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Mother-to-child HIV transmission in Gipuzkoa falls to 2%

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UPV/EHU research personnel have studied the evolution that took place between 1984 and 2011 in paediatric HIV infection in Gipuzkoa.

Miren Apilánez, researcher in the Department of Paediatrics of the UPV/EHU-University of the Basque Country, has studied the evolution that took place between 1984 and 2011 in paediatric HIV infection in Gipuzkoa. The development of methods to diagnose the disease coupled with increasingly more effective treatments have made it possible to reduce mother-to-child transmission (vertical transmission) from 23.9% to 2.4%, thus virtually eradicating infection in children.

Vertical transmission occurs between mothers infected with HIV and their offspring. This infection can take place at three different moments or phases: during pregnancy, during birth or during breastfeeding, "but in actual fact, the most critical moment is the birth because the child comes into contact with the mother's blood or vaginal secretions," explains the researcher. "Infection is also possible during pregnancy, but it is less likely because the placenta acts as a barrier." As regards breastfeeding, "the moment it became known that it was a way of transmitting the infection, it was contraindicated in developed countries," explains Apilánez.

In the course of the research, Apilánez studied 239 children of HIV-infected mothers and born between 1984 and 2010 in Gipuzkoa, and their mothers. 30 children were infected by the virus, and 209 seroreverted during the first months of life.

Four periods, four scenarios

Throughout this time there is proof of an evolution in various aspects relating to the infection in Gipuzkoa: the transmission rate itself, the implementing of diagnostic and therapeutic methods in mothers and children, or the channel through which mothers acquire the HIV infection.

So Apilánez has established four periods in the course of time, defined mainly by the implementing of diagnostic measures and therapies. The first period was the one between 1984, when the first child was diagnosed, until March 1994, and Apilánez defines it as "the period of few resources, characterised by the absence of effective therapies."

In March 1994 the results of the ACTG076 protocol were published worldwide showing that the administering of the first antiretroviral drug known as AZT during pregnancy and birth reduced vertical transmission considerably. The protocol stated that it had to be administered during pregnancy in order to improve the immunovirological situation of the mother, who would reach birth with an undetectable viral load and, therefore, with a minimal risk of passing the infection onto the child. The treatment is completed with intrapartum therapy as well as therapy for the newborn during the first 45 days. After starting this treatment in pregnant women infected with HIV in Gipuzkoa (second period), it was seen that within three years transmission fell from 25% to 8%. "However, children continued to become infected because there were women who did not know, while they were pregnant, that they had been infected, and therefore did not receive any treatment," pointed out the researcher.

In view of these results it was in June 1997 that the HIV early detection protocol was set up for pregnant women in Gipuzkoa (third period); in other words, when it was established that all pregnant women should

undergo the HIV test to rule out the infection. "This was crucial, because many women who were unaware that they were infected were detected, although the entire population was not reached," says Apilánez. In this period, too, the combined therapy or highly active antiretroviral therapy (HAART) also began to be used. This therapy is characterised by the combining of various drugs that attack the virus at different moments in the infection process. That way the treatment is much more effective.

The fourth and final period began in March 2000. It was characterised by considerable work to spread the guidelines in early detection and treatment of HIV infection in pregnancy through the Professional Associations of Doctors and Nurses in Gipuzkoa; it was finally possible to detect all the pregnant women infected and therefore achieve 100% therapeutic coverage.

The prevention strategies in the vertical transmission of HIV have enabled the transmission rate to be cut from 23.9% in the first period down to 2.4% in the last one. Highly active antiretroviral therapy during pregnancy has emerged as the most significant protection factor to tackle the transmission of HIV infection between mothers and children; that way, the mother-to-be reaches the birth with a correct immunovirological situation, in particular with an undetectable viral load and therefore a minimal risk of transmitting the infection to the child.

However, the researcher insists that these measures need to be carried out 100% in order to be effective and recalls that even in this way there are still a number of not very well-known factors that hamper the total eradication of the mother-to-child transmission of the infection.

Provided by Basque Research

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