Impact of heterozygous familial hypercholesterolemia on mortality in ST-segment Elevation Myocardial Infarction patients

Benoit LATTUCA[1,2]; Johanne SILVAIN[1], Maryse GUERIN[3], Stéphanie ROUANET[4], Michel ZEITOUNI[1], Mathieu KERNEIS[1]; Paul GUEDENEY[1]; Jean-Philippe COLLET[1], Philippe LESNIK[3] and Gilles MONTALESCOT[1] for the ACTION Study Group.

[1]Sorbonne Université - Univ Paris 06 (UPMC), ACTION Study Group, INSERM UMRS 1166, Cardiology Institute, Pitié-Salpêtrière, Paris, France. [2] ACTION Study Group, Montpellier University, Cardiology department, Nîmes University Hospital, France. [3]Sorbonne Université - Univ Paris 06 (UPMC), INSERM UMRS 1166, Institute of Cardiometabolism and Nutrition, Paris, France. [4]StatEthic, Levallois-Perret, France

Mail to : gilles.montalescot@aphp.fr – poster available at www.action-coeur.org

Background and Purposes:

Heterozygous Familial Hypercholesterolemia (HeFH) is an underdiagnosed form of dyslipidemia associated with higher risk of myocardial infarction (MI). Identifying patients with HeFH during hospitalization for a ST segment Elevation MI (STEMI) would allow counselling, family screening and more aggressive dyslipidemia treatment. Data on prognosis of HeHF patients after an index STEMI is lacking.

The aim of this study was to assess the prevalence and impact on outcome of possible HeFH in patients admitted for STEMI.

Methods:

Lipid profiling was performed in consecutive STEMI patients admitted at the Pitié-Salpêtrière Center (Paris, France), with two separate measurements, one performed on the arterial blood on arrival in the cath-lab for primary PCI and the second from venous puncture after a fasting period during hospitalization. A possible HEFH was defined by the Dutch Lipid Clinic Score from the medical history of patients and LDL-cholesterol level. A score ≥3 defined a possible HEFH. Mortality was assessed at two-year follow-up.

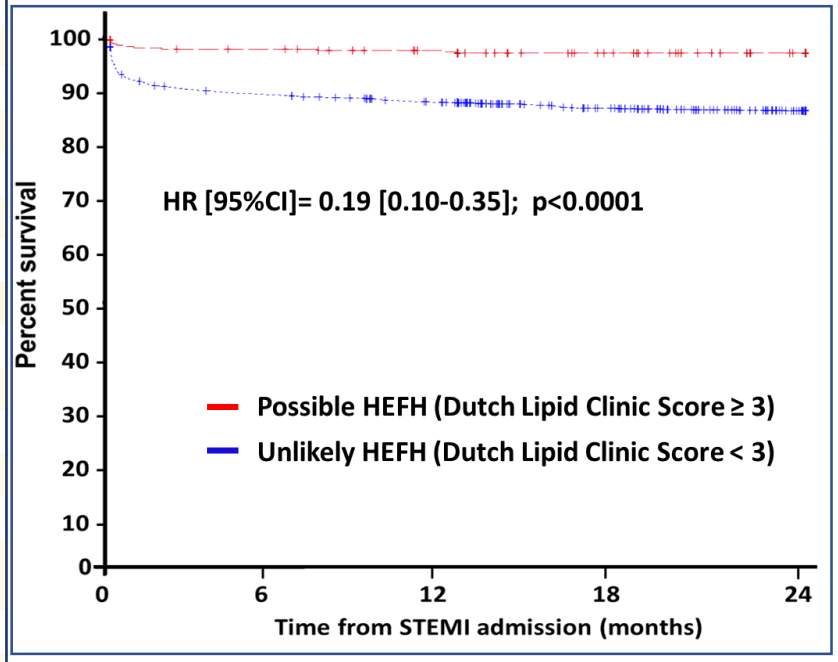
Results:

Among 1973 consecutive MI patients, the diagnosis of possible HeFH (DLCS ≥3) was reached in 21.4% (n=423) of patients and probable/definite HeFH (DLCS > 5) in 2.3% (n=46) of patients.

	TOTAL POPULATION N=1973	UNLIKELY HEFH (DLCS<3) N=1550	POSSIBLE HEFH (DLCS≥3) N=423	*P* value
Age, years (mean± SD)	59.7 ± 15.5	63.2 ± 14.9	46.7 ± 9.8	<0.001
Female sex	456 (23.1%)	384 (24.8%)	72 (17.0%)	<0.001
BMI, kg/m² (mean± SD)	26.0 ± 4.3	25.9 ± 4.3	26.4 ± 4.4	0.11
High Blood Pressure	842 (42.7%)	727 (46.9%)	115 (27.2%)	<0.001
Dyslipidemia	824 (41.8%)	642 (41.4%)	182 (43.0%)	0.55
Current Smoking	838 (42.5%)	573 (37.0%)	265 (62.6%)	<0.001
Familial CAD	464 (23.5%)	188 (12.1%)	276 (65.2%)	<0.001
Diabetes	326 (16.5%)	276 (17.8%)	50 (11.8%)	0.003
Previous CAD	313 (18.9%)	284 (20.3%)	29 (11.6%)	<0.001
III/IV class Killip	107 (6.8%)	100 (7.4%)	7 (3.0%)	0.004
Anterior MI	700 (46.7%)	598 (47.4%)	102 (43.1%)	0.64
Successful revasc.	1782 (90.5%)	1384 (89.5%)	398 (94.1%)	0.004
Multivessel disease	718 (44.2%)	626 (45.4%)	92 (37.4%)	0.01
LVEF (mean± SD)	50.6 ± 11.3	49.7 ± 11.6	53.4 ± 9.7	<0.001
Previous cholesterol-lowering treatment	334 (20.4%)	299 (21.5%)	35 (14.2%)	0.009
Mean LDL (g/dl)	1.2 ± 0.5	1.0 ± 0.3	1.6 ± 0.7	<0.001
Statins at discharge	1440 (87.2%)	1206 (86.1%)	234 (93.2%)	0.002

*BMI=Body Mass Index, CAD=Coronary Artery Disease, MI=Myocardial Infarction, LVEF=Left Ventricular Ejection Fraction

There was no significant difference between LDL-cholesterol measured on admission on anticoagulated arterial blood and non-anticoagulated venous blood after a fasting period: 1.18±0.47 g/dl vs 1.19±0.41g/dl; p=0.76.



At two-year, the mortality rate was lower in patients with possible HeFH: 2.7% vs 14.4%; HR=0.19 [0.10-0.35]; p<0.0001

Conclusion: HEFH is frequent in STEMI patients when screened with the Dutch Lipid Clinic Score and allows the characterization of a potentially higher risk population. The better prognosis of these patients may be related to their younger age and more aggressive treatment for dyslipidemia.