First mortality data of a health care network of patients with congestive heart failure : benefit observed comparing to the patients included in a prospective register_

- Dr M Bonarek[1], Dr A Hadjo[1,2], Dr Ph Lauribe[1,2] Dr D Benchimol[1], Dr Ph Matis[1] Dr MP Bienvenu[2], Pr JF Dardigues[3], Dr H Benchimol[1,2].

- 1. Cardiosaintonge, 78 Cours Lemercier, 17100 Saintes, France.
- 2. Service de Cardiologie, Centre Hospitalier de Saintes, France.
- 3. Unité INSERM 593, Bordeaux, France.

Background

- The Cardiosaintonge network implemented on January 1st 2004 at Saintes (town of 27000 inhabitants in the south-west of France), offers to patients with congestive heart failure (CHF), coordinating care involving :
  - general practitioners (GP),
  - cardiologists,
  - nurses,
  - physical therapists,
  - dieticians.

Patients and Methods (1)

- **Inclusion criteria** :
  - an episode of acute heart failure having occurred within the preceding 12 months,
  - cardiothoracic ratio > 0.5 or
  - ventricular ejection fraction < 50%.
- A **register** of all consecutive patients hospitalized for acute heart failure in the cardiology department in Saintes Hospital was in the same time prospectively opened.

Patients and Methods (2)

- Upon December 31st 2004, a total of 224 patients were recruited in the register,
- 27 have been secondarily excluded of analysis (in-hospital mortality or co morbidities engaging short term vital prognostic),
- Of the remained 197 patients, 69 were included in the Cardiosaintonge network and 128 were thus in the "non network" group,
- End point was June 30th 2005, 18 months after the first inclusions.

Results (1)

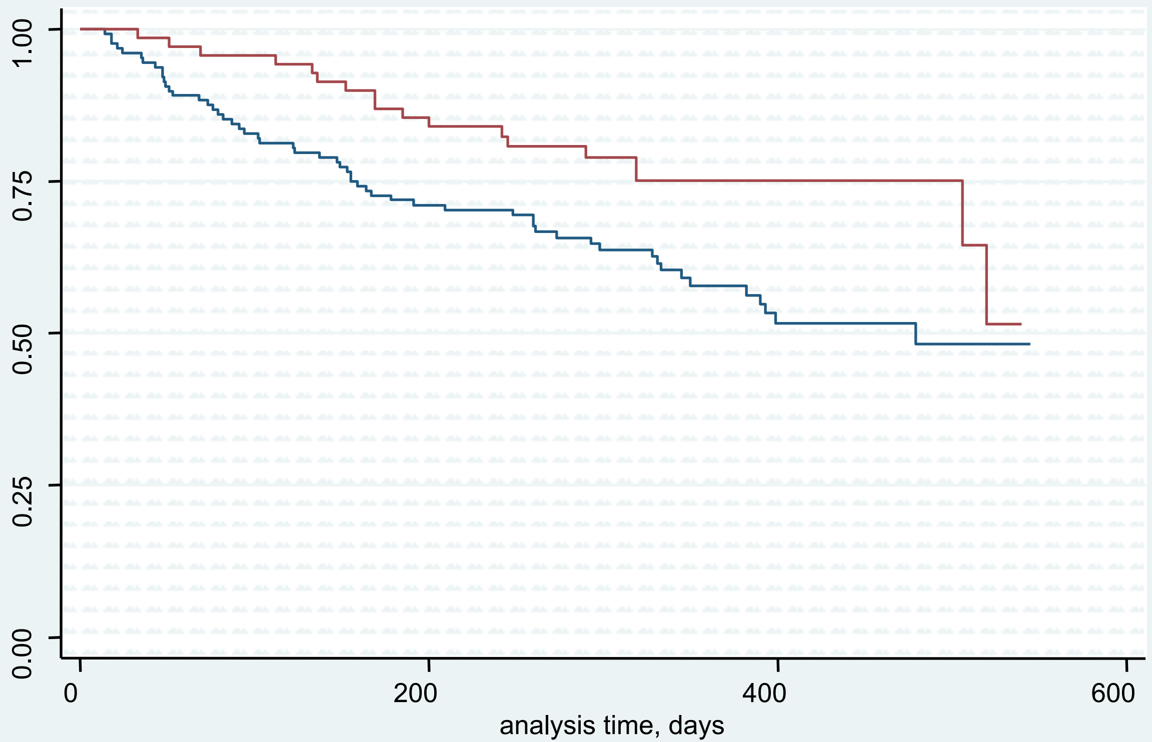
- The two groups of patients were different in base-line characteristics for :
  - age (median of 80 years for the network patients and 83 years in the non network group p = 0.003)
  - the NYHA classification stage (IV for all non network patients for they were recruited during hospitalization for acute CHF and a median of III for the network group p=0.001).
- There was no difference between the two groups for
  - gender distribution (58 % of male in the network group and 51% in the non network group).

Results (2)

Variable	Network Group N = 69	Control Group N = 128	p
Gender			0.33
male	40 (58%)	65 (51%)	
female	29 (42%)	63 (49%)	
Age			0.003
median [IQR]	80 [56 – 89]	83 [76 – 89]	
NYHA Stage			$< 10^{-3}$
I	0	0	
II	16 (23%)	0	
III	43 (62%)	0	
IV	10 (15%)	128 (100%)	
median [IQR]	III [III – III]	IV [IV – IV]	
Mortality	18 (26%)	55 (43%)	0.02

Survival Analysis

- At end point and after active investigation we did not deplore any patient lost to follow-up. Median follow-up was of 11 months. A total of 18 patients (26%) died in the network and 55 (43%) in the non network group ($p = 0.02$).
- Survival analysis using Kaplan Meier curves estimated a median survival time of 540 days for the network group and 478 days for the non network group (Log-rank test, $p = 0.01$).


1.00
0.75
0.50
0.25
0.00
0
200
400
600
analysis time, days
Non network
Network

Comparison of Survival rates by Log-rank test ($p = 0.01$)

	Median of survival	Survival Rate		
		3 months	6 months	9 months
Network group	540 days	0.96	0.87	0.81
Control group	478 days	0.84	0.72	0.66

- Median of survivalSurvival Rate3 months6 months9 monthsNetwork group540 days0.960.870.81Control group478 days0.840.720.66

Multivariate analysis

- Cox proportional hazard model, adjusting on gender, age and NYHA stage determined the independent role of the network on longer survival since, the adjusted hazard ratio was of 0.34 for the network group ($p = 0.04$).

Cox proportionnal hazard model

Baseline Characteristic	hazard ratio univ. anal.	95% CI	p	hazard ratio multiv. anal.	95% CI	p
Gender			0.73			0.95
male	1	-		1		
female	1.08	[0.68-1.72]		1.01	[0.63-1.63]	
Age (years)			$<10^{-3}$			$<10^{-3}$
≤ 80	1	-		1	-	
> 80	2.80	[1.68-4.65]		2.58	[1.54-4.32]	
NYHA stage	1.36	[0.92-2.03]	0.13	0.63	[0.29-1.36]	0.24
Cardiosaintonge network			0.01			**0.04**
no	1	-		1	-	
yes	0.50	[0.29-0.85]		0.34	[0.11-0.90]	

Conclusions

- This first survival analysis undertaken only 18 months after the implementation of our health care network provides encouraging results; since patients who benefit from the coordinating regular care have 65% more chance to survive in the next 18 months than those who have not benefited from such a care.
- Inclusions are ongoing in our network, further analyses with more patients and longer follow-up should confirm these data and the effectiveness of this kind of health care.