Virologic and Immunologic Monitoring in HIV Care

June 2022

Table 1: Recommended Viral Load and CD4 Count Monitoring in Nonpregnant Patients With HIV [a]

Event	HIV RNA Viral Load	CD4 Count	Comments
Entry into care	Baseline viral load (A1)	Baseline CD4 count (A1)	• If a patient is not taking ART, recommend initiation [b] (A1) • Monitor as below
Patients Taking ART			
ART initiation or change to address virologic failure	• Within 4 weeks after ART start or change (A3) • At least every 8 weeks until complete virologic suppression is documented (A3)	• 12 weeks after ART initiation • Every 4 months until CD4 count >200 cells/mm^3 is obtained on 2 measurements at least 4 months apart (A2), then monitor as below once virologic suppression is achieved	• Virologic failure occurs when a viral load <200 copies/mL is either not achieved or not maintained • Virologic suppression is defined as a viral load <20 to <50 copies/mL obtained with a highly sensitive assay
ART change for simplification or due to adverse effects	Within 4 weeks after ART change, then as below (A3)	Monitor as below for documented virologic suppression	—
Documented viral suppression	• At least every 4 months (A3) • May extend interval to 6 months in patients stable on ART with CD4 count >200 cells/mm^3 and complete viral suppression for 1 year (B2)	• At least every 6 months if CD4 count is ≤350 cells/mm^3 (B2) • Optional if CD4 count is >350 cells/mm^3 (B2)	—
New HIV RNA ≥500 copies/mL after previous viral suppression	Repeat viral load test 2 weeks after first result (A2)	Obtain CD4 count if previous result is >6 months old (B3)	• Assess for adherence and drug-drug interactions (A3) • Obtain resistance testing (A1)
New HIV RNA level over the limit of detection of sensitive assays, 20 to 50 copies/mL, but <500 copies/mL after previous viral suppression	Repeat viral load test within 4 weeks to differentiate low-level transient viremia ("blip") from virologic failure [c] (A2)	If repeat viral load is detectable, obtain CD4 count if previous result is >6 months old (B3)	• Assess for adherence and drug-drug interactions (A3) • If repeat viral load is detectable, consider resistance testing [d] (B3) • Patients with low-level viremia ≤200 copies/mL over a period of 12 months without demonstrated failure may continue routine testing intervals of at least every 4 months [e]

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Event	**HIV RNA Viral Load**	**CD4 Count**	**Comments**
Patients Not Taking ART			
CD4 count ≤500 cells/mm^3 (A2)	At least every 4 months	At least every 4 months	At every visit, recommend ART initiation [b]
CD4 count >500 cells/mm^3 (A2)	At least every 6 months	At least every 6 months	At every visit, recommend ART initiation [b]

Abbreviations ART, antiretroviral therapy.

Notes:

a. For recommendations on virologic monitoring in pregnancy, see DHHS: Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce Perinatal HIV Transmission in the United States.
b. See the NYSDOH AI guideline When to Initiate ART, With Protocol for Rapid Initiation.
c. An ART regimen should not be changed based on a single viral load elevation. The risk of virologic rebound (breakthrough) increases when values are ≥500 copies/mL [Grennan, et al. 2012].
d. Standard genotypic tests may not provide resistance results when viral load is low. For repeated low-level viremia, an assay that detects resistance mutations in archived proviral DNA is available; however, clinical data are insufficient to recommend for or against its use in the patient care setting.
e. In patients with low-level viremia, clinicians should consult with an experienced HIV care provider; low-level viremia can be due to multiple causes, and its clinical effect is not clear.

Reference

Grennan JT, Loutfy MR, Su D, et al. Magnitude of virologic blips is associated with a higher risk for virologic rebound in HIV-infected individuals: a recurrent events analysis. *J Infect Dis* 2012;205(8):1230-1238. [PMID: 22438396] https://pubmed.ncbi.nlm.nih.gov/22438396