O1. The Occurrence of Transient Viral Blips during Suppressive Antiretroviral Treatment is Associated with High Baseline HIV-1 RNA Levels

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Background
Many HIV-infected patients on suppressive antiretroviral therapy (ART) have transient episodes of HIV RNA levels between 50¬–500 copies/mL, so called viral blips. The importance of viral blips and their possible association with virological failure is uncertain. We have determined the incidence of viral blips in the Swedish HIV-1 cohort and have looked for clinically important associations.

Methods
HIV-1 infected adults who started combination ART after the introduction of real-time PCR for HIV-RNA quantification (COBAS TaqMan) were retrospectively included. All patients were naïve to ART and started treatment in accordance with national guidelines. Subjects who were not suppressed (HIV RNA 500 mL or two consecutive samples ≥ 50 copies/mL taken more than six weeks apart were defined as virological failures. Viral blips were defined as a viral load between 50–500 copies/mL, both preceded and followed by a viral load <50 copies/mL. Two values within six weeks in this range were interpreted as one blip.

Results
Seven hundred and fifty-one HIV-1 infected subjects (median age 41 years, 70% male) were included. The baseline viral load was significantly higher in subjects with viral blips (median log10 4,85 copies/mL, interquartile range (IQR) log10 4,20–5,21) compared to subjects without viral blips (median log10 4,55 copies/mL, IQR log10 3,90–5,00 (p=0,003). The median observation time was 167 weeks (range, 97–239. Among all subjects, viral blips were found in 77/751 subjects (10%). The total number of blips was 91 in 4474 samples (2%). The median HIV RNA level of all viral blips was 75 copies/mL (range 56–138). The majority (29 %) were registered within 18–24 months after initiation of combination ART. Viral blips were significantly more common in subjects treated with a protease inhibitor (2.7%) than in patients on a non-nucleoside reverse-transcriptase inhibitor (1.5%) (P=0.008). We found no association between viral blips and risk for subsequent virological failure.

Conclusions
The incidence of viral blips in the Swedish HIV-1 cohort that we found (10%) is lower than in most previously published studies. There was an association with high baseline viral load and increased risk of viral blips. Viral blips were also more common in patients on a regimen with a protease inhibitor than those on a regimen containing a non-nucleoside reverse-transcriptase inhibitors.