseases occurred in 4 (31.2%) cases. In 38 (79.2%) cases delivery occurred before the 36<sup>th</sup> week of gestation, with delivery being vaginal in 38 (79.2%) cases, and in 8 (16.7%) there were puerperal complications (Table I).

## Discussion

The current study presents epidemiological data and reports events in one of the main routine evaluation centers for HIV in Brazil. The inclusion of anti-HIV testing was important to reduce the stigma related to the examination. In the USA, from 1995, performing the test was recommended for

**Table I.** The main epidemiological data of women infected with HIV during pregnancy in a teaching hospital in Brazil

Pregnant women infected with HIV	<b>N=48</b>
Age (mean±SD)	24.3±0.6
<b>Ethnic background</b>	<b>N (%)</b>
Caucasians	20 (41.7%)
Negroes	35 (72.9%)
<b>Marital status</b>	
Single	13 (27.1%)
Married	35 (72.9%)
<b>Gestation</b>	
1 <sup>st</sup>	10 (2.8%)
2 <sup>nd</sup> -5 <sup>th</sup>	32 (66.7%)
>6 <sup>th</sup>	6 (12.5%)
Mean number of gestations	3.3±0.3
<b>Knowledge of infection</b>	
Knew they were infected before pregnancy	23 (48.0%)
Diagnosis was performed at the first prenatal consultation	23 (48.0%)
<b>Transmission</b>	
Infected husband	18 (38.4%)
Promiscuous behavior	2 (4.2%)
Use of intravenous drugs	1 (2.0%)
Partner used intravenous drugs	2 (4.2%)
Transmission remains unknown	??? (52.1%)
<b>Gestational associated diseases</b>	<b>15 (31.3%)</b>
Hepatitis C	6 (27.3%)
Pneumonia	5 (27.3%)
Systemic lupus erythematosus	2 (9.1%)
Urine tract infection	8 (36.3%)
Molluscum contagiosum	1 (4.5%)
Condyloma acuminata	1 (4.5%)
Herpes zoster	1 (4.5%)
Sinusitis	1 (4.5%)
Otitis	1 (4.5%)
Neurosyphilis	1 (4.5%)
Neurocryptococcosis	1 (4.5%)
Puerperal complications	8 (16.7%)
<b>Gestational age at birth</b>	
<37 weeks	10 (20.8%)
>37 weeks	38 (79.2%)
Mean gestation at childbirth	37.8±3.4
<b>Delivery</b>	
Normal childbirth	10 (20.8%)
Cesarean Section	38 (79.2%)
<b>Gravid Conditions</b>	
Premature amniotic rupture	6 (33.3%)
Preeclampsia	2 (11.1%)

every pregnant woman who wanted to do so; however, in Brazil, testing became routine from November 1997 [6].

The highest prevalence of positive tests (72.9%) was for married women, a marital status considered stable, showing that marriage is not without risks in the sexual relationships of a couple, and thus protection needs to be used. Another aspect that was identified was that 52% of the women knew they were infected and still became pregnant, and so mechanisms to protect babies from vertical contamination are essential. This study showed that 42% of the women did not know they were infected, and testing at the start of pregnancy prevented vertical transmission with special care for the pregnant woman. The antiviral medication routinely employed reduces the risk of vertical transmission [6, 7]. The greatest prevalence of positive tests was in patients who had had more than two gestations; the mean number of gestations was  $3.3 \pm 0.3$ . The fact that these patients became pregnant again is a motive for reflection showing the necessity to intensify family planning programs and educational campaigns discussing vertical transmission. Illegal drugs and promiscuity were other risk factors identified in this study. Gestational events, such as opportunist infections, are more common in this population than in healthy women.

The 12<sup>th</sup> World Congress on AIDS in July 1998 showed that the most common form of transmission was sexual contact, with an increase in the number of affected heterosexuals since the 1990s. The second most common form of transmission is by intravenous drug use using syringes contaminated with the HIV virus [5, 8].

Over the last few years, access to drugs to control the disease has been free of charge, prevention programs and routine testing of pregnant women have extended the lives of patients, and there is better control of vertical transmission.

## Conclusions

The routine examination to test for HIV during pregnancy allows the identification of women who are unaware of infection by the virus and performance of medicinal prevention for these gravidas.

## References

1. Barre-Sinoussi F, Chermann JC, Rey F, et al. Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science* 1983; 220: 868-71.
2. Nadler J. Etiopatogenia. In: Veronesi R, Focacci R, editors. *Tratado de Infectologia*. São Paulo, Rio de Janeiro, Belo Horizonte: Atheneu; 1997. p. 83-6.
3. Clavel F, Mansinho K, Chamaret S, et al. Human immunodeficiency virus type 2 infection associated with AIDS in West Africa. *N Engl J Med* 1987; 316: 1180-5.

4. Connor EM, Sperling RS, Gelber R, et al. Reduction of maternal-infant transmission of human immunodeficiency virus type 1 with zidovudine treatment. Pediatric AIDS Clinical Trials Group Protocol 076 Study Group. *Clin Infect Dis* 2005; 40: 458-65. Epub 2005 Jan 7.
5. Secretaria de Vigilância Epidemiológica. Programa Nacional de DST/AIDS. Recomendações para profilaxia da transmissão vertical do HIV e terapia anti-retroviral em gestantes, 2002/2003. Brasília (DF): Ministério da Saúde; 2003. 998; 12: 513-20.
6. BRASIL. Ministério da Saúde do Brasil. Coordenação Nacional de DSTs/AIDS. Boletim Epidemiológico - AIDS. Ano X, n. 3. Semana Epidemiológica, Julho a Agosto de 1997.
7. Suksomboon N, Poolsup N, Ket-Aim S. Systematic review of the efficacy of antiretroviral therapies for reducing the risk of mother-to-child transmission of HIV infection. *J Clin Pharm Ther* 2007; 32: 293-311.
8. Ceballos A, de Los Angeles Pando M, Liberatore D, et al. Efficacy of strategies to reduce mother-to-child HIV-1 transmission in Argentina, 1993-2000. *J Acquir Immune Defic Syndr* 2002; 31: 348-53.