

Coronary Heart Disease Risk (CHD) in French HIV-Infected Men Started on a Protease Inhibitor (PI)-Containing Regimen Compared to the General Population.

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ABSTRACT

Background. CHD events have been reported after administration of PI to HIV-infected patients. Our objective was to compare the distribution of CHD risk factors and estimates of CHD risk in French HIV men under PI and a sample of the general population.

Methods. 223 HIV men aged 35-44 years, from the French APROCO cohort, 12/20 months after initiation of PI, compared to 527 men, same age, from a sample of the general population, the French WHO-MONICA project. All comparisons were adjusted for body mass index (BMI) because it was lower in HIV men: patients with BMI<20kg/m²: 20-24 and ≥25 were: 13%, 70% and 17% (APROCO) vs 4%, 44% and 52% (MONICA) (p<10⁻⁴).

Results. In HIV men, prevalence of hypertension was lower (5 vs 13%, p<0.003), whereas prevalence of smoking was higher (57 vs 33%, p<10⁻⁴). Mean total and LDL-cholesterolemia were not different in the two groups (2.22 vs 2.24 g/L and 1.42 vs 1.50 g/L, respectively), although, in HIV men, mean HDL-cholesterolemia was lower (0.44 vs 0.50 g/L, p<10⁻⁴), and mean triglyceridemia was higher (1.90 vs 1.27 g/L, p<10⁻⁴). Prevalence of diabetes was not different in the two groups (2 vs 3%). The estimate of the CHD risk (based on the French PRIME Cohort model) was increased in HIV men: RR=1.20 (p<10⁻⁴).

Conclusions. In HIV men started on PI-containing regimen, the estimation at M12-M20 of an increased CHD risk has important implications: long-term follow-up to determine if the observed CHD risk increases over time is mandatory; regular assessment of CHD risk factors should be included in the management of these patients, at initiation of HAART and thereafter; interventions to reduce potential modifiable risk factors should be considered: reduction of smoking, diet. The benefit of drugs acting on lipid metabolism could be studied in clinical trials.

BACKGROUND OBJECTIVES

Background

- After administration of PI-containing regimen
 - increase of lipids and glycaemia
 - reports of cardiovascular events

- % risk of cardiovascular morbidity in these patients?

Objectives

- To compare
 - ✓ the distribution of cardiovascular risk factors
 - and the estimation of cardiovascular risk

- in French HIV men under PI
- and a sample of the general population

STUDY SAMPLES

(1) HIV-infected patients: APROCO Cohort (ANRS EP11)

- enrollment: May 1997 - June 1998
 - in 47 French AIDS centres
 - 1172 patients started on a PI-containing regimen
- Baseline characteristics
 - males: 80%, mean age: 39 years, homosexual risk factor: 44%
 - prior antiretroviral therapy: 62%
 - mean CD4⁺: 306/mm³, mean plasma HIV RNA: 4.3 log₁₀ copies/mL
- prospective follow-up
 - M1, M4, then every 4 months
 - at M12 or M20: cross-sectional measure of cardiovascular risk factors
 - current exposure to NPI: 24%, IDV: 20%, RTV: 14%
 - mean CD4⁺: 482/mm³, mean plasma HIV RNA: 2.5 log₁₀ copies/mL
 - median duration of antiretroviral therapy and PI-containing regimen: 22 and 13 months respectively

(2) Sample of comparison: French WHO-MONICA Project

- enrollment: 1995-1997
 - in 3 areas (Lille, Bas-Rhin, Haute Garonne)
 - 3000 subjects aged 35-64 years
 - cross-sectional (age and sex-stratified) random samples selected from the general population

Restriction to men aged 35-44 years in both samples
n=223 in APROCO, n=527 in MONICA

RESULTS

Distribution of risk factors of cardiovascular disease

	APROCO		MONICA				
Body mass index (BMI) (kg/m ²)	<20	20-24	≥25	<20	20-24	≥25	adjusted
	13%	70%	17%	4%	44%	52%	"p-value"
% smoking	76.7	62.9	55.3	55.0	33.6	30.3	<10 ⁻⁴
% SBP>160 or DBP>95 mmHg	3.6	2.7	15.8	5.0	7.0	18.1	0.003
Mean waist-to-hip ratio	0.89	0.93	0.97	0.88	0.89	0.95	<10 ⁻⁴
Mean total cholesterol (g/l)	2.62	2.21	2.41	2.22	2.17	2.30	0.37
Mean HDL cholesterol (g/l)	0.51	0.45	0.38	0.58	0.53	0.48	<10 ⁻⁴
Mean LDL cholesterol (g/l)	1.22	1.41	1.62	1.42	1.43	1.56	0.58
Mean triglyceridemia (g/l)	1.49	1.85	2.46	1.18	1.16	1.38	<10 ⁻⁴
Mean fasting blood glucose (g/l)	0.93	0.92	0.99	0.91	0.95	1.02	0.05

^aadjusted for BMI

Estimation of cardiovascular risk (5-year coronary heart disease risk)

• Methods

- based on estimated coefficients from a predictive model estimated from:
 - the French PRIME Study: "PRIME model"
 - the Framingham Study: "Anderson model"
- comparison of the risk functions estimated in each sample by a RR

• Results

variables	RR	95%CI	p-value
- PRIME model: smoking status, SBP, total and HDL-cholesterol	1.20		<10 ⁻⁴
- Anderson model: smoking status, SBP, total cholesterol, HDL-cholesterol, diabetes	1.39		<10 ⁻⁴

DISCUSSION - CONCLUSIONS

Discussion

- In HIV patients started on PI
 - higher prevalence of the following cardiovascular risk factors:
 - smoking / hypoHDL-cholesterol / hypertriglyceridemia compared to HIV: numerous studies
 - impact on cardiovascular risk (general population)
 - hospital database:
 - > incidence of coronary heart disease (Lima, CROCO 2001), of myocardial infarction with duration-effect relationship in men (Masa-Kawata, CROCO 2001)
 - > estimated coronary heart disease risk based on predictive model: 20-40% increase in men (our study)
 - studies of ultrasound abnormalities (surrogate marker):
 - > prevalence (Chenret, CROCO 2000; Maggi, AIDS 2000; Debanat, AIDS 2001)

Conclusions

- More research is needed
 - ongoing prospective studies on large samples (DAD study)
 - pharmacologic studies
 - ultrasound longitudinal studies
- In HIV-infected patients started on PI
 - Early detection of these cardiovascular risk factors should be implemented
 - Interventions should be evaluated within the global care of HIV+ patients

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