

Immunological and virological responses to combined antiretroviral treatment in male and female migrants in Europe: is benefit equal for all?

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Background

- Migrants account for a large proportion (~38%) of the people living with HIV and AIDS in European Union/European Economic Area
- The Collaboration of Observational HIV Epidemiological Research Europe (COHERE) has described significant differences in mortality according to geographical origin (GO)
 - Heterosexual women from the Caribbean and heterosexual men from Latin-America experience higher all-cause mortality than native HIV-positive populations

Objective

To evaluate differences in immunological and virological responses to combined antiretroviral treatment (cART) in male and female HIV-positive persons according to their GO within COHERE from 2004 to 2013

Methods

Study population

Data from COHERE (www.cohere.org), updated in 2013 within EuroCoord (www.EuroCoord.net), which consists of 279,659 HIV-positive individuals of 40 observational cohorts from 32 European countries

Results

32,817 patients 25,799 (78.6%) MEN 20,340 (78.8%) NAT, 751 (2.9%) WEWC, 342 (1.3%) EE, 482 (1.9%) NAME, 1,632 (6.3%) SSA, 1,586 (6.1%) LA, 290 (1.1%) CRB and 376 (1.5%) ASIA/OCEANIA

7,018 (21.4%) WOMEN 3,586 (51.1%) NAT, 141 (2.0%) WEWC, 193 (2.7%) EE, 149 (2.1%) NAME, 2,172 (30.9%) SSA, 370 (5.3%) LA, 226 (3.2%) CRB and 181 (2.6%) ASIA/OCEANIA

Figure 1. Observed CD4+ T-cell counts by geographical origin

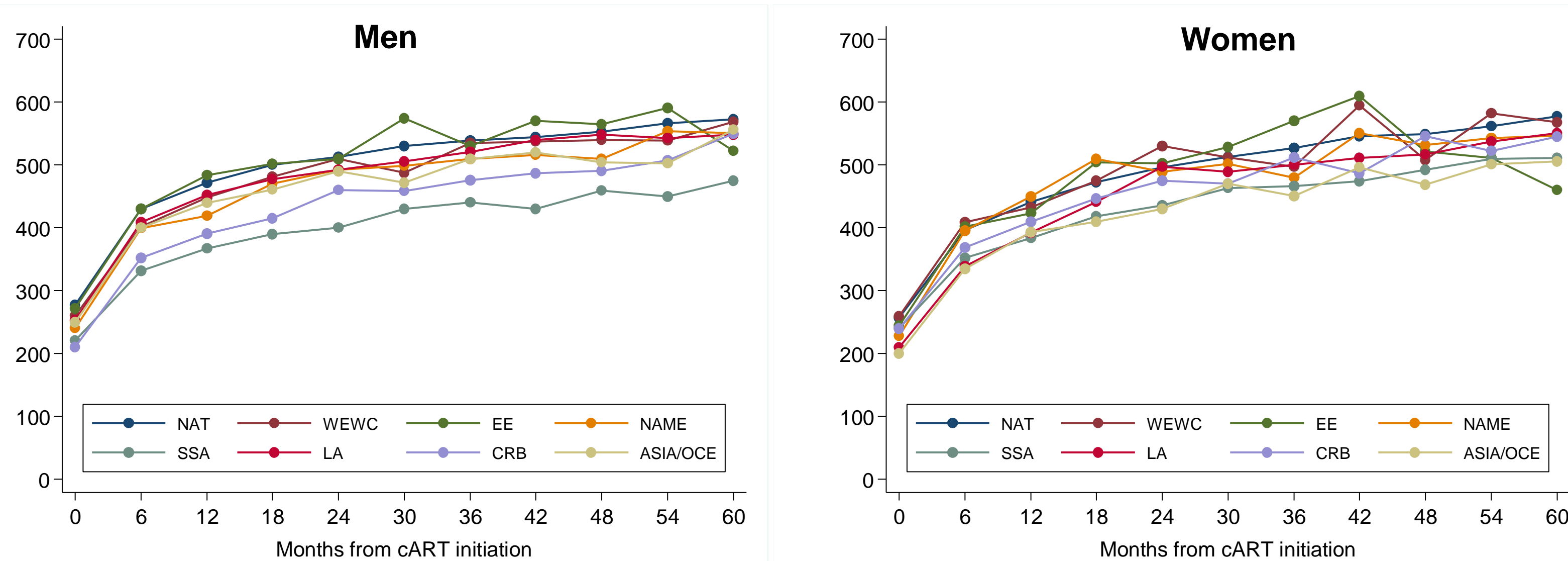
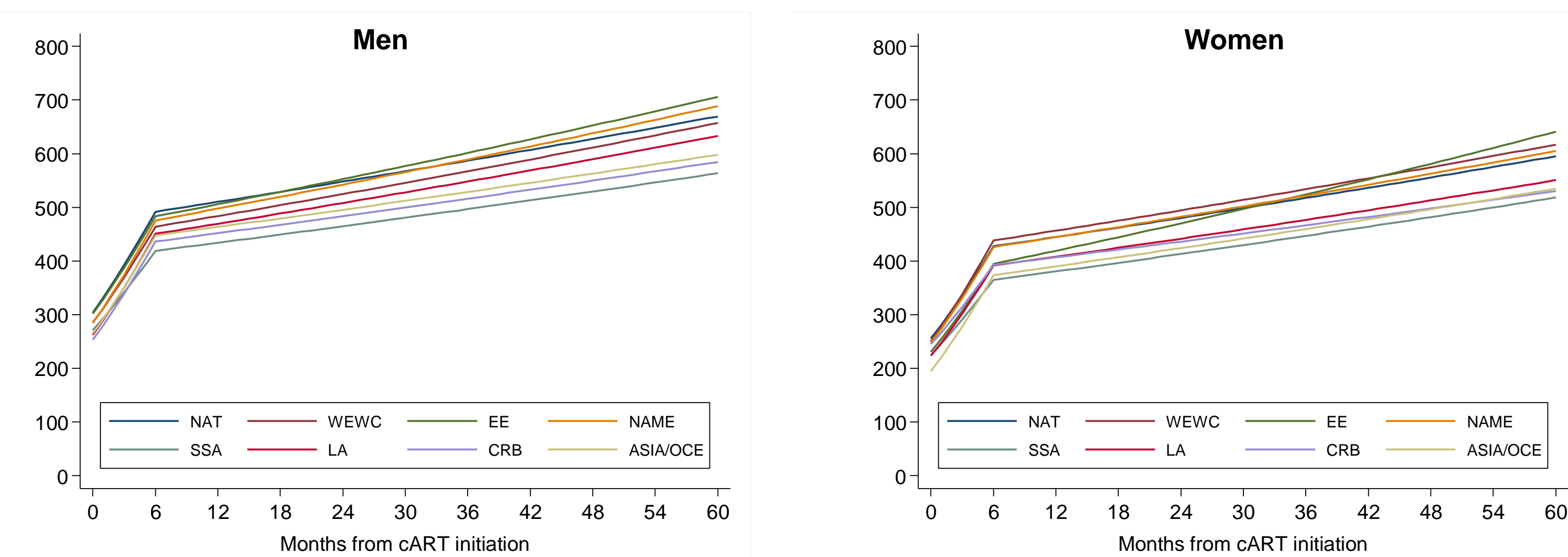


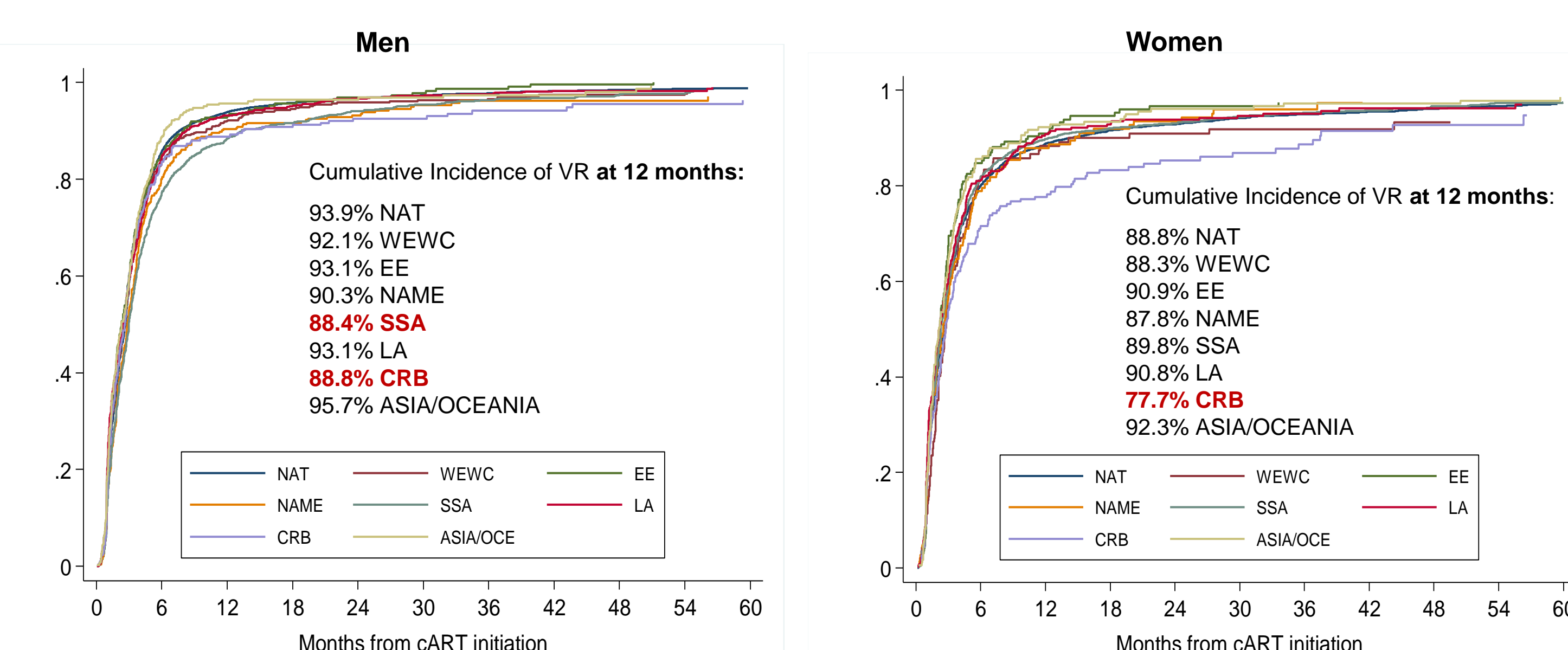
Figure 2. Predicted CD4+ T-cell counts by geographical origin



Majority profile: Men, MSM, 30 years old at start of cART, 5log10 HIV-RNA and AIDS-free at cART initiation, and cART initiated with NNRTI in period 2004-2008

Majority profile: Women, HTX, 30 years old at start of cART, 5log10 HIV-RNA and AIDS-free at cART initiation, and cART initiated with NNRTI in period 2004-2008

Figure 3. Cumulative incidence of virological response by geographical origin



Eligible individuals: Patients recruited from 1st January 1997, aged 18-74 years old at enrolment who initiated their first cART regimen from 1st January 2004 while antiretroviral-naive, had both CD4+ T-cell counts and HIV-RNA measurements available within the last 6 months prior to cART and at least two CD4+ T-cell counts and HIV-RNA measurements while on cART

Variables

- Migrants defined as GO different to reporting country, natives (NAT), and grouped as Western Europe and Western Countries (WEWC), Eastern Europe (EE), North Africa and the Middle East (NAME), Sub-Saharan Africa (SSA), Latin America (LA), Caribbean (CRB) and Asia/Oceania (ASIA/OCEANIA)

Statistical analyses

- Trends in CD4+ T-cell counts after cART initiation modeled using a piecewise linear mixed-effects model with 2 slopes (change at month 6)
- Time to virological response (VR) (ie. Time from cART initiation to the first of two successive HIV-RNA<400 copies/ml) – Multiple decrement method to calculate cumulative incidence of VR and proportional hazards models on the sub-distribution hazard to estimate sub-distribution hazard ratios (sHR)

- Migrants from SSA started cART at lower CD4+ T-cell counts, which remained lower over time for both men and women. SSA men had poorer short- ($p < 0.001$) and long-term ($p = 0.01$) immunological recovery and virological responses to cART compared to native men (adjusted sHR: 0.88; 95% CI: 0.82 – 0.95; $p = 0.001$), but no differences were observed between SSA and native women

- Migrants from LA showed similar immunological and virological responses than natives, yet short-term CD4-cell count recovery was better in men compared to natives ($p < 0.002$) and worse in women from LA compared to those from Europe ($p = 0.056$)

- Compared to NAT men and women, lower VR was observed in NAME (adjusted sHR: 0.91; 95% CI: 0.86 – 0.97) and SSA (0.88; 0.82 – 0.95) men and CRB women (0.77; 0.67 – 0.89), respectively

Conclusions

- Among HIV-positive patients in care and started on cART in Western Europe from 2004 to 2013, immunological and virological responses varied by geographical origin and sex
- Most migrant groups exhibited good CD4-cell count recovery
- Virological responses at 12 months were below 90% in migrant men from SSA and the Caribbean. Virological responses were poorer in women, particularly in those from the Caribbean, requiring targeted interventions supporting adherence to cART

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