HIV AND AGEING: PRIMARY AND SECONDARY PREVENTION OF CAD AMONG PLHIV

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BACKGROUND

With the introduction of combined antiretroviral therapy for HIV patients, the clinical focus has shifted from AIDS-related opportunistic infections to age-related co-morbidities, specifically cardiovascular disease (CVD). As of 2019, there were approximately 7,760 People living with HIV (PLHIV) in Sweden.

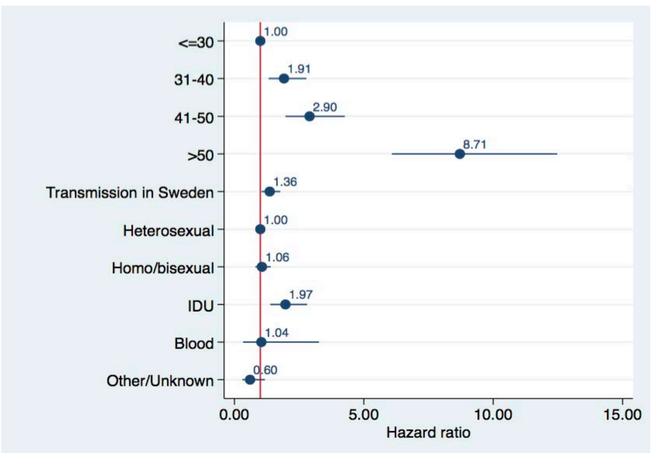
This study aims to assess the incidence of MI and stroke among PLHIV in Sweden, as well as their the socio-demographic and biological risk factors. Furthermore, this study aims to compare patients with acute myocardial infarction (AMI) with and without HIV with regard to baseline and presentation characteristics and risk of major adverse cardiovascular events (MACE): all-cause mortality, new myocardial infarction or stroke.

METHODS

For this retrospective cohort study, a total of 6,987 PLHIV were included from the Swedish National HIV Registry database and linked to the National patient register and the cause of death register to gather information on the incidence of MI or stroke. To determine whether HIV was a risk factor for mortality following a myocardial infarction, data from an existing national quality registry for coronary care was merged with the Swedish National HIV Registry. As many as 751,889 patients were included for analysis.

RESULTS

Fig 1. Significant risk factors of myocardial infarction or stroke among PLHIV: a Cox regression model.



PLHIV suffer AMI more than 10 years earlier than HIV-negative people. HIV was independently associated with higher risk of any major adverse cardiovascular events and more than doubled all-cause mortality at 1 year after AMI.

After a median of 9.8 years of follow-up, the number of patients experiencing myocardial infarction or stroke was equal to 364 (5.2%) out of 6,987 PLHIV. Out of them, 312 were hospitalized because of myocardial infarction or stroke: 312 (27 of them died) while 52 died because of myocardial infarction or stroke without hospitalization.

Table 1 Clinical outcomes for patients with PLHIV following an AMI compared to patients without PLHIV up to 1 year.

	Adjusted HR (95% CI)			
	Model 1	Model 2	Model 3	Model 4
MACE	2.08 (1.53 - 2.84)	1.64 (1.11 - 2.43)	1.55 (1.05 - 2.30)	1.60 (0.98 - 2.61)
Mortality	2.53 (1.75 - 3.63)	2.07 (1.31 – 3.29)	1.97 (1.24 - 3.12)	2.36 (1.34 - 4.16)
Reinfarction	1.80 (.99 - 3.24)	1.32 (0.63 - 2.77)	1.25 (0.59 - 2.62)	1.02 (0.38 - 2.72)
Stroke	1.50 (.62 - 3.60)	1.55 (0.58 - 4.12)	1.41 (0.53 - 3.76)	1.58 (0.51 - 4.92)

Model 1: adjusted for age and sex
Model 2: adjusted for age, sex, traditional risk factors (smoking, diabetes, hypertension, dyslipidemia)
Model 3: adjusted for age, sex, traditional risk factors (smoking, diabetes, hypertension, dyslipidemia), previous procedures and comorbidities (previous percutaneous coronary intervention (PCI), previous coronary artery bypass grafting (CABG), previous AMI, previous stroke, congestive heart failure, chronic kidney disease, chronic obstructive pulmonary disease (COPD), peripheral artery disease, previous bleeding requiring hospitalization (defined as the bleeding outcome described above)
Model 4: fully adjusted model

We identified all PLHIV (n = 319; 85% male) and HIV-negative people (n = 711,506; 59% male) who experienced an AMI during 1996 – 2017 in Sweden. PLHIV presented with AMI more than ten years younger (median age 54.7 vs 67.1 years), had a higher prevalence of smoking and chewing tobacco use and a lower prevalence of hypertension. PLHIV with AMI had a borderline significantly higher risk of MACE (fully adjusted hazard ratio (adjHR) = 1.60, 95% CI: 0.98 - 2.61) and mortality (adjHR = 2.36, 95% CI 1.34 – 4.16) at 1 year compared to HIV-negative people with AMI.

CONCLUSIONS

As expected, higher age corresponds to higher risk of myocardial infarction or stroke. Even after adjusting by age, sex, traditional risk factors (smoking, diabetes, hypertension, dyslipidemia), previous procedures and comorbidities (previous percutaneous coronary intervention (PCI), previous coronary artery bypass grafting (CABG), previous AMI, previous stroke, congestive heart failure, chronic kidney disease, chronic obstructive pulmonary disease (COPD), peripheral artery disease, previous bleeding requiring hospitalization (defined as the bleeding outcome described above) and in-hospital treatment (PCI, CABG) and guideline recommended medication at discharge (ACE_inhibitors, ARBs, beta-blockers, statins, aspirin and P2Y12 inhibitors), HIV was associated with more than double risk of mortality following AMI.

Further studies should focus on investigating the underlying clinical reasons behind this and to disentangle them between HIV infection factors and antiretroviral risk factors.

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