O091

2-hour Oral Session

Trends in antimicrobial resistance

Trends of transmitted drug resistance mutations to four classes and HIV-subtypes amongst subjects recently diagnosed as HIV infected over the period 2004-2014

S.G. Parisi[1], S. Andreis[1], R. Scaggiante[1], M. Cruciani[2], R. Ferretto[3], V. Manfrin[4], S. Panese[5], M.C. Rossi[6], E. Francavilla[7], C. Boldrin[1], F. Dal Bello[1], M. Basso[1], C. Mengoli[1], O. Turriziani[8], G. Antonelli[8], M. Andreoni[8], G. Palu'[1]

[1]*Department of Molecular Medicine- University of Padova, Padova, Italy*

[2]*Center of Preventive Medicine & HIV Outpatient Clinic, Verona, Italy*

[3]*Infectious Diseases- Schio Hospital, Schio, Italy*

[4]*Infectious Diseases- Vicenza Hospital, Vicenza, Italy*

[5]*Infectious Diseases- Venezia Hospital, Venezia, Italy*

[6]*Infectious Diseases- Treviso Hospital, Treviso, Italy*

[7]*Infectious Diseases- Belluno Hospital, Belluno, Italy*

[8]*University of Rome, Rome, Italy*

Objectives: to evaluate circulation trends of drug resistance mutations (DRMs) and viral sub-types (ST) among subjects recently diagnosed as HIV infected (pts), over a ten years period, comparing previously reported trends with the most recent one, updated to October 2014.

Methods: Plasma from 2251 pts diagnosed from July 2004 to October 2014 in the Veneto region were studied. The protease (PR) and the reverse transcriptase (RT) were sequenced and analysed for the presence of major DRMs, for drug susceptibility profile (Stanford database) and ST. Potential low level resistance were not considered. Chi-square test was applied. Infections acquired in the preceding 12 months were defined as Acute-recent infections (AcR).

Results: in 4 different periods (2004/06, 2007/09, 2010/Nov-12 and Dec-12/-14) 334, 796, 752 and 369 pts were recruited; non-B-ST pts were 21.9 %, 29.3%, 33% and 30.7%, respectively. Age, CD4 count and percentage of Acute-Recent infections were considered. A significant increase of non-B-ST (p=0.0030) was observed, and the percentage of Italians with non-B strains increased over time; further, a decrease followed by a stabilization in the most recent period in DRMs in B-ST was observed; DRMs predicted a reduced susceptibility as indicated in Figure 1.

Table 1 Drug susceptibility prediction: single classes and combinations are reported and expressed both as patients absolute number and percentage of patients harbouring DRMs out of total of patients enrolled in a specific time interval

	NRTI[a] n (%)	NNRTI[b] n (%)	PI[c] n (%)	N+NNRTI n (%)	NRTI+PI n (%)	NNRTI+PI n(%)	3 drug classes n(%)	Total
B-type								
2004-06	20 (7.6%)	12 (4,6%)	8 (3%)	5 (1.9%)	4 (1.5%)	1 (0.4%)	5 (1.9%)	55/261 (21%)
2007-09	22 (4.1%)	14 (2.6%)	6 (1.1%)	14 (2.6%)	3 (0.5%)	0	0	59/563 (10.4%)
2010-12	27 (5.3%)	21 (4.2%)	1 (0.2%)	7 (1.4%)	1 (0.2%)	0	3 (0.6%)	60/504 (11.9%)
2013-14	10 (3.9%)	11 (4.3%)	1 (0.4%)	3 (1.1%)	1 (0.4%)	0	1 (0,4%)	27/256 (10,5%)
NonB-type								
2004-06	3 (4.1%)	5 (6.8%)	4 (5.4%)	1 (1.4%)	0	0	0	13/73 (17.8%
2007-09	1 (0.4%)	3 (1.2%)	2 (0.8%)	4 (1.7%)	0	0	2 (0.8%)	12/233 (5.1%)
2010-12	2 (0.8%)	14 (5.6%)	0	0	0	0	0	16/248 (6.4%)
2013-14	1 (0.9%)	9 (8%)	0	1 (0.9%)	0	0	0	11/113 (9,7%)

[a] Nucleoside Reverse Transcriptase Inhibitors
[b] Non-nucleoside Reverse Transcriptase Inhibitors
[c] Protease Inhibitors

Protease inhibitor resistance and combined resistance to two or three classes of drugs declined during the three study periods but non-nucleoside reverse transcriptase inhibitors (NNRTI)-DRMs were found also in the latter period, in both B and non-B strains. Mutation E138A alone, not included in the DRM evaluation but recently reported to decrease susceptibility to rilpivirine and etravirine, increased from 2.3% to 1.8% to 3.2% over the latter three periods. In 2014 TDRM related to integrase inhibitors (InIn) were studied,in a subgroup of subjects with B-Type: nine with a primary-recent infection and 57 chronic, aged from 19 to 59 (median 38) were considered.No TDRM related to InIN were found. In the Veneto area, from 2011, amongst 78 patients failing an InIn based therapy 35% were found resistant to InIn.

Conclusions: An increase of non-B strains and a decrease of transmitted resistance among B-ST followed by a stabilization were observed. The substantial circulation of NNRTI-related DRMs and absence of InIn DRM has important implications on the selection of the first-line HAART.