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Hepatitis B virus, hepatitis C virus and HIV coinfection among people living with HIV/AIDS in Buenos Aires, Argentina

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The HIV epidemic in Argentina has changed since the first case was reported in 1982. Since the beginning of the 1990s, a decrease in the number parenterally acquired infections has been observed, with a marked increase in transmission through unprotected sexual contact (heterosexual and homosexual), and in the number of women living with HIV/AIDS [1]. Few prevalence studies have addressed the hepatitis B and C virus coinfection in Argentina. We performed this study in a large single clinic in Buenos Aires, taking care of more than 3,000 HIV patients. During a seven-month period (9/2004 to 3/2005), all HIV-positive patients \geq 18 years old, who were followed up at our unit and who had their scheduled controls for HIV viral load (VL) at the Argentinean National Reference Centre for AIDS (CNRS), were invited to participate in the study. The study was approved by the Fernández Hospital Ethics Committee. Patients gave their informed consent to be included in the study. Six hundred subjects were asked to enter the study, and 593 accepted.

Studied population: 65.6% males, 64% young adults between 20 and 40 years old. The main route of HIV infection was through sexual contact (70%).

Of the 593 samples, 52% (n=308) showed positive results for serological markers (HBcAb/HBsAg/anti-HCV) for hepatitis B or C coinfection. Coinfection rates and subjects characteristics are described in Table 1.

HBV genotype A was identified in 85% of the samples with detectable HBV DNA, instead of genotype F, the most prevalent in our country among blood donors [2]. Among the 22 HBsAg-positive samples, four showed mutations in the rt domain of the *pol* gene. These samples belonged to patients who had a prolonged history of exposure to lamivudine (median: 25 months) and none of them had received tenofovir. This data reinforces the importance of adequate management of drugs with HBV/HIV dual activity when selecting antiretroviral therapies in coinfecting patients, as stated in the last update of the European and North American guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents [3,4]. The main isolated HCV genotype was 1 (65%), followed by genotype 3 (16.5%).

Our study shows a change in the prevalence of HCV and HBV coinfection comparing with a previous report of the same geographical area [5], among people living with HIV/AIDS in

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Buenos Aires, the city with the highest prevalence of HIV in Argentina. A reduction in prevalence rates of dual HIV/HCV (from 58.5% in 1999 to 21%, $p < 0.000$) and HIV/HBV coinfection (from 14.5% in 1999 to 3.7%, $p < 0.000$) was observed. This could be related to the decreasing number of injecting drug users in our country because of the introduction of non-injecting recreational drugs and the increasing transmission through unprotected sex [1]. Despite the decrease in the rates of HCV/HIV and HBV/HIV coinfections the prevalence of those coinfections continues to be high and it could lead to the increase in the morbidity and mortality associated with liver disease, especially in the context of expanded antiretroviral therapy in Argentina. The epidemiological data presented in this study provides information for the development of prevention campaigns for hepatitis C through harm reduction policies and for hepatitis B vaccination programs among people living with HIV/AIDS.

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Demographics, rates of HCV/HBV coinfection, main routes of infection, median levels of CD4 cell count, HIV viral load, HAART, frequency of ALT level among HIV-positive patients studied

Table 1

	TOTAL	HBsAg+	Anti-HCV Ab+ HCV RNA+	HBsAg and HCV RNA+	HIV monoinfected
n (%)	593 (100%)	20 (3.3%) (IC 95%:2.1-5.3)	84 (14%) (IC 95%: 11.5-17.4)	2 (0.3%) (IC 95%: 0.04-1.2)	283 (48%) (IC 95%: 43.9-52.1)
Age (years) [median (range)]	38 (19-71)	39 (22-71)	38 (24-59)	39 (38-40)	37 (19-71)
Male [n (%)]	389 (65.6%)	17 (86%)	87 (67.4%)	2 (100%)	142 (49.8%)
Route of HIV infection [n (%)]					
Injecting drug use	75 (12.6%)	4 (23%)	44 (53%)	1(50%)	11 (3.8%)
MSM	184 (31%)	12 (59%)	7(9%)	1(50%)	54 (19%)
Heterosexual	233 (39.3%)	2 (9%)	26 (30%)	--	179 (63.5%)
Unknown	73 (12.3%)	2 (9%)	7 (8%)	--	35 (12%)
Others	28 (4.8%)	--	--	--	4 (1.5%)
CD4 cell count (cells/ μ L ³)	374.5 (2-1717)	293 (26-1142)	273 (5-854)	916 (448- 1384)	404 (2-1717)
Serum HIV RNA (copies/ml) [†] [median (IQR)]	21,164 (5383-63,163)	35,600 (33,542-78,079)	18,758 (3124-81,771)	122 (122)	116 (5142-49,643)
Receiving HAART [n(%)]	415 (70%)	15 (75%)	71 (84%)	1 (50%)	199 (65.4%)
Patients with ND HIV VL (%)	61%	53%	52%	50%	59%
Abnormal ALT (%)	17.5%	41%	42%	50%	9%

MSM: men who have sex with men, ALT: alanine aminotransferase, RNA: ribonucleic acid, HAART: highly active antiretroviral therapy, ND: not detectable.

[†] Among patients without HAART.