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Assessing quality of HIV care: Using observational data for improving HIV care

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BACKGROUND:

Observational data are used to study the effect of combination antiretroviral therapy (cART) on morbidity and mortality.

We aimed to use observational data to accommodate insight in improving the quality of HIV care.

Methods:

Data were used from the Netherlands ATHENA observational cohort.

We included 1985 patients

- who entered care≥ 2004
- were aged >17 years at time of entering care
- had >200 CD4 cells/mm^3 at entry
- who initiated cART whilst treatment naive

Patients were categorized according to CD4 counts at entry (Te) and at cART initiation (T0) in two groups:

1) Te>200 and T0≤ 200

2) Te>200 and T0>200

Multivariate regression analyses was used to estimate the odds of suppressed viral load within 3 months after T0.

Date of suppressed viral load was defined as the first date of two consecutive viral load measurements <50 copies/ml.

Risk of dying was estimated using a Cox proportional hazard model.

Results:

Out of the 1985 patients:

508 (26%) patients initiated cART with ≤CD4 cells/mm3 (group 1)
1477 (74%) patients with >200 CD4 cells/mm3 (group 2).

The mean time between Te and T0 was 14 months (SD±13) for group 1.

The mean time between entry and start treatment was 5 months (SD±7) for group 2.

The frequency of CD4 cell count measurements was 3 (1-7) per year for group 1 and 4 (2-7) per year for group 2.

This difference in CD4 measurements between group 1 and group 2 is statistically significant (p<0.0001).

Patients in group 1 had a significantly lower odds for suppressed viral load after the initial 3 months of cART, compared to patients in group 2 (table 1).

Risk of dying amongst patients in group 1 was non-significantly higher compared to patients in group 2 (table 2).

Table 1: Odds ratio a suppressed viral load 3 months after cART initiation.

	OR*	95% Confidence interval
Group 1 (CD4 at Te>200, at T0≤ 200)	0.57	0.39-0.82
Group 1 (CD4 at Te>200, at T0> 200)	1	

* adjusted for: age, transmission risk group, gender, baseline viral load.

Table 2: Hazard ratio for the risk of dying after cART initiation.

	HR*	95% Confidence interval
Group 1 (CD4 at Te>200, at T0≤ 200)	2.76	0.80-9.58
Group 1 (CD4 at Te>200, at T0> 200)	1	

* adjusted for: age, transmission risk group, gender, baseline viral load.

CONCLUSIONS

The short term virologic response to cART is lower in patients who enter care with high CD4 cell counts (>200 cells/mm^3) but who initiated cART late (with CD4 cell counts ≤ 200 cells/mm^3) as compared to patients who entered care with high CD4 cell counts and initiated cART timely. Differences in starting cART late are largely explained by a lower frequency of CD4 measurements and time between diagnosis and start treatment and may be subject of improving care.

Future analyses will focus on characterizing late starters.