Atrial Fibrillation and Heart Failure

Waleed AlHabeeb, MD, MHA Consultant Heart Failure Cardiologist President of the Saudi Heart Failure Group

- Heart failure and atrial fibrillation are both common cardiac conditions that share multiple risk factors
- Heart failure is a risk for atrial fibrillation and atrial fibrillation is a risk for heart failure
- Atrial fibrillation is a key prognostic indicator of heart failure progression and hospitalization

Digoxin and the Controversy

- In a large cohort of over 100 000 patients hospitalized with atrial fibrillation
- Digoxin use was associated with a greater risk for all-cause mortality in patients aged 65 or older with atrial fibrillation, with and without heart failure
- Several other studies have suggested that digoxin use is not associated with increased morbidity or mortality

Shah et al. J Cardiol 2014; 114:401–406

Heart Rhythm 2014;11:1543–1550.

Beta-Blockers

- A meta-analysis of 10 randomized controlled trials of beta-blockers versus placebo in heart failure patients with and without atrial fibrillation
- 18 254 patients, 3066 of whom had atrial fibrillation
- Beta-blocker therapy was associated with a mortality benefit in those with heart failure in sinus rhythm but not in atrial fibrillation
- Clinical outcomes were impacted by the achieved dose of beta-blockade even though achieved heart rates were not predictive

Kotecha et al. Lancet 2014

Kato et al. Int J Cardiol 2014; 173:331–333.

Intensity of Heart Rate Control

- No differences were seen in mortality, heart failure hospitalizations, symptoms, or quality of life when comparing strict (target resting heart rate <80 bpm) versus lenient (target resting heart rate <110 bpm) rate control
- For patients in sinus rhythm, higher heart rates were associated with worse survival
- In those with atrial fibrillation, there was no association between resting heart rate and survival

Eur J Heart Fail 2013; 15:1311–1318

Cullington et al. JACC Heart Fail 2014; 2:213–220

	Rate-control management	Notes
First line	Beta-blockers	To be used cautiously in acutely decompensated heart failure
Second line	Digoxin	Remains controversial with ongoing studies. Should not be used in conjunction with dronedarone
	Amiodarone	Suitable for rate control in patients resistant to beta-blockers and digoxin
	AV node ablation with a cardiac resynchronization device	Suitable as an invasive alternative when pharmacologic strategies fail
Avoid	Dronedarone	Clear demonstration of harm, especially when used in conjunction with digoxin
	Calcium-channel blockers	

Curr Opin Cardiol 2015, 30:161–167

Table 2. Rhythm-control management of atrial fibrillation in heart failure

	Rhythm-control management	Notes
First line	Amiodarone	Most studied pharmacologic option
Second line	Dofetilide	
	Catheter ablation with pulmonary vein isolation	Ongoing large randomized controlled studies assessing clinical benefit
Avoid	Dronedarone, Sotalol	Clear demonstration of harm
	Flecainide, Propafenone	Likely harm based on postinfarction trials

Curr Opin Cardiol 2015, 30:161–167

Rate or Rhythm Control

- Antiarrhythmic medications are poor at maintaining sinus rhythm
- Stroke risk is not mitigated by antiarrhythmic medications
- Antiarrhythmic medications can cause harm
- Pharmacological rate versus rhythm control is a controversial topic in the literature in light of the main results of the AFFIRM and RACE trials

CRT and AV junctional ablation

- CRT and AF
- A meta-analysis of 13 observational cohort studies involving 1256 patients with insufficient biventricular pacing (<90%), AV node ablation was associated with lower all-cause mortality

Clin Cardiol 2014; 37:707–715.

Ablation

- The Comparison of Pulmonary Vein Isolation Versus AV Nodal Ablation With Biventricular Pacing for Patients With Atrial Fibrillation With Congestive Heart Failure (PABA CHF) trial showed that PVI was superior to atrioventricular node ablation with biventricular pacing in patients with AF and HF, improving their cardiac function and exercise capacity
- This benefit was achieved after more than a single procedure

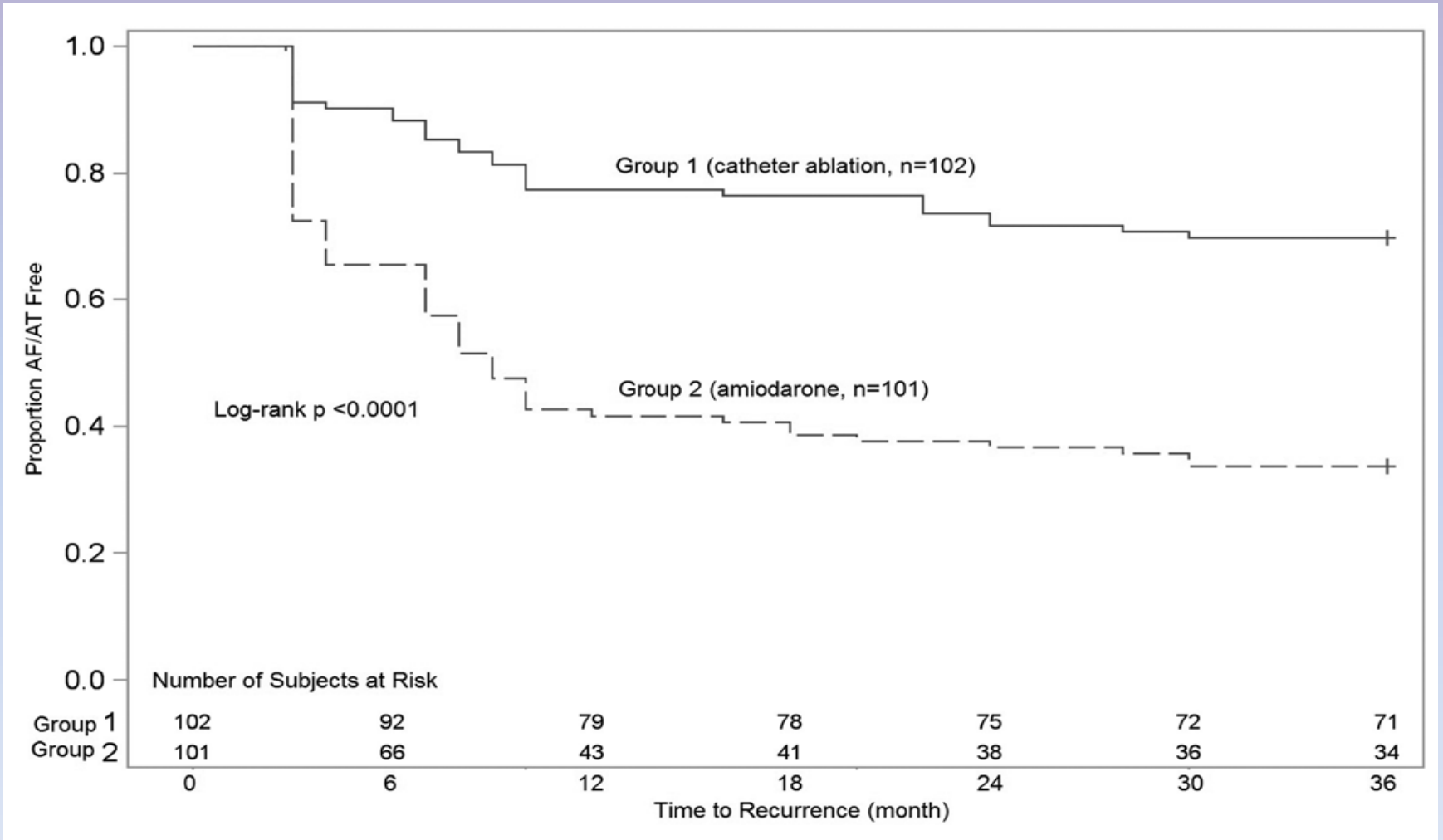
Jones et al. *J Am Coll Cardiol.* 2013;61:1894–1903

- A subanalysis of the AFFIRM trial shows the association of sinus rhythm but not AADs with improved survival
- An effective and safe method to maintain sinus rhythm may improve survival

- A meta-analysis of 26 trials and studies involving 1838 patients with ablation
- Complication rate was 4.2% and efficacy of maintaining sinus rhythm was 60%
- LVEF improved by 13% and NT-proBNP levels decreased by 620 pg/ml

Circ Arrhythm Electrophysiol 2014

Ablation Versus Amiodarone for Treatment of Persistent Atrial Fibrillation in Patients With Congestive Heart Failure (AATAC)



Circulation. 2016;133:1637-1644

	No Recurrence (n=91)		Recurrence (n=86)		*P* (Comparing Change Between Groups)
	Baseline	Change (Median)	Baseline	Change (Median)	
LVEF, %	28.8±10	9.6±7.4 (9.4)	30.2±9	4.2±6.2 (4.0)	<0.001
6MWD, meters	347±113	27±38 (24)	352±128	8±42 (2)	<0.001
MLHFQ	53±24	−14±18 (−12)	49±26	−2.9±15 (−2.2)	<0.001

- The success rate in patients who have persistent and long-standing persistent AF is variable in the literature
- The variation in procedural outcome depends on age, sex, AF types, structural heart disease, ablation technique, and operator experience
- Higher recurrence rate in HF patients

Final word?

- HF patients do better in sinus rhythm
- Its reasonable to target rate control given the current evidence
- AF ablation is a feasible option depending on the experience
- In patients with persisting symptoms and/or signs of HF, despite OMT and adequate control of ventricular rate

THANK YOU