

Abstract title:

Predictors for the initial CD4 decline after antiretroviral treatment interruption in the SMART study

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Background: The SMART study is an international, randomized trial comparing a CD4-guided antiretroviral treatment (ART) interruption strategy (drug conservation or DC arm) with continuous ART in 5,472 patients with CD4 > 350 cells/mm³ at study entry. We describe the CD4 cell count decline after stopping ART.

Methods: In the DC arm, patients were to discontinue ART at baseline, and re-initiate at CD4 < 250 cells/mm³. CD4 was collected at baseline, months 1, 2, 4, 6, 8, 10, 12, and every four months thereafter. This analysis is restricted to DC patients who were on ART and discontinued ART at baseline; we describe changes in CD4 through the first 12 months off ART, censored at ART re-initiation. Predictors for CD4 decline were determined by multivariate regression.

Results: 1,938 patients were included in the analyses; mean age 47 years, 24% women, 28% Black, 26% had prior AIDS, median baseline CD4 (IQR) was 636 (489 – 833) cells/mm³, nadir CD4 234 (133—344) cells/mm³, 82% had baseline HIV RNA ≤ 400 copies/ml. Of these, 578 stayed off ART for ≥ 12 months. During the first month, CD4 declined by a median of 127 (13 – 247) cells/mm³, during the first 2 months by 188 (80 – 317) cells/mm³, and by 12 (2 – 22) cells/month from month 2 to 12. Steeper CD4 decline during the first month was associated with: high CD4 at study entry (-19 cells/mm³ per 100), low CD4 nadir (-21 cells/mm³ per 100), baseline HIV RNA ≤ 400 copies/ml (-31 cells/mm³), and prior AIDS (-28 cells/mm³), p-values all ≤ 0.01. Age, sex, race, highest prior HIV RNA, and duration of ART use were not significant.

Conclusions: The CD4 decline was steepest during the first 2 months. High CD4 at discontinuation, low CD4 nadir, HIV RNA ≤ 400, and prior AIDS are independently associated with steeper initial CD4 decline.