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CASE REPORT

Is it possible to avoid vertical transmission of HIV? First HIV-positive newborn in Curitiba in three years: a case report

Tyane de Almeida Pinto[1], Tony Tannous Tahan[1], Renata Rolim Sakiyama[1], Aline Tatiane Ranquil[1], Andressa Zabudowski Schroeder[1], Carla Lorusso Caversab Limeira[1], Carolline Popovicz Nunes[1], Fabrício Rodrigues Pereira[1]

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Abstract

Objectives: Curitiba was the first Brazilian city to eliminate HIV transmission from mother to child, a title received in December 2017, with the capital obtaining a proportion of HIV-infected children among children exposed to the virus less than 2% in three years, with only one case in 2015. The purpose of this report is to approach a case of vertical HIV transmission diagnosed in 2018 in the municipality. **Case Report:** LEGD, male, 3 months, exposed to HIV. Negative mother for the virus in the beginning of gestation, evolving to positive test at 6 months of gestation and undetectable viral load in the ninth month. Newborn with two positive viral loads after birth, negative for other TORCHSZ. Diagnosis of HIV confirmed and initiated treatment. **Discussion:** Pregnancy with HIV represents a risk for both the mother and the child, and it is necessary to intervene in prenatal, childbirth and puerperium to reduce the chances of vertical transmission of the virus, since the main route is labor, besides intrauterine and breastfeeding. Although all prenatal, laboratorial, therapeutic and prophylactic conducts are performed correctly, there is a possibility that 1% of vertical transference may occur. Therefore, it is essential to prepare the general practitioner about vertical transmission of HIV, to offer HIV positive pregnant women preventive measures, access to treatment and ensure the understanding of the benefits of appropriate treatment.

[1] Federal University of Paraná, Department of Pediatrics - Curitiba - PR - Brazil.

Correspondence to:
Tyane de Almeida Pinto.
Universidade Federal do Paraná. Rua XV de Novembro, nº 1299, Centro, Curitiba,PR, Brazil. CEP: 80060-000. E-mail: tyane_almeida@hotmail.com

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INTRODUCTION

HIV represents one of the main health problems in the world, and the containment of its transmission is among the Millennium Development Goals of the United Nations. The elimination of new HIV infections in children is one of the essential elements of the World Health Organization (WHO) strategic orientation to contain the spread of the disease[1]. Vertical transmission of HIV, which occurs during pregnancy, childbirth or breastfeeding, is the main form of HIV transmission to children under 15 years of age, causing approximately 90% of infections[2]. At the national level, in the last decade, there was a reduction in the vertical transmission rate (TV) from 16% to 2.7%, a relative reduction of 83.1%[1]. This fact is related to the use of preventive measures such as combined antiretroviral therapy (ART), cesarean delivery when indicated and replacement of breastfeeding for all newborns (NB) born to mothers with HIV[1].

Curitiba was the first Brazilian city to eliminate mother-to-child transmission of HIV, a title received in December 2017. This title certifies municipalities that have met the criteria and indicators established to eliminate mother-to-child transmission of HIV, in accordance with the guidelines the Pan American Health Organization (PAHO) and the WHO. Among the criteria met, Curitiba obtained a proportion of HIV- infected children among children exposed to the virus, followed up in the SUS laboratory network, below 2% in three years, with only one case in 2015[3].

The objective of this report is to address a case of vertical transmission of HIV that occurred in 2017, in Curitiba.

CASE DESCRIPTION

LEGD, 3 months, born and resident in Curitiba. Admitted to the pediatric infectious disease service of the Hospital de Clínicas of the Federal University of Paraná (HC-UFPR), due to exposure to HIV during pregnancy. Mother with negative HIV serology at the beginning of pregnancy, but positive for HIV in the sixth month (exam 05/10), viral load (CV) of 9173 copies. Treatment with tenofovir, lamivudine and efavirenz (TDF+3TC+EFZ) was started on 11/09/17, and in the month of birth the baby had an undetectable virus load (exam on 12/05). In complementary exams, non-reactive for toxoplasmosis IgM, HBsAg and syphilis and reactive toxoplasmosis IgG throughout pregnancy. On 12/17/17, pregnant woman received at the service in labor progressing to vaginal delivery without complications. NB with Apgar in the first minute of 8 and fifth minute of 9, did not need resuscitation maneuvers. Transferred to rooming-in with mother. After three days, both were discharged. Baby referred for childcare at UBS and to the pediatric infectious disease service at HC-UFPR. Zidovudine (AZT) was prescribed and a return visit was advised in one month.

Child underwent routine exams on 12/18/17 and was reactive for Cytomegalovirus (CMV) IgG and Toxoplasmosis IgG and non-reactive for CMV IgM and Toxoplasmosis IgM.

At the return visit, mother and child had no complaints, with a positive test for the NB for HIV. Prophylaxis with sulfamethoxazole+trimethoprim was started and HIV viral load was requested. At the second postnatal visit, HIV exposure was confirmed with a CV of 54,462 copies. Guided return in two weeks and carrying out a new viral load. In the third consultation, with the result of the second CV of 64,022 copies, the diagnosis of HIV was confirmed. Started using the medication on 03/12/2018, using sulfamethoxazole+trimethoprim 2.5ml 3x/week SQS; zidovudine 7ml 12/12h; lamivudine 2.5ml 12/12h and lopinavir+ritonavir 1ml 12h. Currently, patient in regular follow-up with the service to ensure adherence to treatment.

DISCUSSION

Pregnancy associated with HIV represents a high risk for both mother and child, requiring an interdisciplinary intervention in prenatal care, childbirth and puerperium so that it is possible to reduce the transmission of the virus from mother to child, characterizing the TV[4]. HIV VT represents the main route of HIV infection in children, and in approximately 65% of cases it occurs during labor and the remainder occurs in utero, especially in the last weeks of pregnancy, or through breastfeeding[4]. In the present case, the mother suffered an acute infection detected at the end of the second trimester of pregnancy, which may have caused an intrauterine transmission, although the chances are considerably lower than during delivery. Thus, another hypothesis that can be raised is that transmission occurred during childbirth, because although the vaginal route was correctly indicated in this case, the chance of transmission, albeit small, exists.

It can be observed that the pregnant woman was adequately assisted during her prenatal care. The HIV test should be offered to pregnant women in two moments of their prenatal care: at the 1st consultation, ideally in the 1st trimester of pregnancy, and at 28 weeks of pregnancy, marking the beginning of the 3rd trimester. Viral load testing should be performed immediately after confirmation of an HIV infection[5]. In this case report, serology was negative at the beginning of pregnancy, positive in the sixth gestational month, with a CV of 9173 copies, an extremely relevant maternal factor with regard to the risk of vertical transmission of HIV[6].

As recommended by the Ministry of Health, all HIV-infected pregnant women are indicated for ART, even before obtaining the results of the CV-HIV, LT-CD4+ and genotyping tests, with the aim of rapidly suppressing VC[7]. For pregnant women starting treatment, the preferred

regimen is tenofovir, lamivudine and raltegravir (TDF + 3TC + RAL). When aspects of poor adherence are present, there is the option of an alternative regimen, such as the combination TDF + 3TC + EFV, in a single tablet. It is known that the ART regimen is one of the factors that influence its adherence[7] contributing to therapeutic success. The treatment of choice for the reported patient consisted of TDF + 3TC + EFV, and about four weeks after starting the drug treatment, she had an undetectable VC.

In view of viral suppression and the precise use of ARVs, the route of delivery, duly indicated, was vaginal, since there was no obstetric contraindication that would lead to elective cesarean section. The choice of route should take into account maternal VC (undetectable or up to 1000 copies/ml from the 34th week) and a detailed obstetric evaluation[5]. In cases where the pregnant woman is using antiretroviral drugs and with sustained VC suppression, vaginal delivery is indicated if there is no other condition that contraindicates it, since there is no statistically significant difference between the transmission rate of vaginal delivery and cesarean section. in adequately treated women[4]. In addition, the comorbidities of a cesarean section, both for the mother and for the fetus, overlap the chances of transmission of the virus, especially in places where the delivery is not properly assisted[8].

According to the 2010 Ministry of Health Protocol[9], the prophylaxis of vertical transmission of HIV during childbirth, for all pregnant women with the HIV virus, should be the administration of AZT intravenously. In contrast, the 2017 Protocol[5] defines the use of prophylactic AZT in pregnant women with undetectable CV-HIV after 34 gestational weeks and adherent to ART. However, it reinforces that it is medical competence to indicate or not the use of intrapartum AZT. In the case in question, even though there was no indication for intrapartum AZT according to current protocols, it was decided to start intravenous AZT during the initial obstetric procedure.

As for perinatal chemoprophylaxis of the newborn, AZT was first indicated for one month. According to the Ministry of Health, all children born to mothers with HIV should receive ARVs as one of the VT prophylaxis measures. In this case, as the pregnant woman used ARV during pregnancy, the use of AZT (VO) for 4 weeks[5] is indicated , which reinforces the prescription given to the NB.

Every child of an HIV-positive mother should undergo a VC exam, and the first test should be performed at 4 or 6 weeks of age, if they have received VCT prophylaxis and do not have symptoms. When the NB is symptomatic, VC can be performed at any time, in addition, the exam should also be performed immediately in NB who were breastfed[10]. If the first CV has a detectable result, it should be repeated with a new sample as soon as possible. If the second VC is also detectable, the child is considered infected with HIV and should start clinical treatment[10]. In this context, the NB had a possible exposure to HIV, so, in their first postnatal consultation, the CV exam was requested. The examination identified a CV of 54,462 copies. A new VC was performed after one month with a result of 64,022 copies, thus confirming the diagnosis of HIV infection, even with the correct follow-up of maternal therapy.

Given this situation, the recommended treatment for children under two years of age is the combination of AZT + 3TC + LVP/r[11]. Therefore, the therapeutic choice proposed for the patient in question was duly carried out, in addition to prophylaxis against *Pneumocystis jirovecii*, a potential cause of pneumonia in HIV-positive children[12].

In this context, we emphasize that all prenatal, laboratory, therapeutic and prophylactic procedures were duly substantiated, aiming to reduce the risk of vertical transmission of HIV. However, even in pregnant women using antiretroviral therapy and with CV-HIV levels below 1000 copies/ml, there is a possibility of vertical transfer occurring, with the transmission rate being less than 1%[5].

Faced with this case, it is essential to prepare the general practitioner regarding HIV VT. It is necessary to be able to offer preventive measures, not only in specialized centers but also in primary care, and provide access to adequate treatment for HIV-positive pregnant women. The pregnant woman's understanding of the disease should also be evaluated and the beneficial results of adequate treatment should be highlighted, aiming to reduce damage not only for the mother, but, above all, for her infant, who is susceptible to becoming a carrier child. of the HIV virus.

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