

Chronic heart failure in younger patients: temporal trends in clinical characteristics, treatment and outcomes over two decades in a nationwide cardiology registry

M. Iacoviello¹, M. Marini², M. Gori³, L. Gonzini⁴, M. Benvenuto⁵, L. Cassaniti⁶, A. Municino⁷, A. Navazio⁸, E. Ammirati⁹, M. Catalano¹⁰, M. Floresta¹¹, G. Scopelliti¹², D. Nassiacos¹³, M. Gorini⁴, R. De Maria¹⁴

¹University of Foggia, Foggia, Italy; ²University Hospital Riuniti of Ancona, Ancona, Italy; ³Ospedale Papa Giovanni XXIII, Cardiology Unit, Bergamo, Italy; ⁴Associazione Nazionale Medici Cardiologi Ospedalieri Research Center, Florence, Italy; ⁵G. Mazzini Hospital, Cardiology Unit, Teramo, Italy; ⁶Muscatello Hospital, Augusta, Italy; ⁷Padre A Micone Hospital ASL3, Cardiology Unit, Genoa, Italy; ⁸Santa Maria Nuova Hospital, Cardiology Unit, Reggio Emilia, Italy; ⁹ASST Great Metropolitan Niguarda, Cardiology 2 - Heart Failure and Transplantation, Milan, Italy; ¹⁰Cannizzaro Hospital, Cardiology Unit, Catania, Italy; ¹¹Ospedale Cervello-Villa Sofia, Cardiology Unit, Palermo, Italy; ¹²Alta Val d'Elsa Hospital, Cardiology Unit, Poggibonsi, Italy; ¹³Saronno General Hospital, Cardiology Unit, Saronno, Italy; ¹⁴CNR Institute of Clinical Physiology, ASST Metropolitan Hospital Niguarda, Milan, Italy

On behalf of IN-HF (Italian Network on Heart Failure) Investigators

Funding Acknowledgement: Type of funding source: Foundation. Main funding source(s): Fondazione per il Tuo cuore – HCF onlus

Aim of the study: We analyzed the temporal trends in characteristics, therapy and outcomes over two decades of younger chronic heart failure (CHF) patients enrolled in our nationwide registry.

Methods: Among the 14823 CHF patients enrolled in the registry since January 1999 through May 2018, 5465 (37%) were aged <65 years (78% men, 54±9 years, left ventricular ejection fraction (LVEF) 36±11%). Patients were divided into 3 cohorts according with the recruitment epoch: 1999–2005; 2006–2011; 2012–2018. We analyzed trends over time of clinical characteristics, therapy, one-year all-cause mortality, all-cause mortality and/or all-cause hospitalization, all-cause mortality and/or CV hospitalization, and all-cause mortality and/or HF hospitalization.

Results: From 1999 to 2018 the proportion of patients <65 years declined: 42% in first (2288/5404), 37% in second (1464/3971), 31% in third period (1713/5448).

As shown in the Table, the proportion of women, diabetes, ischemic etiology and renin-angiotensin system inhibitor prescription did not change significantly among the three enrollment epochs, whereas preserved LVEF phenotype and prevalence of its driving risk factors increased. The proportion of guideline-recommended drug & device therapies significantly rose over time. All-cause mortality at 1-year follow-up decreased significantly across the 3 epochs studied (Figure).

Conclusions: During 20 years, the clinical characteristics, the implementation of recommended treatments and prognosis of patients <65 years enrolled in a nationwide cardiology registry have deeply changed. These modifications reflect the evolution of cardiovascular risk factors and improved management strategies of CV disease.

Table 1

Clinical characteristics	1999–2005				2006–2011				2012–2018			
	1999–2005	2006–2011	2012–2018	p for trend	Drug & Device therapy							
Women %	21.6	20.4	23.1	0.31	Furosemide %	66.6	72.7	73.9	<0.0001			
History of Hypertension %	35.5	43.0	48.3	<0.0001	Furosemide >75 mg/day % (available for 4275 pts)	11.8	17.6	23.3	<0.0001			
Diabetes %	21.8	23.2	23.1	0.29	Digitalis %	36.5	15.2	5.8	<0.0001			
Obesity (BMI ≥30) %	23.6	27.5	29.5	<0.0001	Oral Anticoagulants %	22.2	24.4	27.9	<0.0001			
HF history ≥6 months %	46.6	51.9	66.8	<0.0001	Permanent pacemaker %	8.0	4.4	1.5	<0.0001			
HF admission previous 12 months %	52.1	45.3	30.9	<0.0001	ACE-I/ARB/ARNI %	88.3	90.2	87.4	0.46			
Ischemic aetiology %	33.6	32.0	35.6	0.24	Betablockers %	58.8	74.7	92.5	<0.0001			
NYHA III-IV %	19.5	17.4	14.7	<0.0001	MRA %	41.0	46.9	61.8	<0.0001			
History of Atrial fibrillation %	12.5	17.1	20.2	<0.0001	CRT-P %	0.6	1.0	1.4	<0.001			
LVEF <40%	66.1	66.4	59.0	<0.0001	CRT-D %	2.2	6.2	10.5	<0.0001			
Transplanted after 1 year	0.5	0.3	0.7	0.38	ICD %	13.2	22.4	32.6	<0.0001			

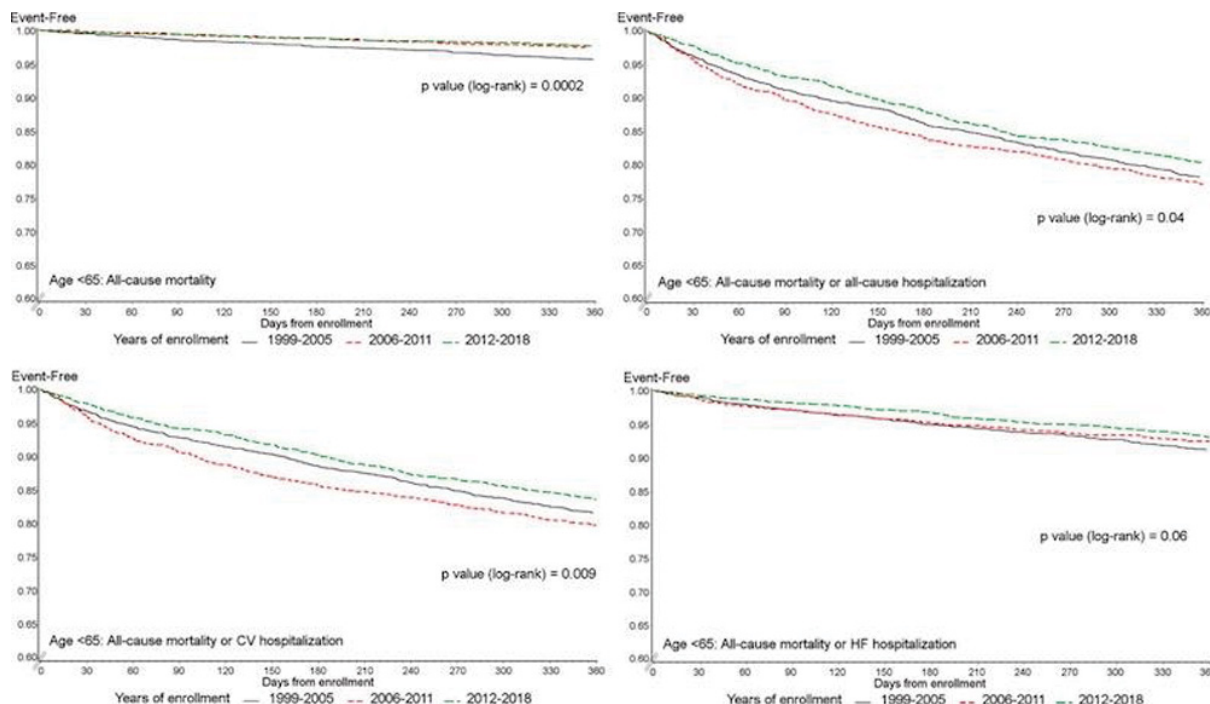


Figure 1