Where are we with HF patients with AF?

Dipak Kotecha
Birmingham, United Kingdom
Where are we with HF patients with AF?

Dipak Kotecha, MBChB PhD MRCP FESC FHEA
HF and AF beget each other

Kotecha & Piccini, Eur Heart J 2015
NICOR, National Heart Failure Audit 2012
Chiang, Circ EP 2012;5:632-639
Lane/Kotecha (unpublished)

Cycle of interdependence between HF and AF

Loss of atrial systole
Decreased diastolic filling interval
Decreased cardiac output
Increased end-diastolic pressure
RAAS/neurohormonal activation

Tachycardia
Irregular conduction

Left atrial stretch
Increased atrial pressure
Increased atrial size
Atrial fibrosis

Increased focal triggers
Conduction slowing
Shortened atrial effective refractory period
Increased action potential duration heterogeneity

RealiseAF registry of 9816 AF patients
Concomitant HF & AF associated with poor clinical outcomes

- Increased hospital admissions
- Longer duration of hospital stay
- Worse functional status
- Poorer quality of life
- ? Treatment efficacy
- ? Polypharmacy in elderly cohort

Kotecha, Lancet 2014;384:2235-2243
Management of AF in HFpEF

- Diuretics to reduce signs and symptoms of fluid overload
- Optimisation of hypertension and other comorbidities
- Anticoagulation

- Absolute death rate of 18% over 2 years
- Similar hospitalisation rates
- Similar stroke rates

HFpEF = Heart failure with preserved ejection fraction
HFrEF = Heart failure with reduced ejection fraction

### What can we do to prevent AF in HFrEF?

<table>
<thead>
<tr>
<th>Medication</th>
<th>Effect Measure</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE inhibitors</td>
<td>Risk ratio 0.79</td>
<td>95% CI 0.62-1.00</td>
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<tr>
<td>Angiotensin receptor blockers</td>
<td>Risk ratio 0.78</td>
<td>95% CI 0.66-0.92</td>
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<tr>
<td>Beta-blockers</td>
<td>Odds ratio 0.67</td>
<td>95% CI 0.57-0.79</td>
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</tbody>
</table>

Treat HFrEF patients in sinus rhythm adequately to prevent AF developing!!
Management of AF in HFrEF

1. Overview
Management of AF in HFrEF

2. Anticoagulation

- No direct trials in this population
- Reasonable evidence from sub-group data about the effectiveness of anticoagulation for stroke prevention
- Residual risk of adverse outcomes after anticoagulation is related to AF type and presence of HF

Management of AF in HFrEF

3. Rhythm control

- Clinical trials have failed to show an advantage for rhythm over rate control in AF with HFrEF (e.g. AF-CHF trial)
- However these studies predominantly used cardioversion with anti-arrhythmic drugs (in HFrEF only amiodarone recommended)
- Catheter ablation avoids drug toxicity and improves LVEF, but we have yet to see improvements in cardiovascular outcomes
- Higher recurrence rates of AF are seen after ablation in HF patients, leading to a need for additional ablation procedures
- In selected centres, ablation can significantly improve quality of life
Management of AF in HFrEF
4. Rate control

Target heart rate: <110 bpm resting (based on RATE II trial randomising AF patients to strict or lenient heart rate control (n=614; 15% LVEF<40%)
Management of AF in HFrEF
4. Rate control

Choice of agent in HFrEF:

Diltiazem/verapamil – avoid/use caution

Beta-blockers – no prognostic benefit

Digoxin....

Combination therapy *

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Management of AF in HFrEF
5. Guideline recommended HF therapy

ACE inhibitors
- No trial results on AF patients

Angiotensin receptor blockers
- Candesartan: similar efficacy with and without AF (CHARM)
- Irbesartan: No benefit in AF (ACTIVE A/W)

Mineralocorticoid receptor antagonists
- Spironolactone: ??
- Eplerenone: similar efficacy with and without AF (EMPHASIS-HF)
Management of AF in HFrEF
5. Guideline recommended HF therapy

• Beta-blockers

Individual patient meta-analysis of HFrEF randomised controlled trials

n = 13,946 in sinus rhythm

n = 3066 with AF

Kotecha, Lancet 2014;384:2235-2243
Management of AF in HFrEF
5. Guideline recommended HF therapy

• Cardiac resynchronisation therapy

Conventional meta-analysis of observational studies, including 5583 in sinus rhythm and 1912 with AF:

1. Higher mortality in AF compared to sinus rhythm (risk ratio 1.50)
2. Higher rate of non-response to CRT: 35% in AF versus 27% in sinus (relative risk 1.32)
3. AF patients had less improvement in function and quality of life
4. Atrioventricular node ablation associated with better outcomes

Wilton, Heart Rhythm 2011;8:1088-1094
Management of AF in HFrEF
5. Guideline recommended HF therapy

McMurray, Eur Heart J 2012;14,803-869
Management of AF in HFrEF

5. Guideline recommended HF therapy

Diuretics to relieve symptoms/signs of congestion

ACE inhibitor (or ARB if not tolerated)

ADD a beta-blocker

Still NYHA class II-IV?

ADD a MR antagonist

Still NYHA class II-IV?

LVEF ≤35%?

Sinus rhythm and HR ≥70 beats/min?
Management of AF in HFrEF

CAN-TREAT HFrEF + AF

Management of newly diagnosed concomitant HFrEF and AF

Kotecha & Piccini, Eur Heart J 2015 (Epub 28 Sep)
Summary

1. AF in HF patients usually signifies a deteriorated clinical picture associated with worse outcomes, regardless of LVEF

2. HFrEF patients in AF may not respond to usual therapies in the same way but a pragmatic approach is important

3. Currently catheter ablation of AF is indicated for symptoms only

4. Rate control using beta-blockers or digoxin has no effect on mortality (we need more data comparing quality of life and LVEF)

5. Anticoagulation is indicated in most patients

and finally... AF is an umbrella term and individual characteristics will ultimately determine the effectiveness of therapy and prognosis
Heart Failure Summit 2015
Innovation in Clinical Care in Heart Failure
October 30-31, 2015 – Barcelona

Thank you for your attention

http://eurheartj.oxfordjournals.org/content/early/2015/09/28/eurheartj.ehv513