

Factors predicting adverse cardiovascular outcomes in patients with atrial fibrillation and heart failure with preserved ejection fraction

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Introduction: Atrial fibrillation (AF) is known to impact cardiovascular(CV) mortality in heart failure (HF) patients (pts) with preserved ejection fraction (pEF) but its exact causes are unknown.

Methods: We analyzed demographic, clinical, ECG and AF presentation as predictors of CV mortality, sudden death(SCD) and pump failure death(PFD) in HFpEF pts in the TOPCAT AMERICAS trial. We analyzed two AF presentations 1. Pts in sinus rhythm (SR, n = 1319) compared to AF on ECG (n = 446) at entry or 2. Pts with no AF event by history or ECG (n = 1007) to those with any AF event (n = 760).

Results (Table): 5 year (yr) CV mortality was higher in pts with AF on ECG (30%) than SR (18%, p = 0.014) but 5 yr SCD was (10% in AF on ECG & 7% in any AF) & comparable to SR (7% & 9% respectively, p = ns). 5 yr PFD was higher in AF on ECG (13%) than SR (5%, p = 0.007)

Conclusions:: 1. CV death risk in HFpEF pts increased with AF on ECG.. 2. SCD was not more frequent with both AF presentations 3. PFD in HFpEF increased with age, ECG recorded AF & elevated heart rate. 4. The recording of AF on ECG was more strongly associated with CV death & PFD, possibly due to greater AF burden .

Predictors of adverse outcomes in HFpEF

Endpoint	Covariate	AF on ECG*		Any AF*	
		HR (95% CI)	p-value	HR (95% CI)	p-value
Time to cardiovascular death	Atrial Fibrillation*	1.44 (1.08, 1.92)	0.014	1.15 (0.87, 1.51)	0.338
	Age (years)	1.03 (1.02, 1.05)	<.001	1.03 (1.02, 1.05)	<.001
	Black/AA (vs. White)	0.97 (0.65, 1.46)	0.002	0.96 (0.64, 1.44)	0.004
	Other race (vs. White)	2.41 (1.46, 3.99)		2.32 (1.41, 3.83)	
	Smoking	2.62 (1.63, 4.20)	<.001	2.60 (1.62, 4.17)	<.001
	Diabetes	1.47 (1.12, 1.94)	0.006	1.45 (1.10, 1.91)	0.009
	Systolic BP (mmHg)	0.99 (0.98, 1.00)	0.022	0.99 (0.98, 1.00)	0.014
	Heart rate (bpm)	1.02 (1.00, 1.03)	0.012	1.02 (1.01, 1.03)	0.006
Time to Any sudden cardiac death	Atrial Fibrillation*	1.17 (0.69, 1.96)	0.563	0.85 (0.53, 1.35)	0.484
	Female (vs. Male)	0.46 (0.28, 0.75)	0.002	0.46 (0.28, 0.74)	0.002
	Black/AA (vs. White)	1.57 (0.87, 2.82)	0.194	1.49 (0.83, 2.69)	<.001
	Other race (vs. White)	1.76 (0.70, 4.41)		1.70 (0.68, 4.25)	
	Diabetes	1.70 (1.07, 2.70)	0.024	1.65 (1.04, 2.62)	0.033
Time to pump failure death	Atrial Fibrillation*	2.04 (1.22, 3.42)	0.007	1.62 (0.96, 2.75)	0.074
	Age (years)	1.06 (1.03, 1.10)	<.001	1.06 (1.03, 1.10)	<.001
	Heart rate (bpm)	1.03 (1.00, 1.05)	0.034	1.03 (1.01, 1.05)	0.015

Cox model of covariates associated with outcomes adjusted for baseline imbalances