

# TREATMENT AND CARE IN RESOURCE LIMITED SETTINGS VS. HIGH INCOME SETTINGS



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## INTRODUCTION

The Republic of Serbia (RS) is a low-middle income non-European Union country, with a low prevalence rate (0.2%) of HIV infection. In RS combination antiretroviral therapy (cART) has been available and fully covered by the National health insurance system, though cART in Serbia depends on available antiretroviral drugs, regardless of current treatment guidelines.

Contrary, in the United Kingdom (UK), a high-income country member of the European Union (EU), antiretroviral therapy is available and fully covered.

## OBJECTIVES

The objective of this study was to compare cART regimens introduced as a first line therapy in antiretroviral drug-naïve patients in a low-middle income settings, such as RS, and a high-income settings, such as UK. Also, we wanted to compare the frequency of making switches within cART regimens and the frequency of viral and immunological monitoring in these two settings.

## METHODS

This study included treatment-naïve patients who had initiated antiretroviral therapy from the 1<sup>st</sup> January 2003 until the 1<sup>st</sup> June 2011. cART was considered as combination of two nucleoside reverse transcriptase inhibitors (NRTI) with the third drug, such as non-nucleoside reverse transcriptase inhibitor (NNRTI), or protease inhibitor (PI), or fusion and entry inhibitor (FI) or integrase inhibitor (II).

Patients from Serbia were attendees at the University Hospital for Infectious and Tropical Diseases in Belgrade (HCB). Patients from the UK were attendees at the outpatient clinic at the Royal Free Hospital, London (RFH).

We described the characteristics of the patients at the time of cART initiation focusing on NRTIs backbone prescribed together with the third drug used as a first line treatment in drug naïve patients. Also, frequency of virological and immunologic outcome monitoring, CD4+ T-cell counts and HIV-RNA plasma viral load (pVL), was compared in those two settings.

Comparisons of the two cohorts were made using a chi-square test or Fisher's exact test for categorical variables and using a Mann-Whitney U-test for continuous variables. Kaplan Meier survival curves were compared using the log rank test. Death rates (per 1000 person-years) were calculated for all patients included in the study.

All patients provided written informed consent to participate in the study, which was approved by the local ethics committee.

## RESULTS

We included 597 patient from HCB and 1763 patient from RFH, who were introduced cART during 8 years of follow-up.

Table 1. BASELINE PTS. CHARACTERISTICS

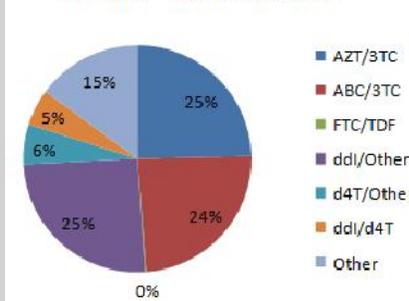
		HCB	RFH	P-value
Number		597 (100%)	1763 (100%)	
Gender	Male	478 (80%)	1234 (70%)	<0.0001
	Female	119 (20%)	529(30%)	<0.0001
Age	Median (IQR)	38 (32-44)	36 (32-43)	0.05
Risk for HIV acquisition	Homosex.	218 (37%)	850 (48%)	<0.0001
	Heterosex.	155 (26%)	839 (48%)	
	IDU	90 (15%)	49 (3%)	
	Other	134 (22%)	25 (1%)	
Year of starting	2003-2005	268 (45%)	682 (39%)	
	2006-2008	126 (21%)	648 (37%)	
	2009-2011	203 (34%)	433 (25%)	
Previous AIDS	Yes	361 (61%)	337 (19%)	<0.0001
Pretreatment CD4+ T-cells (cells/mm <sup>3</sup> )	Median (IQR)	177 (85, 298) (N=575)*	238 (123, 339) (N=1519)**	<0.0001
Pretreatment pVL (log/mL)	Median (IQR)	-	4.9 (4.3, 5.4) (N=1466)**	-

\* - available in 575 patients at HCB, \*\* - available in 1519 patients at RFH, \*\*\* - available in 1466 patients at RFH

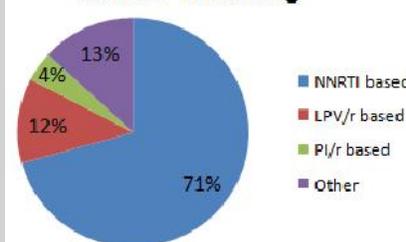
Significant differences was found in prescribed NRTI backbones, a first line regimen between the two cohorts (p < 0.0001). Charts 1a and 1b are presenting NRTI's backbones prescribed as a first line regimens at HCB and RFH, respectively. At HCB, the most frequent prescribed NRTI were zidovudine and lamivudine in 149 (25%) patients. In opposite to this, at the RFH the most frequently prescribed NRTI backbone were emtricitabine in combination with tenofovir in 899 (51%) patients. The "third drug" was predominantly NNRTI, in both centers (Charts 1b and 2b).

Charts 1a and 2a: Type of cART introduced in drug naïve patients at the HCB

1a: HCB - NRTI backbone

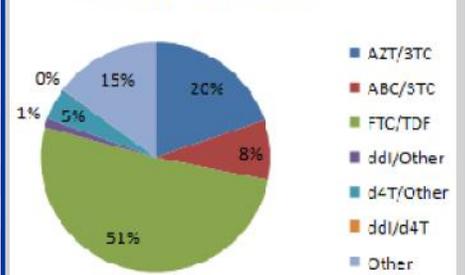


2a: HCB - Third Drug

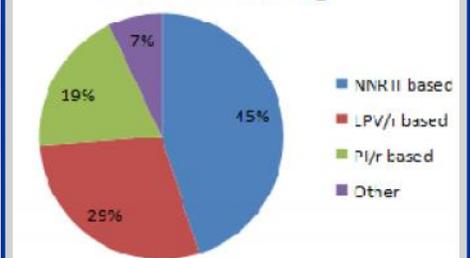


Charts 1b and 2b: Type of cART introduced in drug naïve patients at the RFH

1b: RFH - NRTI backbone

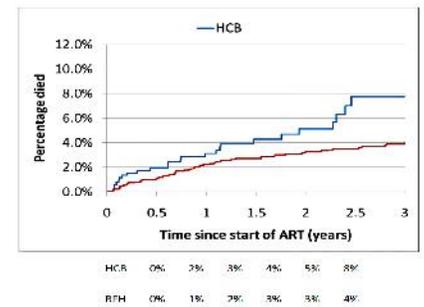


2b: RFH - Third Drug



There were significant differences in the frequency of CD4+ T-cells and HIVRNA pVL monitoring between the two centers. At the HCB, the total (mediana, IQR) CD4+ T cell count measurements in the first year of cART was 2 (1, 2), while it was statistically significant higher at the RFH 5 (3, 7), respectively (p < 0.0001).

Figure 1. Mortality: HCB vs. RFH after 3 years of follow-up



## CONCLUSION

In South East European countries, such as Serbia, as a consequence of low testing rate, antiretroviral treatment is introduced at an advanced stage of disease, having a high mortality rate as a consequence, especially during first three years of cART.

Early testing and consecutive treatment posit that expanded testing and earlier treatment of HIV infection could not only markedly decrease ongoing HIV transmission, stemming the HIV epidemic, but could also prolong live span in HIV infected individuals.