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Poster presentation

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Spatial pattern of HIV-1 cases of vertical transmission in Madrid (Spain): impact of demographic and socioeconomic factors

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Introduction

The Autonomic Community of Madrid is the area most affected by the human immunodeficiency virus type 1 (HIV-1) in Spain, with a total of 17,667 AIDS cases up to December 2006, the 23.9% of the cases registered at national level.

Objectives

To depict the spatial evolution of the HIV-1 cases of mother to child transmission (MTCT) and to assess the possible impact of demographic and socioeconomic characteristics of the population of the Municipality of Madrid on the HIV epidemic in the paediatric population.

Materials and methods

We performed a study of a retrospective observational cohort of 224 HIV-1 vertically infected children (≤17 years old) living in Madrid, born between 1980 and 2006. The analysis was stratified in 5 calendar periods (CP) on the basis of the changing antiretroviral treatment protocols: CP1 (80-89): children were untreated; CP2 (90-93): the standard of care was monotherapy with nucleoside analogue reverse-transcriptase inhibitor (NRTI); CP3 (94-96): children were receiving dual-NRTI therapy; CP4 (97-98): the antiretroviral regiments was HAART with a combinations of three or more drugs; CP5 (99-06): more than 60% were on HAART and less than 10% were still untreated. We assumed that vertical transmission occurred on the birth day. We georeferenciated the HIV-1 MTCT cases and we elaborated maps representing the prevalence of HIV-1 MTCT cases by the 21 districts of Madrid, with the support of ArcView Geographic Information Systems Version 3.1. Afterwards, we carried out an ecological analysis to assess the association between demographic and socio-economic characteristics of the population of the different districts of Madrid and the spatial distribution of HIV-1 MTCT cases.

Results

The districts with the higher prevalence of HIV-1 MTCT were: Usera, Puente de Vallecas, San Blas in the Southern area of the city, and Hortaleza in the Northern area. We observed a significant correlation between the prevalence of HIV-1 MTCT cases and 1) the percentage of migrants in 1996 ($\rho= -0.54$; P=0.011) and in 2001 ($\rho= -0.54$; P=0.011); 2) the percentage of illiterates in 1996 ($\rho=0.49$; P=0.025) and in 2001 ($\rho=0.59$; P=0.005); 3) the percentage of unemployed women in 1996 ($\rho=0.48$; P=0.029) and in 2001 ($\rho=0.58$; P=0.005); 4) the mean annual incoming in 1996 ($\rho= -0.51$; P=0.019) and in 2000 ($\rho= -0.51$; P=0.018).

Conclusions

We observed the highest prevalence of HIV-1 MTCT in the geographical areas with a lower socio-economical status.

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