Abstract 8: Virological failure on First Line Antiretroviral Therapy and Switch to Second Line ART in Kwazulu Natal, South Africa

Authors:
Rosanna Stewart, Altynay Shigayeva, Liesbet Ohler, Ellie Ford-Kamara, Thembelihle Maphalala, Linda Dlamini, Petros Isaakidis, Amir Shroufi, G. Van Cutsem

Background:
With antiretroviral treatment (ART) scale up, absolute numbers of patients with virological failure (VF) have increased. We describe rates and factors associated with VF, and switch to second-line ART among patients at 9 MSF-supported clinics in Kwazulu Natal, SA.

Methods:
Retrospective cohort study among ART-naïve ≥15 years old patients who initiated first-line ART between 1 January 2008 and 1 January 2018, and completed >=6 months of follow-up. VF on first-line ART was defined as two consecutive viral load (VL) measurements >=1000 copies/ml, with first high VL occurring ≥6 months after commencing therapy. Re-suppression following VF was defined as at least 2 subsequent VL measures <1000 copies/ml whilst on first line ART. Switch to second line was defined as initiation of a protease inhibitor-based regimen. Treatment interruption defined as >=90 days of missed medicines prior VF. Cox proportional hazards regression applied to assess factors associated with VF. Competing risk analysis was performed to summarize cumulative incidence of switch, re-suppression and outcomes at 12 months follow up post VF.

Results:
19549 eligible patients completed a median 3.7 years (IQR; 1.9–5.9) on ART. Median age 26.2 years old (IQR; 32.1 – 40.3); 14094 (72.1%) were females; median baseline CD4 count 267 (IQR; 154 – 400).

17220/19549 had >=1 VL measure taken. 1403/17220 (8.1%) met definition of VF. Median time from ART initiation to VF was 24 months (IQR; 15 – 40); median time between two consecutive VLs was 5.2 months (IQR; 3.7 – 7.1). Factors associated with failure were year of ART start (per year increase; aHR=0.88; 95% CI: 0.86–0.90); age (per 10 year increase; aHR=0.92; 95% CI: 0.87 – 0.98); male sex (aHR=1.2; 95% CI: 1.1 – 1.4); treatment interruption (aHR=2.2; 95% CI; 1.7 – 2.8); and low CD4 count (CD4 <100 vs CD4 >500; aHR=4.8; 95% CI:3.8– 6.1).

1344/1403 patients with VF had follow up >=6 months (after VF). 347 (24.7%) resuppressed whilst on 1st line ART at a median 5.8 months (IQR; 3.7 – 9.9). 589 (43.8%) switched to 2nd line at a median 7.3 months (IQR; 2.5 -15.1). At 12 months, the cumulative incidence of switch, re-suppression, death or LTFU was 28.8%, 23.3%, 1.5% and 7.4% respectively.
Conclusion:

We observed a reduction in VF over ten years of program implementation. ART continuity and low CD4 counts were significantly associated with VF and should therefore be considered when making decisions about timing for switch. Considerable virological resupression after VF requires further research to refine VF definitions.