

Outcome of HAART- treated HIV infected patients in a resource-limited setting: the Belgrade cohort study

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Introduction and purpose

The introduction of HAART has been one of the greatest achievements of the last decade, as it has significantly reduced HIV related morbidity and mortality both in developed and developing countries. This treatment can provide durable virological, immunological, and clinical benefits, while minimizing toxicities and drug resistance, and potentially allowing a normal life span. A proportion of patients still experience treatment failure, disease progression and death, although some of the fatal outcomes are not associated with HAART failure. We conducted a cohort study to determine the factors influencing prognosis of HIV infected patients on antiretroviral therapy, regarding HAART effectiveness and its influence on survival in a resource-limited setting.

Patients and methods

The study involved a total of 840 unselected HIV-infected patients, treated at the Institute for Infectious and Tropical Diseases Hospital in Belgrade, Serbia, and evaluated after one and after a mean 6.6 ± 3.4 years of treatment. HAART was considered favorable in case of undetectable viremia and a rise in the CD4 count above $350/\mu\text{L}$.

Results

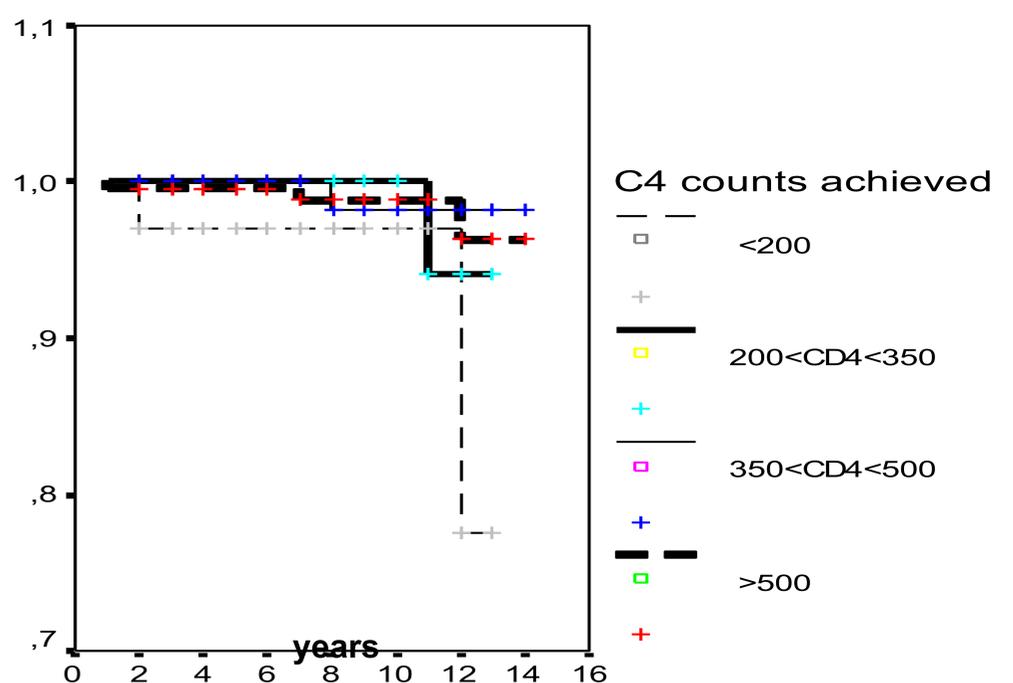
Of the 544 patients available for follow-up to the end of the study, 34 (6.2%) had treatment failure, while of the 510 (93.7%) with full virological suppression 70.1% had optimal immune reconstitution. A favorable response after the first year of treatment was the single independent predictor of a favorable response at the end of follow-up, while pre-treatment with mono or dual ART, HCV co-infection, AIDS, and baseline CD4 cell counts below $200/\mu\text{L}$, were all factors preventing a favorable response ($p < 0.01$). A favorable treatment response after a mean 6.6 years of HAART was the independent predictor of survival ($p < 0.01$).

Table 1. Baseline characteristics of the study population (n=840 patients)

Sex		
male		608 (72.4%)
female		232 (27.6%)
Age		44.0 \pm 10.9 yrs.
CDC stage C		379 (45.1%)
CD4+ T cell count *		139.8 \pm 120.5 (0- 696)
<350	761 pts.	120.6 \pm 94.6 (0-347)
>350	51 pts.	433.1 \pm 87.9 (350-696)
Transmission risk groups		
IV drug users		257 (30.6%)
Homosexual		344 (41.%)
Heterosexual		185 (22%)
Blood products		29 (3.4%)
Vertical		9 (1.1%)
Unknown		16 (1.9%)
Antiretroviral naïve		689 (82%)
HCV co-infection (N=836)		216 (25.8%)
HBV co-infection (N=835)		52 (6.2%)

*available in 812 patients

Fig. 1. Estimated probability of survival (Kaplan-Meier product limit method) in patients with sustained viral suppression according to the level of immune recovery achieved ($P=0.21$, log rank).



Conclusions

If patients with advanced HIV disease initiate HAART, remain compliant; reach undetectable viremia and immune recovery after 12 months, which they maintain at 6.6 years, there is a 90% probability of surviving over 14 years.