

CORONARY REVASCULARIZATION IN HIV-INFECTED PATIENTS WITH CORONARY ARTERY DISEASE

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 on behalf the French Italian Study on Coronary artery disease in AIDS patients (FRISCA-1 and 2)

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Background

• Acute coronary syndromes (ACS) and coronary artery disease (CAD) are emerging complications in HIV-infected patients under highly active antiretroviral treatment. The impact on HIV infection on prognosis of coronary revascularization (percutaneous coronary intervention and coronary artery bypass graft) remains unknown in this population.

Objectives

• To compare, using a case-control design, ACS and CAD in HIV+ and HIV- in terms of:
 • Prognosis after revascularization
 • MACE : Major Adverse Cardiac Events : Cardiovascular death + Myocardial infarction + repeat Revascularization

Methods

• We prospectively identified and followed (1997 to 2003) 44 HIV-infected patients (HIV+) who underwent percutaneous coronary intervention (PCI) and 19 HIV+ who underwent coronary artery bypass graft (CABG) in 5 cardiologic centers.
 • We designed 2 case-control studies comparing HIV+ with HIV- matched for age and gender:
 -FRISCA 1 : 44 HIV+ PCI+ vs 44 controls HIV- PCI+
 Mean follow-up : 12 months
 -FRISCA 2 : 19 HIV+ CABG+ vs 38 controls HIV- CABG+
 Mean follow-up: 29 months

Results

1. HIV infection characteristics

	FRISCA 1	FRISCA 2
	HIV+ n= 44	HIV+ n= 19
Duration of HIV, y	7.8 ± 4.7	7.4±4.7
n of patients PI+	37 (84)	14 (74)
Exposure to PI, m	27 ± 13	18 ± 17
n of patients NRTI+ (N,%)	43 (98)	19 (100)
n of patients NNRTI+ (N,%)	4 (9)	2 (11)
Lipodystrophy sd (N,%)	25 (61)	17 (90)

	PreCABG	PostCABG	p	
Viral load, copies/mL	4045 ± 12617	195 ± 319	215 ± 314	0.82
CD4 cell count, mm3	496 ± 259	481 ± 165	410 ± 156	< 0.001

N: number, y: year, m: month, PI: Protease Inhibitor, NRTI: Nucleoside Reverse Transcriptase Inhibitor, NNRTI: Non-Nucleoside Reverse Transcriptase Inhibitor

2. Demographics

	FRISCA 1			FRISCA 2		
	HIV+ n= 44	HIV- n= 44	p	HIV+ n= 19	HIV- n= 38	p
Age, y	43 ± 7	44 ± 3	0,66	48 ± 11	49 ± 5	0,59
Sex, male (N,%)	39 (89)	38 (86)	0,75	18 (95)	36 (95)	1
Smoking (N,%)	38 (86)	42 (96)	0,14	17 (90)	30 (79)	0,33
Chol > 220 mg/dL (N,%)	35 (80)	29 (66)	0,15	18 (95)	30 (79)	0,12
LDL > 160 mg/dL (N,%)	29 (67)	21 (52)	0,17	17 (90)	30 (79)	0,33
TG > 175 mg/dL (N,%)	35 (81)	17 (42)	< 0,001	17 (90)	19 (50)	0,004
HDL < 40 mg/dL (N,%)	39 (91)	14 (37)	< 0,001	16 (84)	28 (74)	0,37
Diabetes mellitus (N,%)	0	5 (11)	0,05	2 (11)	12 (32)	0,08
Hypertension (N,%)	5 (11)	10 (23)	0,16	9 (47)	10 (26)	0,11
Obesity (BMI > 30) (N,%)	0	7 (16)	0,01	0	12 (32)	0,006
Family CAD (N,%)	3 (7)	13 (30)	0,01	5 (26)	15 (40)	0,33

Chol: Total cholesterol, LDL: Low Density Lipoprotein, TG: Triglycerides, HDL: High Density Lipoprotein. All fasting blood samples. BMI: Body Mass Index

3. Angiography

	FRISCA 1			FRISCA 2		
	HIV+ n= 44	HIV- n= 44	p	HIV+ n= 19	HIV- n= 38	p
n Vessel disease (> 50%)	1.8 ± 0.8	1.7 ± 0.7	0,49			
n VD > 2 (N,%)	5 (11)	7 (16)	0,53	17 (90)	28 (74)	0,17
LAD (N,%)	37 (84)	30 (68)	0,08	19 (100)	38 (100)	
Left circumflex (N,%)	27 (61)	18 (41)	0,06	18 (95)	30 (79)	0,12
RCA (N,%)	10 (23)	24 (55)	0,002	16 (84)	28 (74)	0,37
LVEF, mean % (N,%)	52	55	0,05	54	50	0,23
Indication for revascularization						
Unstable Angina (N,%)	24 (55)	12 (27)	0,01	7 (37)	21 (55)	0,03
MI < 24 h (N,%)	9 (21)	24 (55)	0,001	0	0	
MI < 1 month (N,%)	10 (23)	3 (7)	0,04	11(58)	5 (13)	0,001
Stable angina (N,%)	1 (2)	5 (11)	0,09	1 (5)	9 (24)	0,08

n= number, VD: vessel disease, LAD: Left Anterior Descending, RCA: Right Coronary Artery, LVEF: Left Ventricular Ejection Fraction, MI: Myocardial Infarction

• Cardiovascular risk factors were well-balanced and nearly identical in the 2 groups with a higher rate of hypertriglyceridemia and lower HDLc in HIV+ patients
 • Obesity, familial history of premature CAD and diabetes mellitus were more frequent in HIV- patients.
 • Unstable angina and late myocardial infarction were more frequent in HIV+ patients at the time of coronary revascularization with possible impact on prognosis
 • Coronary angiographic characteristics were identical
 • Low decrease of CD4 cell count were reported after CABG without clinical significance. No opportunistic infections were reported during follow-up.

4. Outcome

FRISCA 1

	HIV+ n= 44	HIV- n= 44	p
MACE (N,%)	11 (25)	7 (16)	0,27
Total Death (N,%)	0	0	
Cardiovascular death (N,%)	0	0	
MI (N,%)	4 (9)	0	0,12
TLR (N,%)	7 (16)	3 (7)	0,18
TVR (N,%)	0	4 (9)	0,12

MACE : Major Adverse Cardiac Events, MI: Myocardial Infarction, PCI : percutaneous coronary intervention. TLR: Target Lesion Revascularization, TVR: Target Vessel Revascularization

FRISCA 2

	HIV+ n= 19	HIV- n= 38	p
MACE (N,%)	11 (58)	7 (18)	0,002
Total Death (N,%)	1	0	0,3
Cardiovascular death (N,%)	0	0	
MI (N,%)	3 (16)	3 (8)	0,8
PCI (N,%)	5 (26)	4 (11)	0,12
ReCABG (N,%)	3 (16)	0	0,03

MACE : Major Adverse Cardiac Events, MI: Myocardial Infarction, PCI : percutaneous coronary intervention. TLR: Target Lesion Revascularization, TVR: Target Vessel Revascularization

Conclusion

• Coronary revascularization using either PCI or CABG is feasible and safe in HIV-infected patients with multivessel disease.

• At follow-up, MACE
 - were not significantly different between HIV+ and HIV- patients at 1 year mean follow-up in FRISCA-1 (PCI),
 - were significantly higher in HIV+ patients at 29 months mean follow-up in FRISCA-2 (CABG) due to an increased rate of re-intervention.

• Large prospective studies on prognosis of coronary revascularization in HIV-infected patients are warranted.