Risk of AIDS and death at given HIV-RNA and CD4 cell counts, in relation to specific antiretroviral drugs in the regimen

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\textbf{Background:} It is unknown whether the relationship between the HIV-RNA/CD4 cell count and risk of clinical disease continues to hold true for newer antiretroviral drugs approved without data from clinical endpoint trials.

\textbf{Objective:} To determine and compare whether rate ratios of AIDS and death at given, latest HIV-RNA and CD4 cell counts levels were similar, regardless of which nucleoside pair and specific third drugs patients received as antiretroviral therapy.

\textbf{Design:} EuroSIDA observational cohort. A total of 9802 prospectively followed patients.

\textbf{Methods:} Analysis included patients taking combination antiretroviral therapy (CART) regimens containing two non-abacavir nucleosides plus a ‘third drug’ of a non-nucleoside reverse transcriptase inhibitor, a (possibly ritonavir boosted) protease inhibitor or abacavir.

\textbf{Results:} A total of 6814 patients contributed a total of 22 766.6 person-years of follow up. Median latest CD4 cell count was $353 \times 10^6$ cells/l, HIV-RNA 199 copies/ml. A total of 900 events of new AIDS or death were observed. AIDS/death rates for any given CD4 or HIV-RNA category were similar regardless of specific drugs being used. Adjusted rate ratios (RR) for individual drugs compared with indinavir (for which clinical endpoint trials are available) were all close to 1 and with relatively narrow 95\% confidence intervals (CI); for example, nelfinavir RR, 0.99 (95\% CI, 0.76–1.28); efavirenz RR, 0.83 (95\% CI, 0.57–1.20); abacavir RR, 1.01 (95\% CI, 0.64–1.60). Results were similar for different nucleoside pairs.

\textbf{Conclusions:} The results indicate that AIDS/death rates for given CD4 cell count and HIV-RNA categories are similar, regardless of CART regimen being taken and provide reassurance that HIV-RNA and CD4 cell counts in individual patients receiving newer drugs have the same meaning, in terms of AIDS/death risk, regardless of specific antiretroviral regimen.


\textbf{Keywords:} AIDS, death, combination antiretroviral therapy, surrogate marker, observational study

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Received: 22 June 2004; revised: 2 December 2004; accepted: 20 December 2004.

ISSN 0269-9370 © 2005 Lippincott Williams & Wilkins