Indicators of the use of health care interventions across Europe

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BACKGROUND

State-of-the-art care of HIV-infected persons requires the utilisation of multiple health care interventions (HCI).

OBJECTIVES

We aimed to assess various indicators of HCI aimed at improving patient health and outcomes related to it across Europe.

METHODS

HCI were investigated in EuroSIDA patients under follow-up after 1[st] January 2001.

We assessed:

- compliance with current guidelines on when to start combination antiretroviral therapy (cART): % of those with CD4 count ‹ 250 cells/µL at study entry who were not on cART
- laboratory evaluation of HIV disease status: median number of CD4 count and HIV-RNA measurements performed per patient per year
- ability to identify precise AIDS diagnosis: % of AIDS cases diagnosed as "wasting"

For patients who started cART and while being on cART the following HCI were assessed:

- mean % of time being virologically suppressed
- proportion of patients with ›95% of time being virologically suppressed
- odds ratio (OR) of ›95% of time being maximally virologically suppressed adjusted for confounders

Follow-up after starting cART was limited to time on cART. The first 4 months after starting or changing cART were excluded from analysis and the proportion of time virologically suppressed was calculated as the proportion of time on cART with viral load ≤ 500 copies/ml.

cART was defined as at least two NRTIs plus either one NNRTI, PI/boosted PI or Abacavir

European countries were divided into 5 regions (**Figure 1**)

RESULTS

5,607 patients were included from 5 regions of Europe (**Figure 1**).

Patient characteristics

There were some differences in demographic characteristics (**Table 1**). Patients from EE were considerably younger than patients from other groups, with over 50% of the patients having been infected with HIV through injection drug use (IDU), at the same time a higher proportion of them are coinfected with HCV, and over two-thirds were ART-naïve at recruitment to the study.

Figure 1

EuroSIDA Regions

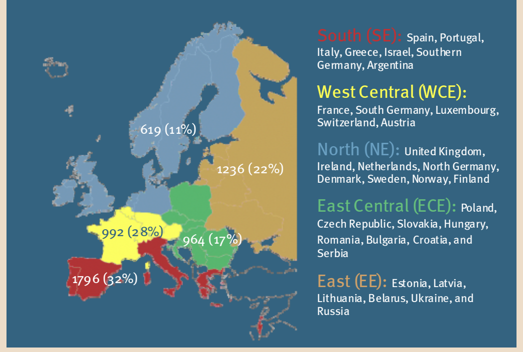


Table 1

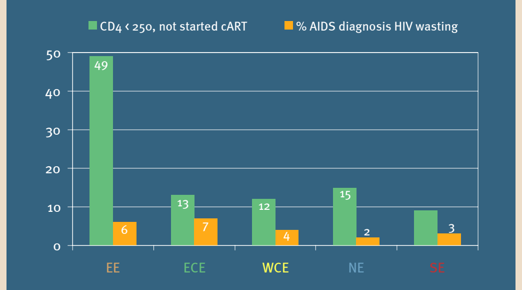
Baseline characteristics of patients under EuroSIDA follow-up after 1 January 2001

	EE	ECE	WCE	NE	SE
% Male	61	69	75	76	72
Median age (IQR)	28 (34-35)	35 (19-41)	41 (36-49)	43 (36-51)	38 (33-44)
% IDU	54	26	11	10	25
% HCV	50	27	11	12	15
% ART-naïve	68	18	14	15	12
% Previous AIDS	16	21	26	22	23
Median CD4 (IQR)	427 (281-597)	365 (235-523)	443 (297-620)	420 (285-600)	412 (249-609)
Median vL, log10 (IQR)	4.0 (2.6-4.8)	2.6 (1.7-3.8)	1.7 (1.7-3.7)	1.7 (1.6-3.4)	2.3 (1.7-3.9)

$p < 0.0001$ for all variables

Figure 2

Proportion of patients with CD4 ‹ 250cells/µL and not on cART and proportion of Wasting AIDS diagnosis



Analysis of HCI

We observed a high proportion of patients from EE with a low CD4 count who had not started ART (**Figure 2**). The % of AIDS cases diagnosed as HIV-Wasting was not significantly different across regions (p=0.06), although slightly higher in EE and ECE (**Figure 2**).

HIV-RNA was generally measured with less frequency in EE, whereas the differences in frequency of CD4 measurement were not so pronounced (**Figure 3**).

HCI at patients who have started cART

- The proportion of patients spending more than 95% of follow up time after starting cART (and whilst on cART) with VL ‹ 50 cp/ml was highest in NE, following by WCE, ECE, SE and EE (**Figure 4**)
- The mean % time (95%CI) with VL ‹ 50 cp/ml among patients who had started cART, and remained on cART, was highest in NE, lower in SE and lowest in EE (**Figure 4**)
- After adjustment, compared to EE, patients from ECE, WCE and NE had significantly increased odds of ›95% time on cART being virologically suppressed (OR = 1.64 [95% CI 1.2-2.3]; 3.0 [2.1-4.4]; 5.2 [3.4-7.9] and 1.2 [0.9-1.6] for ECE, WCE, NE and SE respectively) (**Figure 5**)
- Other factors associated with OR of ›95% time on cART being virologically suppressed were using an NNRTI-based regimen (OR=1.5 [95%CI 1.2-1.9]), being ART naïve when starting cART (1.7 [1.4-2.0]), being older (1.1[1.0-1.2]), starting ART more recently (1.2 [1.2-1.3]) and having lower HIV-RNA levels at starting ART (0.4/log_{10} higher [0.4-0.5]) (**Figure 5**)

SUMMARY

Indicators of HCI vary across the European continent. There is a need for concerted action to improve the situation including securing access to ART for those where therapy is indicated, improvement in laboratory assessment of HIV disease status, and ability to maintain maximum virologic suppression. The method described here can be used to measure HCI in other settings also outside of Europe.

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Figure 3

Frequency of CD4 cell count and Viral Load measurements

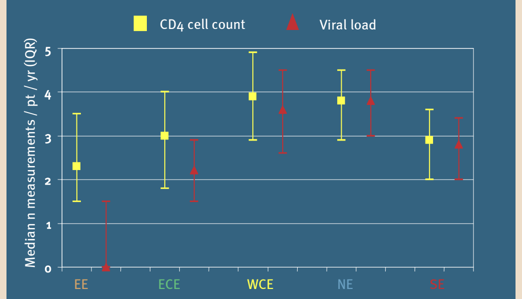

Figure 4

Proportion of patients with vL ‹ 50 cp/ml during › 95% of time on cART and mean % of time with vL › 50cp/ml

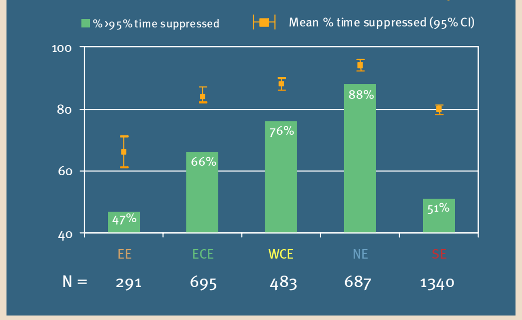

Figure 5

Odds Ratio of being suppressed more than 95% of time spent on cART