

CLINICAL AND EPIDEMIOLOGICAL PROFILE AND REPRODUCTIVE OUTCOME IN HIV-INFECTED PREGNANT WOMEN ASSISTED AT A UNIVERSITY HOSPITAL MATERNITY IN VITÓRIA, BRAZIL

PERFIL CLÍNICO E EPIDEMIOLÓGICO E DESFECHO REPRODUTIVO EM GESTANTES INFECTADAS PELO HIV ATENDIDAS NA MATERNIDADE DE UM HOSPITAL UNIVERSITÁRIO EM VITÓRIA, BRASIL

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ABSTRACT

Introduction: The infection by the human immunodeficiency virus (HIV), as well as the acquired immune deficiency syndrome (Aids), a worldwide epidemic, may lead to serious consequences in terms of maternal and fetal morbidity and mortality. **Objective:** To describe the clinical and epidemiological profiles and the reproductive outcome in HIV-infected pregnant women. **Methods:** Cross-sectional study, with 109 pregnant women infected by HIV who had their termination in a university hospital maternity in Vitória, Espírito Santo, from November 2001 to May 2012. The data were extracted from medical and public records. **Results:** The most prominent findings among the cases were average maternal age of 28 years, non-white (76.1%), up to 8 years of elementary school (63.3%), housewives (59.4%) and marital status married/cohabitation (70.6%). The nulliparous were 24.1%, and 15.7% had 3 or more childbirths, 33% had a diagnosis of HIV infection during pregnancy, and 53.7% of pregnant women met the criteria for Aids. The cesarean occurred in 82.6% of cases, preterm birth in 17.4%, and low birth weight in 23.9% and perinatal death in 4.6% of the newborns. **Conclusion:** It has been observed, in this casuistry, a pregnant women profile of low socioeconomic level. Preterm birth and perinatal death were more common than in the general population, indicating the need for preventive actions for monitoring the HIV infected pregnant women in order to reduce these events.

Keywords: HIV; pregnancy; health profile; perinatal death.

RESUMO

Introdução: A infecção pelo vírus da imunodeficiência humana (HIV), assim como a Síndrome da Imunodeficiência Adquirida (Aids), uma epidemia mundial, pode acarretar graves consequências em termos de morbidade e mortalidade materna e fetal. **Objetivos:** Descrever o perfil clínico e epidemiológico, e o desfecho reprodutivo em gestantes infectadas pelo HIV. **Métodos:** Estudo de corte transversal, com 109 gestantes infectadas pelo HIV que tiveram terminação na maternidade de um hospital universitário em Vitória, Espírito Santo, entre novembro de 2001 e maio de 2012. Os dados foram extraídos de prontuários médicos e registros públicos. **Resultados:** Os achados mais marcantes entre os casos foram idade materna média de 28 anos, pardas e negras (76,1%), até 8 anos do Ensino Fundamental (63,3%), ocupação do lar (59,4%) e casada/união estável (70,6%). Eram nulíparas 24,1%, e 15,7% com 3 ou mais partos, 33% tiveram o diagnóstico de infecção pelo HIV durante a gestação atual, sendo 53,7% das gestantes com critérios para Aids. O parto cesáreo ocorreu em 82,6% dos casos, parto prematuro em 17,4%, baixo peso ao nascer em 23,9% e morte perinatal em 4,6% dos recém-nascidos. **Conclusão:** Observou-se nesta casuística a ocorrência de um perfil de gestantes de baixo nível socioeconômico. O parto prematuro e a morte perinatal foram mais comuns que na população em geral, sinalizando para a necessidade de ações preventivas durante o acompanhamento da gestante infectada pelo HIV para redução desses eventos.

Palavras-chave: HIV; gestação; perfil de saúde; morte perinatal.

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INTRODUCTION

Infection by human immunodeficiency virus (HIV) is a worldwide epidemic, with serious consequences in terms of maternal-fetal morbidity and mortality, demanding enormous efforts and resources to their confrontation⁽¹⁾. Women already represent half of people living with HIV in the world, with increasing incidence in many countries^(1,2), attributed to biological⁽²⁾, socioeconomic and behavioral factors⁽²⁻⁴⁾.

The reproductive outcome in pregnant women infected with HIV has been studied, as well as strategies for reducing mother-to-child transmission (MTCT), due to frequent detection of the virus during the gestational period after the implementation of routine serological testing^(5,6).

These studies were needed for the elaboration of more suitable care protocols to this population and the actions of information dissemination to the general population, especially women in reproductive period.

This study had as its main purpose to describe the characteristics of these women and the reproductive outcome because of the great relevance of knowing the clinical-epidemiological profile of these pregnant women, as well as the maternal and fetal consequences, in order to guide preventive intervention to reduce the impact of HIV infection on the health of the woman and the child.

OBJECTIVE

To describe the clinical and epidemiological profile of HIV infected pregnant women, as well as the reproductive outcome in them.

METHODS

A cross-sectional study was developed with HIV-infected pregnant women with parturition in the maternity ward of a university hospital, reference in the assistance of HIV infected pregnant women in the municipality of Vitória, Espírito Santo, between November 2001 and May of 2012.

Among the 250 births of HIV-infected pregnant women that occurred in this period, 109 non gemelar pregnancies, with data on gestational age (GA), HIV infection immune state (HIV and Aids) and concept data, were included in the study. It was considered preterm birth those occurred before the 37th week of gestation. The variables of this study were the demographic, clinical, laboratory, obstetric and neonatal data. The data were extracted

retrospectively from medical and public records, and tabulated in Excel spreadsheet (Microsoft Office 2010) for simple frequency calculation on each category. There was no patient approach for data collection. This study has been approved by the Institution's Research Ethics Committee.

RESULTS

It was observed a frequency of 1.2% (250) of HIV infected pregnant women out of 20,942 terminations in the analyzed period. In this casuistry, 109 cases whose gestational age was confirmed by ultrasound performed until 20 weeks were included. As for the age group, 50% of pregnant women were between 24 and 32 years and 97% were in the ideal reproductive age.

It was found that 76.1% were black and browns, 63.3% with up to 8 years of elementary education, 59.4% were housewives, 70.6% were married/in stable relationship, and 86.1% were residing within the metropolitan area in Vitória (**Table 1**).

Smoking was reported by 25.2%, alcohol use by 8.4% and illicit drugs use by 8.5% of the pregnant women. Among the patients, 34.9% made less than 6 prenatal consultations, the same being considered inadequate (**Table 2**).

Regarding obstetric history, 24.1% were nulliparous and 15.7% had 3 or more childbirths.

As for the moment of diagnosis, it was observed that 33% of pregnant women had diagnosis of HIV infection during pregnancy

Table 1 – Demographic characteristics of HIV/Aids gestations.

Variable	All			HIV(+)			Aids		
	Ef #	F	f %	Ef #	F	f %	Ef #	F	f %
Maternal age	109			50			58		
16 to 35 years		97	89,0		46	92,0		50	86,2
>35 years		12	11,0		4	8,0		8	13,8
Race/ethnicity	109			50			58		
White		26	23,9		9	18,0		17	29,3
Brown		48	44,0		22	44,0		25	43,1
Black		35	32,1		19	38,0		16	27,6
Education	109			50			58		
Illiterate		3	2,8		1	2,0		2	3,4
1 to 4 years		31	28,4		14	28,0		17	29,3
5 to 8 years		35	32,1		18	36,0		17	29,3
9 to 11 years		37	33,9		16	32,0		20	34,5
12 or more		3	2,8		1	2,0		2	3,4
Occupation	107			48			58		
Housewife		64	59,8		28	58,3		35	60,3
Manual		25	23,4		12	25,0		13	22,4
Other		18	16,8		8	16,7		10	17,2
Marital status	106			49			57		
Married		25	23,6		8	16,3		17	29,8
Stable union		52	49,1		27	55,1		25	43,9
Single		25	23,6		11	22,4		14	24,6
Other		4	3,8		3	6,1		1	1,8
Residence municipality	108			50			58		
Vitória		35	32,4		17	34,0		18	31,0
Others in metro Vitoria		58	53,7		26	52,0		32	55,2
Country		15	13,9		7	14,0		8	13,8

Ef #: Effective number; F: absolut frequency; f: relative frequency.

and 18.8% in previous pregnancies. Fifty-one (46.8%) became pregnant with Aids diagnosis prior. Fifty-eight cases (53.7%) presented Aids defining criteria during the study, 50 (46.3%) did not present it, and in only one case the stage of the disease was unknown. The laboratory findings relating to lymphocytes T CD4 count and viral load are shown in **Table 3**.

Regarding parturition, in 17.4% of cases the birth was vaginal, 41.1% occurred in labor, being 33.3% spontaneous and 2.8% induced. There was spontaneous rupture of membranes in 21.7% of cases (**Table 4**). Gestational age ranged from 26 to 41 weeks, averaging 37.3 ± 2.9 and 38 median, being 50% of the cases between 37 and 39 weeks. Preterm birth occurred in 17.4% (95%CI 10.3–24.5), and post-term delivery was not found in this study (**Table 3**).

In the group of patients with a diagnosis of Aids, we observed one case of puerperal infection and one case of maternal death by neurotoxoplasmosis.

It was observed 54.1% of female newborn in this series. The Apgar score of less than or equal to 7 in the first minute was observed in 3.8% (95%CI 0.1–7.5).

Among all the cases, the assistance in the Neonatal Intensive Care Unit (NICU) was needed in 22.3% (95%CI 14.3–30.3). Low birth weight occurred in 23.9%, and perinatal death in 4.6% of newborns (NB) (95%CI 0.7–8.5).

Zidovudine (AZT) intravenous in prepartum was used in 93.2% of women in labour. A follow-up of more than 18 months of post-natal life was observed in 85 cases of RN in pediatric infectious diseases services, and vertical transmission (TV) was verified in 3 cases (3.5%) (**Table 5**).

Table 3 – HIV Infection characteristics in 109 pregnancies.

Variables	Ef #	F	f %
Diagnosis moment	109		
Previous to gestation		73	
Current gestation		36	
At labour		0	20.8
Sexual partner status	55		79.2
HIV (+)		28	
HIV (-)		27	11.2
Disease duration	108		88.8
<1 year		22	
1 to 3 years		35	17.3
>3 years		51	82.7
Case classification	108		
Aids		58	0.9
Non Aids		50	99.1
Lower CD4 during gestation	93		
0 to 199		10	5.8
200 to 349		19	94.2
350 to 999		63	
>999		1	2.9
Higher viral load during gestation	88		97.1
<1000		50	
1000 to 10000		20	7.8
>10000		18	20.5

Ef #: Effective number; F: absolut frequency; f: relative frequency.

Table 2 – Gestation characteristics and current termination of 109 HIV/Aids pregnant women.

Variable	All			HIV(+)			Aids		
	Ef #	F	f %	Ef #	F	f %	Ef #	F	f %
Prenatal adequability	106			49			57		
Adequate		69	65.1		32	65.3		37	64.9
Inadequate		37	34.9		17	34.7		20	35.1
Prenatal location	104			18			33		
HUCAM		45	43.3		16	88.9		29	87.9
Other institution		59	56.7		1	5.6		4	12.1
Body Mass Index	103			48			55		
Leanness		11	10.7		6	12.5		5	9.1
Normal		64	62.1		29	60.4		35	63.6
Overweight		21	20.4		8	16.7		13	23.6
Obesity		7	6.8		5	10.4		2	3.6
Tabagism	107			50			56		
Yes		27	25.2		13	26.0		14	25.0
No		80	74.8		37	74.0		42	75.0
Ethanol use	107			50			58		
Yes		9	8.4		6	12.0		3	5.2
No		98	91.6		44	88.0		55	94.8
Illicit drug use	106			49			56		
Yes		9	8.5		5	10.2		4	7.1
No		97	91.5		44	89.8		52	92.9
Medical intercorrences	109			50			58		
Yes		51	46.8		25	50.0		26	44.8
No		58	53.2		25	50.0		32	55.2

Ef#: Effective number; F: absolut frequency; f: relative frequency

DISCUSSION

The prevalence of HIV-infected pregnant women in this study (1.2%) was greater than the observed by Miranda and collaborators in a cohort of young pregnant women, with an average of 20.2 years, during labor in Brazilian public hospitals (0.7%)⁽⁴⁾.

Sociodemographic characteristics of pregnant women in the study (**Table 1**) make up a typical pregnant women profile seen in Brazilian public maternity hospitals, as reported in other regional studies (7.8) or Brazilians^(9,10).

Knowing the sociodemographic and health profile and the prenatal monitoring of pregnant women infected with HIV is of great importance to improve welfare services and tailor strategies for prevention of adverse perinatal outcomes. Socioeconomic conditions can affect the perception of the risks of HIV contamination, which is the main reason to study this variable⁽¹¹⁾.

In a study of black women living with HIV/Aids in the State of São Paulo, it was observed the occurrence of social inequality of this population, which is seen by low schooling and inequity in accessing health services⁽⁹⁾, also observed in our study.

Although it has been found important prevalence of smoking (25%) in this series, it was not possible to compare it with other Brazilian studies due to lack of data on this variable. This limitation has also been found by other authors in order to evaluate prevalence of tobacco, alcohol and drugs use in HIV-infected pregnant women⁽¹²⁾.

It is important to highlight that only 65% of the women made the 6 prenatal consultations, being 43.7% at the university hospital where the study was conducted (HUCAM/UFES), and that only 62.1% had good nutritional status assessed by body mass index (BMI) prior to pregnancy (leanness in 10.7%, 20.4% in obesity and overweight in 6.8%). In Brazil, the percentage of pregnant women during prenatal care that held 6 consultation and all basic examinations, including HIV, is around 4%⁽¹³⁾.

Taken altogether, these findings reveal several risk conditions of pregnant women infected with HIV and allow characterizing the material as a group vulnerable to bad reproductive outcome, such as prematurity and its consequences, without even considering the assault by HIV. Prenatal care is the moment to approaches for minimizing many of these risks, adopting prevention and care measures.

Table 4 – Gestation characteristics and current terminations in 109 pregnant women.

Variables	All			HIV(+)			Aids		
	Ef #	F	f %	Ef #	F	f %	Ef #	F	f %
Maternal anemia	101			46			55		
Yes		21	20.8		10	21.7		11	20.0
No		80	79.2		36	78.3		44	80.0
Arterial hypertension (chronic or PIH)	107			48			57		
Yes		12	11.2		5	10.4		7	12.3
No		95	88.8		43	89.6		50	87.7
Urinary Infection	104			47			57		
Yes		18	17.3		9	19.1		9	15.8
No		86	82.7		38	80.9		48	84.2
Diabetes mellitus	107								
Yes		1	0.9		-			-	
No		106	99.1		-			-	
Syphilis	104			47			57		
Yes		6	5.8		6	12.8		1	1.8
No		98	94.2		41	87.2		56	98.2
HSV Infection	105			49			56		
Yes		3	2.9		1	2.0		2	3.6
No		102	97.1		48	98.0		54	96.4
HPV Infection	103			47			56		
Yes		8	7.8		5	10.6		3	5.4
No		95	92.2		42	89.4		53	94.6
Labour	107			49			58		
Spontaneous		41	38.3		23	46.9		18	31.0
Induced		3	2.8		2	4.1		1	1.7
No labour		63	58.9		24	49.0		39	67.2
Membrane rupture	106			49			57		
Spontaneous		23	21.7		13	26.5		10	17.5
Artificial		83			36	73.5		47	82.5
Delivery mode	109			50			58		
Vaginal		19	17.4		14	28.0		5	8.6
Cesarean		90	82.6		36	72.0		53	91.4

Ef #: Effective number; F: absolut frequency; f: relative frequency.

Table 5 – Fetal outcome characteristics in 109 gestations.

Variables	All			HIV(+)			Aids		
	Ef #	F	f %	Ef #	F	f %	Ef #	F	f %
Fetal gender	109			50			58		
Male		50	45.9		17	34.0		33	56.9
Female		59	54.1		33	66.0		25	43.1
Apgar index for 1 st minute	104			48			56		
4 ou less		1	1.0		0	0.0		1	1.8
5 to 6		3	2.9		2	4.2		1	1.8
7 or more		101	97.1		46	95.8		54	96.4
NICU attention	103			47			56		
Yes		23	22.3		10	21.3		13	23.2
No		80	77.7		37	78.7		43	76.8
Congenital anomalies	109			50			58		
Yes		2	1.8		0	0.0		2	3.4
No		107	98.2		50	100.0		56	96.6
Perinatal death	109			50			58		
Fetal		2	1.8		1	2.0		1	1.7
Neonatal		3	2.8		1	2.0		2	3.4
Fetal birth weight	109			50			58		
<2,500 g		26	23.9		9	18.0		16	27.6
≥2,500 g		83	76.1		41	82.0		42	72.4
Vertical transmission	98			46			51		
Yes		3	3.1		2	4.3		1	2.0
No		95	96.9		44	95.7		50	98.0

Ef #: Effective number; F: absolut frequency; f: relative frequency.

The considerable frequency of diagnosis of HIV infection during current pregnancy (33%) observed in this series is similar to that described in other studies in Brazil^(6,7,9,14-16) due to the practice of routine serological testing. In the study of Stefani⁽¹⁷⁾, it was observed that 70% of pregnant women had the diagnosis of HIV in pregnancy or childbirth.

This fact leads us to reflect on the importance of early diagnosis of HIV infection in women of childbearing age, since some studies show that many women just know their diagnosis during the prenatal period⁽¹⁸⁾.

The national policy for prevention of mother-to-child transmission of the HIV virus recommends systematic testing of pregnant women during prenatal care, as well as the antiretroviral treatment offered by the institution in cases in which the test is considered positive. Pregnant women should be notified, as well as exposed children⁽⁶⁾, about favor control and strategizing concerning mother-to-child transmission of HIV.

The proportion of cases of pregnant women with Aids in this study (53%) was greater than the reported by Miranda⁽⁷⁾ in the same region (28.8%) and by Lee⁽⁹⁾ in another Brazilian State. This finding could point to possible shortcomings of risk-oriented

education, being thus recommended the pre and post-conception advice for HIV+ women to opt for getting pregnant or not.⁽⁹⁾

It is worth noting that the largest number of cases of pregnant women with Aids in this series could be justified by a selection bias due in the case of referral hospital for high risk obstetrics.

When assessing the immune status of pregnant women in this study through the lymphocytes T CD4 count less than 200 cells/mm³, it was observed frequency of 10.8%, less than the proportion of 14.3% reported by Melo et al.⁽¹⁵⁾; and viral load <1,000/mm³ was observed in 56.8% of cases, similar to the 60.4% found in the study of Melo et al.⁽¹⁵⁾. This result is of great importance because in pregnant women with viral load less than 1,000 copies/mL and with more than 34 weeks the mode of delivery can be an obstetric indication.

In the present study, the vaginal birth occurred in 17.4% of cases. Spontaneous rupture of membranes above 4 hours could not be evaluated in this study precisely, which is a recognized factor associated with mother-to-child transmission of HIV, as well as the high viral load and prematurity⁽⁶⁾.

The occurrence of preterm birth was higher than the reported in several studies of pregnant women infected with HIV^(9,19,20), which

is the Brazilian average occurrence⁽²¹⁾ and much higher than the 4.8% of the Live Birth Information System (SINASC) from Vitória⁽²²⁾, corresponding to a direct increase of 12.6% (Number Needed to Treat (NNT): 7.9, Simple ratio (SR): 3.6 and OR: 4.18 (95%CI 2.37–7.35)). These data indicate the need for preventive actions for the monitoring of pregnant women infected with HIV in order to reduce these events.

In previous studies, it was not found higher frequency of puerperal infection in pregnant women infected with HIV^(23,24).

Few studies report higher incidence of birth of female fetuses^(25,26), which constitutes a peculiar finding of the present study, maybe relevant because there are more reports of TV for female fetuses⁽²⁷⁾.

The Apgar score was similar to that observed in SINASC⁽²²⁾ and lower than the 10.5% observed in 2002 Tuomala's study⁽²⁸⁾. The occurrence of fetal death was similar to that found in the study of Lee⁽⁹⁾ and lower than the observed by Isaacs⁽²⁵⁾, being greater than the proportion in the SINASC⁽²²⁾. Several studies have reported lower prevalence of perinatal deaths than the observed in this study^(15,28).

Regarding TV cases, it was observed they all occurred with some factor associated with increased transmission (syphilis, without prenatal and without art). This rate is similar to that found in another location study⁽⁷⁾ and in other Brazilian cities^(10,15,29), however was fewer than the Brazilian rate in 2001 (7.1%) and less than the rate of TV in the Southeast (7.0%)⁽³⁰⁾.

In Brazil, the rates of HIV mother-to-child transmission had decreased in the last decade due implementation of the measures of the STD/Aids program⁽⁶⁾. Knowing the clinical-epidemiological profile, the prenatal monitoring of pregnant women infected with HIV is of great importance to improve welfare services and tailor strategies for prevention of adverse perinatal outcomes.

CONCLUSION

The epidemiological profile of this series showed the occurrence of categories typical of a low socioeconomic level, such as low schooling and non-remunerated occupation in HIV-infected pregnant women.

Clinical and immunological profile found was of highest number of Aids cases in the HIV-infected pregnant women in this study. Regarding the reproductive outcome in children born to HIV-infected pregnant women, birth and perinatal preterm death were more common when compared with the general population.

Conflict of interests

The authors declared no conflict of interest.

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