Dettaglio abstract

N. pgm: OC 1

Title: Coinfection with Hepatitis B Virus and/or Hepatitis C Virus is a risk factor for HIV virological rebound in course of antiretroviral therapy

Presentation type: Oral Communication

Session/Topic
Clinical HIV

Authors: V. Malagnino[1], A. Cozzi-Lepri[10], V. Svicher[2], E. Girardi[3], C.F. Perno[4], A. Saracino[5], G. Cuomo[6], S. Rusconi[7], M. Puoti[8], A. d'Arminio Monforte[9], M. Andreoni[1], L. Sarmati[1] for the ICONA Foundation Study Group

Affiliation: [1]Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy, [2]Departmente of Experimental Medicine, University of Tor Vergata, Rome, [3]Department of Epidemiology and Pre-Clinical Research, National Institute for Infectious Diseases "L. Spallanzani", Rome, Italy, [4]IRCCS Bambino Gesu Children's Hospital, Rome, Italy, [5]Infectious Diseases, Università degli Studi "Aldo Moro" di Bari, Italy, [6]Clinic of Infectious Diseases, Azienda Ospedaliero-Universitaria Di Modena, Modena, Italy, [7]Infectious Diseases Unit, Legnano General Hospital, ASST Ovest Milanese, Università degli studi Di Milano, Legnano, [8]Department of Infectious Diseases, Grande Ospedale Metropolitano Niguarda, Milan, Italy, [9]ASST Santi Paolo e Carlo, Department of Health Sciences, University of Milan, Milan, Italy, [10]University College London, London, UK

Abstract
Background: Coinfection with viral hepatitis B and/or C (HBV and HCV) and HIV is common however, the impact of HBV and HCV coinfection on HIV viremia control during antiretroviral therapy (ART) has yet to be fully understood. The aim of this study was to investigate the impact of viral hepatitis coinfection (included potential occult hepatitis B infection) on the risk of viral rebound (VR) after achieving suppression in real-world data.
Methods: Patients living with HIV (PLWH) from the ICONA Foundation Cohort were prospectively evaluated with aim of assessing whether viral HBV and/or HCV coinfection influenced the risk of VR defined at the time of the first of two consecutive values >50 cp/mL, after achieving a HIV-RNA ≤50 cp / mL also in two consecutive occasions on their first line ART (baseline). Study population was divided in 5 exposure groups: HBsAg+/HIV+, HBsAg-/HBcAb+/HIV+, HCVAb+/HIV+, HCVAb+/HBcAb+/HIV+ and HIV mono-infected patients using all serological test results performed prior to baseline. Nationality, duration of viral suppression, history of virological failure prior to baseline and HIV-RNA at cART initiation ad mode of HIV transmission were identified a key confounders for the association of interest. Standard survival analysis by means of KM curves and Cox regression analysis with time-fixed covariates measured at baseline was employed.
Results: Of a total of 6,380 patients included (Table 1), 4,090 (64%) resulted HIV mono-infected, 308 (5%) HCVAb+, 1,342 (21%) HBcAb+, 410 (6%) HCVAb +/HBcAb+ and 230 (4%) HBsAg +. Regarding the immuno-virological status at baseline, all 4 co-infected groups had CD4+ cell counts lower and HIV-RNA values higher than those seen in HIV mono-infected PLWH. At baseline, almost all groups (98%) were on ART containing NRTIs active against HBV (lamivudine, tenofovir dipivoxil fumarate or alafenamide). Overall, 829 (13%) patients experienced VR over follow-up. By 48 months the risk of VR were the following: 4.8% in mono-infected HIV vs. 12.7% in HCVAb+, 5.9% in HBcAb+, 14.5% in HCVAb+/HBcAb+ and 6.0% in HBsAg+ (log-rank test p

Table 1 Main characteristics of patients by baseline HBV serology group.

Characteristics	All neg	HCVAb+	HBcAb+	HCVAb+/HBcAb+	HBsAg+	p-value*	Total
	N= 4090	N= 308	N= 1342	N= 410	N= 230		N= 6380
Gender, n(%)						<.001	
Female	870 (21.3%)	106 (34.4%)	226 (16.8%)	86 (21.0%)	45 (19.6%)		1333 (20.9%)
Age, years						<.001	
Median (IQR)	38 (31, 46)	41 (35, 48)	45 (38, 53)	46 (40, 51)	42 (35, 51)		40 (33, 48)
Mode of HIV Transmission, n(%)						<.001	
IDU	82 (2.0%)	157 (51.1%)	22 (1.7%)	269 (66.1%)	9 (3.9%)		539 (8.5%)
Homosexual contacts	1983 (48.8%)	68 (22.1%)	659 (49.8%)	57 (14.0%)	98 (42.8%)		2865 (45.3%)
Heterosexual contacts	1770 (43.3%)	76 (24.7%)	578 (43.1%)	72 (17.6%)	116 (50.4%)		2612 (40.9%)
Other/Unknown	226 (5.6%)	6 (2.0%)	65 (4.9%)	9 (2.2%)	6 (2.6%)		312 (4.9%)
Nationality, n(%)						<.001	
Not Italian	730 (17.8%)	30 (9.7%)	396 (29.5%)	56 (13.7%)	77 (33.5%)		1289 (20.2%)
AIDS diagnosis, n(%)						0.011	
Yes	457 (11.2%)	44 (14.3%)	192 (14.3%)	56 (13.7%)	34 (14.8%)		783 (12.3%)
CD4 count, cells/mmc						<.001	
Median (IQR)	543 (366, 740)	480 (319, 679)	497 (321, 700)	437 (277, 631)	455 (304, 678)		521 (344, 721)
Viral load, log10 copies/mL						<.001	
Median (range)	1.52 (0.00, 6.35)	1.57 (0.00, 4.83)	1.57 (0.00, 5.67)	1.60 (0.00, 6.36)	1.57 (0.00, 4.65)		1.56 (0.00, 6.36)
Median (IQR)	1.52 (1.28, 1.60)	1.57 (1.28, 1.70)	1.57 (1.28, 1.62)	1.60 (1.30, 1.70)	1.57 (1.28, 1.69)		1.56 (1.28, 1.61)
Antivirals started, n(%)						0.002	
Zidovudine	206 (5.5%)	33 (11.5%)	96 (7.5%)	62 (15.7%)	13 (6.1%)		410 (6.9%)
Lamivudine	940 (24.9%)	92 (32.2%)	377 (29.6%)	145 (36.6%)	39 (18.2%)		1593 (26.8%)
Abacavir	662 (17.5%)	42 (14.7%)	242 (19.0%)	53 (13.4%)	10 (4.7%)		1009 (17.0%)
Tenofovir	2512 (66.5%)	183 (64.0%)	807 (63.3%)	235 (59.3%)	169 (79.0%)		3906 (65.7%)
Emtricitabine	2704 (71.6%)	179 (62.6%)	857 (67.3%)	225 (56.8%)	171 (79.9%)		4136 (69.5%)
TAF	254 (6.7%)	6 (2.1%)	79 (6.2%)	16 (4.0%)	15 (7.0%)		370 (6.2%)
Rilpivirine	553 (14.6%)	30 (10.5%)	143 (11.2%)	34 (8.6%)	21 (9.8%)		781 (13.1%)
Stribild	250 (6.6%)	13 (4.5%)	75 (5.9%)	9 (2.3%)	17 (7.9%)		364 (6.1%)
Triumeq	273 (7.2%)	17 (5.9%)	79 (6.2%)	12 (3.0%)	0 (0.0%)		381 (6.4%)
Genvoya	143 (3.8%)	4 (1.4%)	44 (3.5%)	7 (1.8%)	8 (3.7%)		206 (3.5%)
Dolutegravir	543 (14.4%)	26 (9.1%)	156 (12.2%)	25 (6.3%)	15 (7.0%)		765 (12.9%)
Elvitegravir	393 (10.4%)	17 (5.9%)	119 (9.3%)	16 (4.0%)	25 (11.7%)		570 (9.6%)
Raltegravir	248 (6.6%)	20 (7.0%)	83 (6.5%)	19 (4.8%)	16 (7.5%)		386 (6.5%)
Follow-up time, months						0.209	
Median (IQR)	46 (24, 78)	44 (19, 78)	48 (24, 84)	52 (20, 89)	51 (20, 85)		47 (23, 80)

*Chi-square or Kruskal-Wallis test as appropriate

Table 2 Relative hazards (RH) of viral rebound>50 copies/mL from fitting a standard Cox regression model

	Unadjusted and adjusted relative hazards of viral rebound >50 copies/mL							
	Unadjusted RH (95% CI)	**p-value**	**Adjusted[1] RH (95% CI)**	**p-value**	**Adjusted[2] RH (95% CI)**	**p-value**	**Adjusted[3] RH (95% CI)**	**p-value**
Exposure group								
HIV+	1		1		1		1	
Only HCVAb+	2.00 (1.54, 2.60)	<.001	1.65 (1.22, 2.22)	0.001	1.79 (1.25-2.57)	0.001	2.02 (1.55, 2.63)	<.001
Only HBcAb+	1.23 (1.04, 1.47)	0.018	1.23 (1.03, 1.46)	0.022	1.26 (1.01-1.57)	0.040	1.22 (1.02, 1.45)	0.028
HBcAb+/HCVAb+	2.55 (2.07, 3.14)	<.001	1.96 (1.48, 2.59)	<.001	1.73 (1.23-2.45)	0.002	2.56 (2.08, 3.16)	<.001
HBsAg+	1.49 (1.07, 2.08)	0.020	1.45 (1.04, 2.04)	0.029	1.57 (1.04-2.04)	0.033	1.46 (1.04, 2.04)	0.028

[1]adjusted for duration of VL suppression and history of VF

[2]adjusted for duration of VL suppression and VL at cART and mode of transmission

[3]adjusted for nation of birth