27th ECCMID Vienna, Austria 22 – 25 April 2017

The congress of ESCMID

Session: P089 HIV medicine

Category: 1a. HIV/AIDS (incl anti-retroviral drugs, treatment & susceptibility/resistance, diagnostics & epidemiology)

25 April 2017, 12:30 - 13:30
P1837

Blip rates in treated patients with long-term suppressed HIV-1 viral load - comparison of two molecular assays for HIV-1 viral load quantification

Frank Wiesmann*[1], Gudrun Naeth[1], Patrick Braun[2], Heribert Knechten[1]

[1]*Pzb Aachen*

[2]*Pzb Aachen, Aachen, Germany*

Background: Patients under long-term suppression of viral load below the clinical threshold of 50 copies/ml show an improved general wellness and reduced HIV-related illness and disorders. The limit of quantification of currently available highly sensitive molecular assays for viral load quantification range from 20 to 40 copies of HIV-1 RNA per ml. High accuracy of plasma viral load determination in the low range is crucial since repeated viral load blips above 50 copies/ml may drive a physicians choice to switch from a well-tolerated medication to regimens with higher pill burden or toxicities. This analysis investigates the potential impact of blip detection rates by using the Abbott RealTi*m*e HIV-1 and the Roche cobas 6800 HIV-1 viral load assays in direct comparison.

Material/methods: Plasma samples from patients selected based on the course of their viral load results (Abbott RealTi*m*e HIV-1) during the past two years were included in this study. Group A: 30 patients with successful long-term suppression of viral load (not detected). Group B: 50 patients pretested with a viral load of <50 copies/ml (detected) and a higher frequency of detected/quantified blips. Group C: 20 patients with consistent low level viremia >50 copies/ml and <200 copies/ml. Plasma separation was performed 4 hours after blood collection for all specimens prior to viral load testing on both platforms.

Results: Blips above 50 copies/ml were not observed in Group A. 3/30 showed detectable, but not quantifiable HIV-1 RNA with cobas 6800, while one sample was detectable with RealTi*m*e, respectively. In contrast, 13/50 (26%) of samples from Group B were quantified above 50 copies/ml with cobas 6800 and 5/50 (10%) with RealTi*m*e. Patients of Group B turned out to be treated for a shorter period of time (median 5 years) as compared to group A (median 14 years). Samples from Group C were particularly prone to viral load values exceeding the clinical threshold of 200 copies/ml

for virological failure or a decrease of viral load below 50 copies/ml. 5/20 (25%) were quantified above 200 copies/ml with cobas 6800, while 2/20 exceeded this cut-off with RealTi*m*e (10%). Median viral loads observed with cobas 6800 were significantly higher (Wilcoxon Signed Rank test p=0.026) as compared to RealTi*m*e when undetected and non-quantified samples were excluded from analysis (157 versus 108 copies/ml).

Conclusions: Samples from patients with long-term undetectable viral load did not show any blips after analysis with both assays. However, for cobas 6800, viral load blips occurred 2,5 times more frequently with plasma samples from patients with detectable but non-quantifiable viral loads <50 copies/ml (pre-tested with RealTi*m*e) for a long period of time.