28th ECCMID EUROPEAN CONGRESS OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES
Madrid, Spain
21 – 24 April 2018

# P1913 Transmission of resistant HIV-1 variants and circulating viral subtypes in a real-life cohort of ART naive Italian patients from 2005-2016

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**Background:** Transmitted drug resistance (TDR) is well documented in antiretroviral (ART)-naïve HIV-1 infected patients; these mutations could affect treatment efficacy and clinical outcomes. The aim of this retrospective study is to describe circulating viral subtypes and estimate the prevalence of resistance among drug naïve patients.

**Materials/methods:** A total of 633 HIV-1 sequences obtained between 2005 and 2016 from ART-naïve patients attending Sapienza University Hospital, Rome, were retrospectively analyzed. Genotypic resistance tests (GRT) were conducted in protease and reverse transcriptase sequences (Trugene® HIV-1 Genotyping Kit, Siemens; ViroSeq™ HIV-1 Genotyping System, Abbott). TDR mutations and subtypes (hivdb.stanford.edu) were analysed.

**Results:** Most of patients were male (76.5%), of Italian origin (70.9%), with a median age of 38 years (IQR 31- 48 years); the median viral load was 4.68 $\log_{10}$ copies/mL (IQR 4.1-5.3) and the mean baseline CD4 cell count was 352 cells/$mm^3$ (IQR 148-570). The most commonly reported transmission risk factors were homosexual (44.2%) and heterosexual contact (43.4%). Subtype B strains were detected in 68.2% of patients; 21 different subtypes and Circulating Recombinant Forms (CRFs) were identified and the most common were CRF02_AG (7.3%), subtypes C (6%) and F (5.7%). We found a significantly increased overtime in the proportion of non-B strains ($p$<0.001) and in the rates of non-Italians patients ($p$<0.001). The overall prevalence of TDR was 7.1% [nucleoside reverse transcriptase inhibitors (NRTIs)= 2.9%, non-nucleoside reverse transcriptase inhibitors (NNRTIs)= 2.5%, protease inhibitors (PIs)= 1.7%] and was higher in subtype B strains. The overall percentage of TDR increased if we included in the analysis the E138A mutation, which is a polymorphic mutation, weakly selected by NNRTIs. The most frequently observed resistant mutations in NRTIs were M41L (22.2%), D67N (22.2%)and L210W (22.2%); in NNRTIs were K103N (56.25%) and in PIs L33F (27.3%). However, most individuals (n= 588, 92.9%) had no TDR mutations and were susceptible to all drugs studied. No significant decrease of TDR was documented overtime.

**Conclusions:** TDR rate observed in these population is in agreement with the average rate in Europe. The persistence of low frequency of TDR in naïve patients highlights the importance to perform GRT before commencing treatment.