

Elevated heart rate and in-hospital mortality in acute heart failure

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Elevated heart rate and in-hospital mortality in acute heart failure

Session [Acute heart failure: update 2014](#)

Speaker [Arnaud Ancion](#)

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- Topic : heart failure
- Sub-topic : Chronic Heart Failure - Other

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Topic(s):

Heart failure, other

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Background: Heart failure (HF) poses a unique medical burden of high morbidity and mortality. Elevated resting heart rate is associated with worse outcomes in chronic HF but little is known about its prognostic impact in acute setting.



Methods and results: We examined the association of heart rate with in-hospital mortality in a cohort of 778 patients admitted for acute HF between January 2010 and December 2012. None of the patients had significant arrhythmias, required invasive ventilation, or presented with acute coronary syndrome or primary valvular disease. Heart rates was obtained 24-36 hours after admission. Forty patients died during the hospital stay. Those patients were older (78 ± 9 vs. 72 ± 12 years; $p=0.0021$), had higher heart rate (92 ± 22 vs. 78 ± 18 bpm; $p<0.0001$), NT pro-BNP ($p=0.0005$), creatinine (18 ± 18 vs. 14 ± 10 mg/dL; $p=0.023$), were often diabetics ($p=0.026$) and had lower systolic and diastolic blood pressures ($p<0.05$). With multivariable analysis, age ($p=0.008$), heart rate ($p<0.0001$), and creatinine ($p=0.024$) emerged as independent predictors of in-hospital mortality. The mortality rate was higher in patients with a heart rate >80 bpm (11% vs. 3%; $p<0.01$).

Conclusions: Higher heart rate 24-36 hours after admission for acute HF is associated with increased risk of in-hospital mortality. Early targeting of elevated heart rate might represent a complementary therapeutic challenge.

Variables	Whole Cohort	Survivors	Death	p
	(n=712)	(n=672, 94%)	(n=40, 5.6%)	
Age, years	72±12	72±12	78±9	0.0021
Male gender, n (%)	425 (60)	396 (59)	29 (73)	0.089
Heart rate, bpm	79±18	78±18	92±22	<0.0001
Systolic BP, mmHg	121±24	122±24	113±30	0.046
Diastolic BP, mmHg	68±13	68±13	58±16	0.0002
LV ejection fraction, %	44±16	44±16	46±15	0.46
Medical history				
Hypertension, n (%)	331 (46)	314 (47)	17 (42)	0.17
Diabetes, n (%)	132 (17)	118 (17)	14 (35)	0.026
COPD, n (%)	177 (25)	166 (25)	11 (27)	0.96
Prior MI, n (%)	129 (18)	125 (19)	4 (10)	0.08
Prior HF, n (%)	204 (29)	194 (29)	10 (25)	0.28
Laboratory findings				
Hemoglobin, g/L	12±2	12±2	12±2	0.63
NT-proBNP, pg/mL	9615±12872	8488±10660	24692±26433	0.0005
Creatinine, mg/dL	14±11	14±10	18.5±18	0.023

Variables	Whole Cohort	Survivors	Death	p
	(n=712)	(n=672, 94%)	(n=40, 5.6%)	
Sodium, mmol/L	140.7±4.4	141±4.2	140±6.3	0.71

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