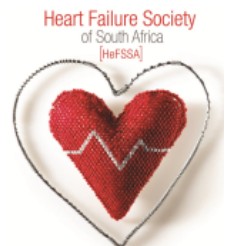


# HeFSSA Practitioners Program 2016

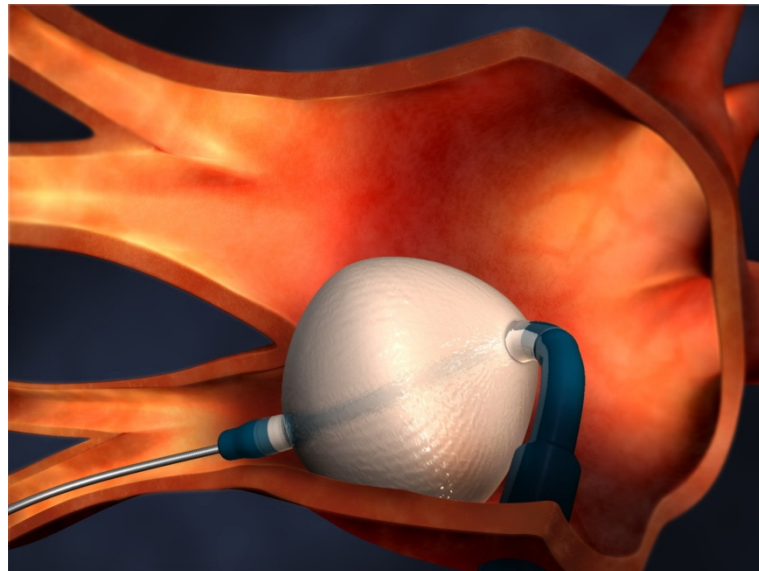
## Theme – “What is NEW in Heart Failure treatment?”

08:00	Registration
08:25	Welcome and Thank You to Sponsors
08:30	The new kid on the block – “ ARNI”
09:15	How do I effectively diurese my patient? Anything new?
10:00	Tea Break
10:30	<b>Drugs, devices and procedures to offer the atrial fibrillation patient- new and exciting</b>
11:15	The NEW heart failure guidelines from Europe
11:45	Questionnaire
12:00	Departure



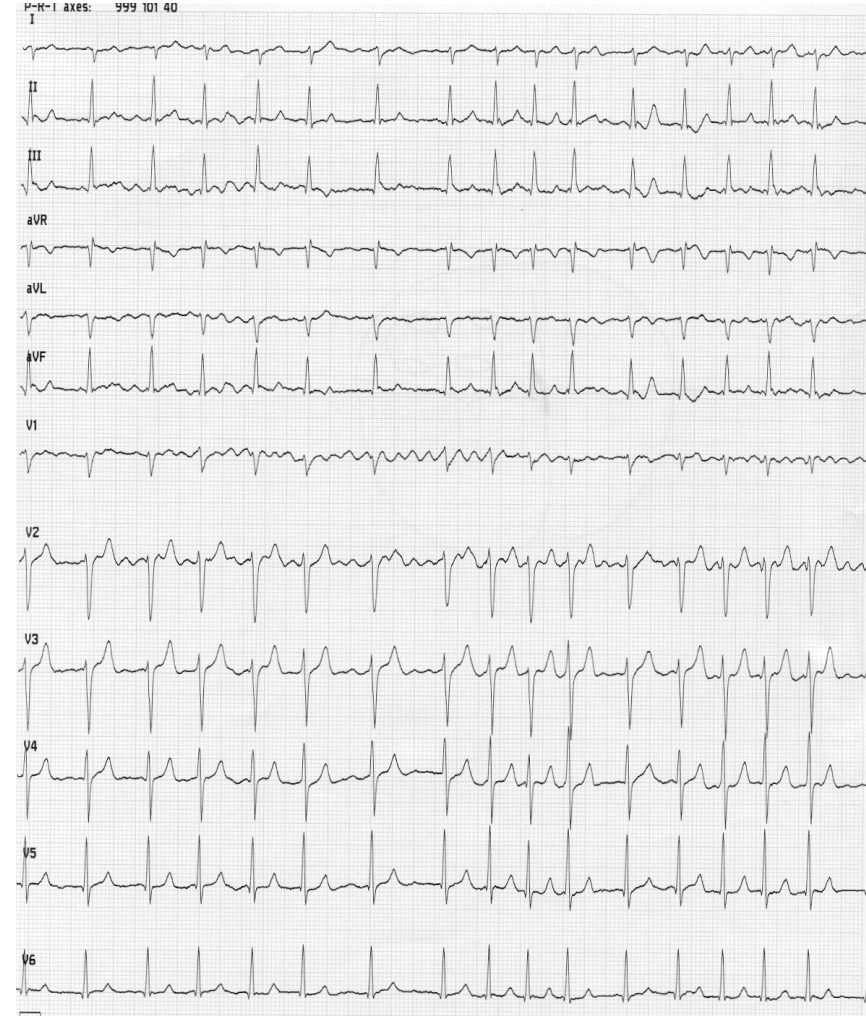
## CASE STUDY:

Drugs, devices and procedures to offer the atrial fibrillation patient- new and exciting



# Atrial fibrillation and heart failure

- Mrs S
  - 61 year old lady  
Presented in AF in 2009 with  
ventricular rate of 120/min  
and EF 35%
  - Given Amiodarone and  
underwent insertion of  
biventricular pacemaker
  - Right or wrong?
  - Needed to ask a lot more  
and do a lot more before  
getting to this stage!

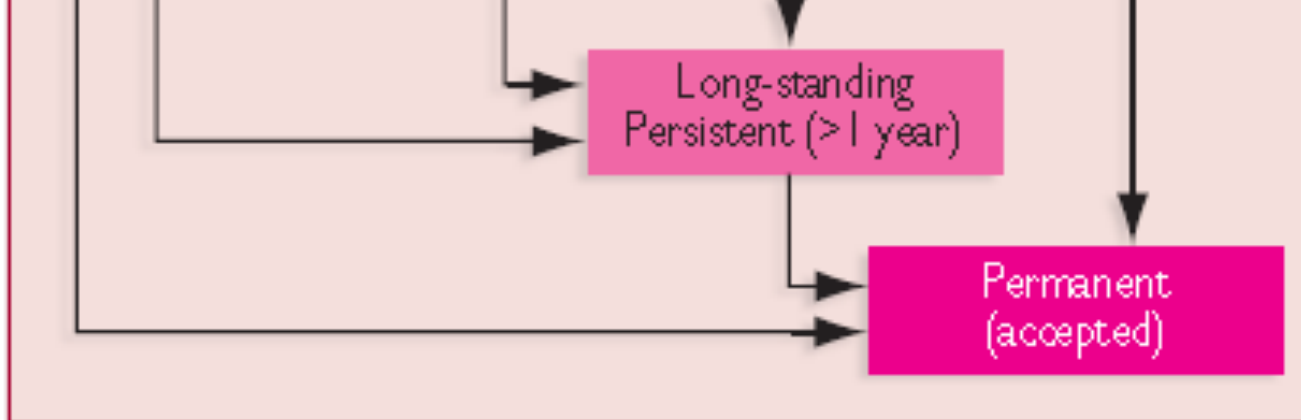


# Atrial fibrillation and heart failure

- Need to know whether this is
  - Heart failure with atrial fibrillation ? or
  - Atrial fibrillation with a tachycardia induced cardiomyopathy?
- Also need to know the duration and characteristics of the AF
  - Recent onset or longstanding? (how long)
  - Is it paroxysmal or persistent?

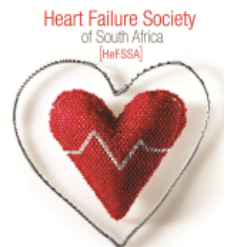


At



# Atrial fibrillation and heart failure

- Recent onset of heart failure symptoms and palpitations
- No recent medical assessment or ECG
- Examination
  - Mild biventricular failure
  - BP 130/86
  - Average heart rate 110/min
- ECG - Narrow QRS complex and in AF
- Echocardiogram – mildly dilated LV, EF 35%, moderately enlarged LA



# Atrial fibrillation and heart failure

- Why do we treat AF?

# Atrial fibrillation and heart failure

**Table 3** Clinical events (outcomes) affected by AF

Outcome parameter	Relative change in AF patients
1. Death	Death rate doubled.
2. Stroke (includes haemorrhagic stroke and cerebral bleeds)	Stroke risk increased; AF is associated with more severe stroke.
3. Hospitalizations	Hospitalizations are frequent in AF patients and may contribute to reduced quality of life.
4. Quality of life and exercise capacity	Wide variation, from no effect to major reduction. AF can cause marked distress through palpitations and other AF-related symptoms.
5. Left ventricular function	Wide variation, from no change to tachycardiomyopathy with acute heart failure.





# Atrial fibrillation and heart failure

- Need to treat acute symptoms and initiate medical therapy
  - Diuretics
  - Initiate B-blocker – good for heart failure and good for rate control (not calcium channel blocker in heart failure)
  - Could also start Digoxin – doesn't work well for rate control when adrenergic drive is high or with exercise
  - Optimise B-blocker and then add other heart failure therapy



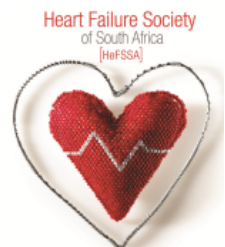
# Atrial fibrillation and heart failure

- Rate control
  - In heart failure with reduced ejection fraction
    - Use B-blockers and/or Digoxin not CCBs
    - Need fairly aggressive rate control
      - Average heart rate of 80-90/min
      - May need to do 24 hour Holter ECG to confirm this
      - Make the patient do some exercise and ensure that rate does not just shoot up



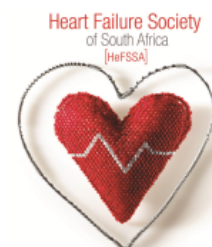
# Atrial fibrillation and heart failure

- What about stroke risk?
- Please remember that thrombo-emboli can go anywhere.
- While stroke is the easiest and scariest for patients, emboli to internal organs or limbs can be equally devastating



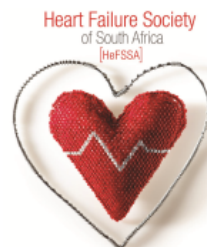
# Atrial fibrillation and heart failure

<b>(b) Risk factor-based approach expressed as a point based scoring system, with the acronym CHA<sub>2</sub>DS<sub>2</sub>-VASc</b> (Note: maximum score is 9 since age may contribute 0, 1, or 2 points)	
<b>Risk factor</b>	<b>Score</b>
Congestive heart failure/LV dysfunction	1
Hypertension	1
Age $\geq 75$	2
Diabetes mellitus	1
Stroke/TIA/thrombo-embolism	2
Vascular disease <sup>a</sup>	1
Age 65–74	1
Sex category (i.e. female sex)	1
<b>Maximum score</b>	<b>9</b>

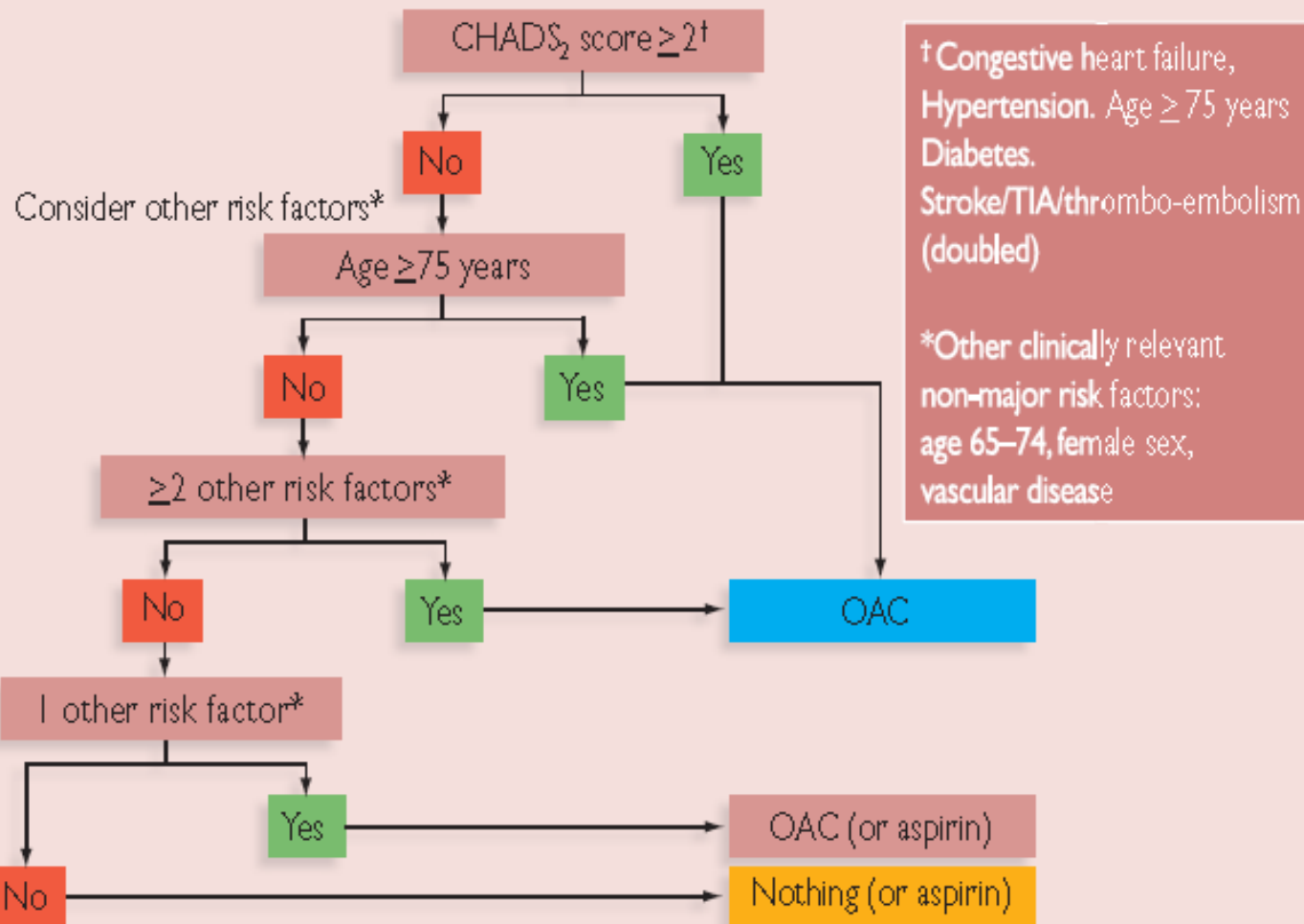


# Atrial fibrillation and heart failure

(c) Adjusted stroke rate according to CHA <sub>2</sub> DS <sub>2</sub> -VASc score		
CHA <sub>2</sub> DS <sub>2</sub> -VASc score	Patients (n=7329)	Adjusted stroke rate (%/year) <sup>b</sup>
0	1	0%
1	422	1.3%
2	1230	2.2%
3	1730	3.2%
4	1718	4.0%
5	1159	6.7%
6	679	9.8%
7	294	9.6%
8	82	6.7%
9	14	15.2%



# Atrial fibrillation and heart failure



# Atrial fibrillation and heart failure

**Table 10** Clinical characteristics comprising the HAS-BLED bleeding risk score

Letter	Clinical characteristic <sup>a</sup>	Points awarded
H	Hypertension	1
A	Abnormal renal and liver function (1 point each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly (e.g. age >65 years)	1
D	Drugs or alcohol (1 point each)	1 or 2
		Maximum 9 points

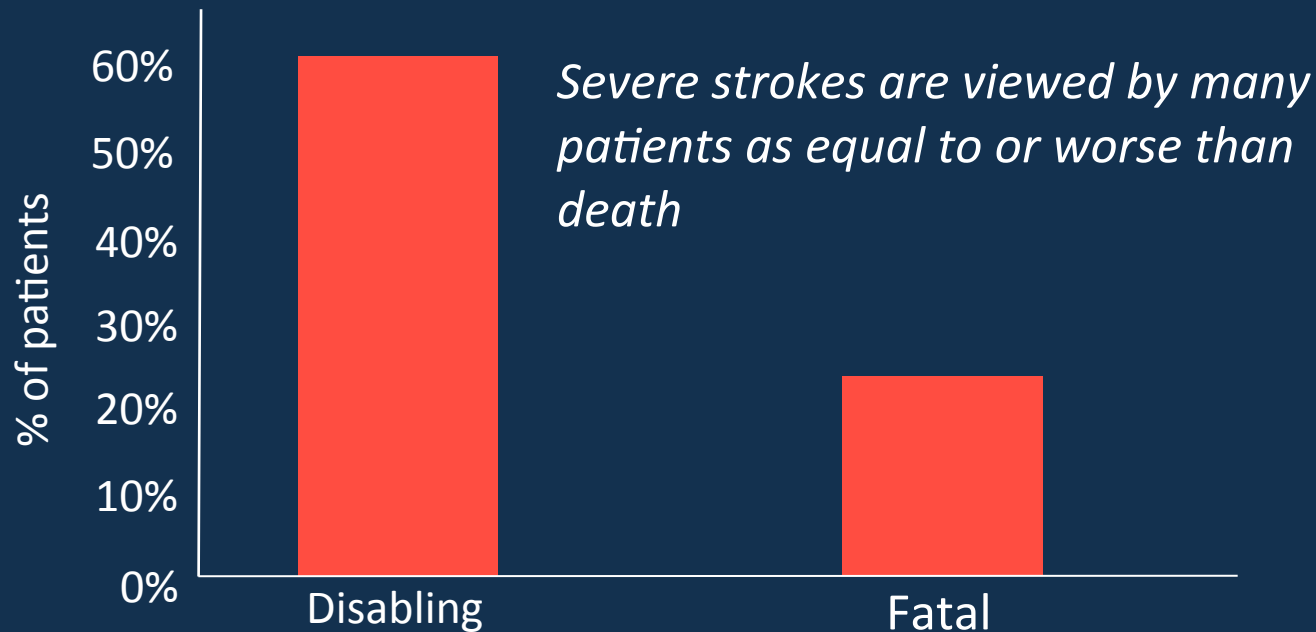
<sup>a</sup>'Hypertension' is defined as systolic blood pressure >160 mmHg. 'Abnormal kidney function' is defined as the presence of chronic dialysis or renal transplantation or serum creatinine  $\geq 200 \mu\text{mol/L}$ . 'Abnormal liver function' is defined as chronic hepatic disease (e.g. cirrhosis) or biochemical evidence of significant hepatic derangement (e.g. bilirubin  $>2 \times$  upper limit of normal, in association with aspartate aminotransferase/alanine aminotransferase/alkaline phosphatase  $>3 \times$  upper limit normal, etc.). 'Bleeding' refers to previous bleeding history and/or predisposition to bleeding, e.g. bleeding diathesis, anaemia, etc. 'Labile INRs' refers to unstable/high INRs or poor time in therapeutic range (e.g.  $<60\%$ ). Drugs/alcohol use refers to concomitant use of drugs, such as antiplatelet agents, non steroidal anti inflammatory drugs, or alcohol abuse, etc. INR — international normalized ratio. Adapted from Pisters et al<sup>60</sup>



# Atrial fibrillation and heart failure

AF is an independent risk factor for stroke  
Increases risk of stroke by 5-fold  
Responsible for up to 1 in 5 of all strokes  
About 80% of AF-related strokes are ischemic

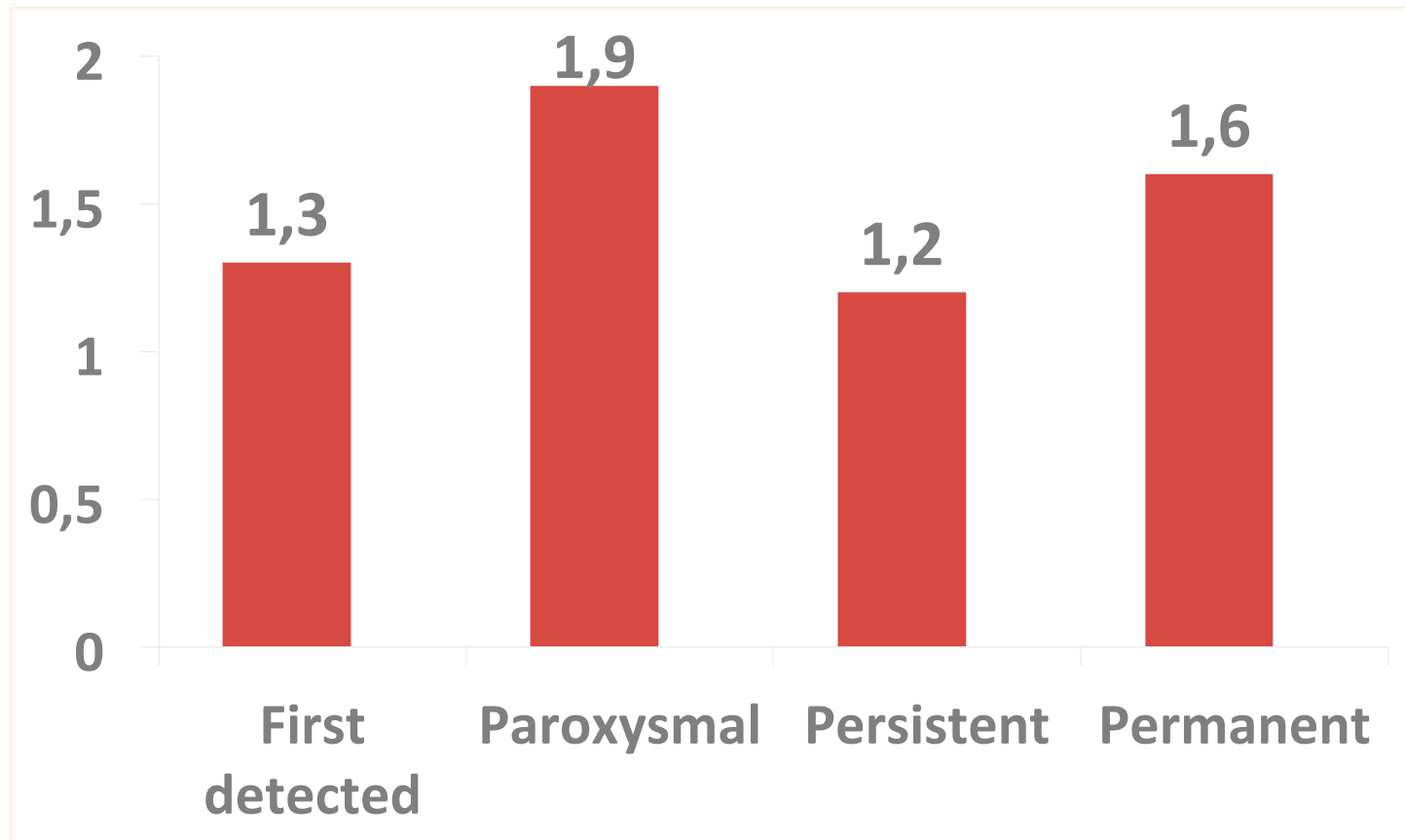
Effect of first ischemic stroke in patients with AF (n=597)





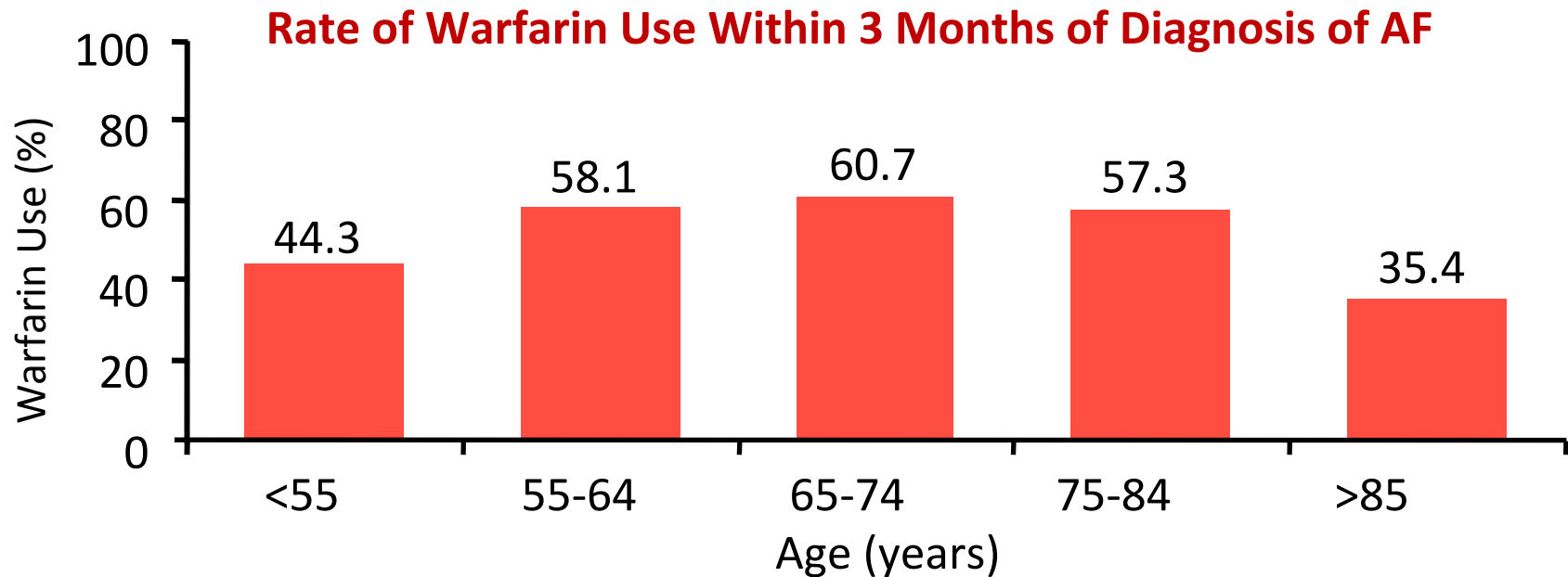
# Atrial fibrillation and heart failure

## Stroke Risk is Independent of Type of Atrial Fibrillation



# Atrial fibrillation and heart failure

**Risk of stroke in AF patients increases with age**  
**1.5% per year in 50-59 year olds**  
**23.5% in 80-89 year olds**



# Atrial fibrillation and heart failure

## Anticoagulation and the Risk of Falls in the Elderly – Putting Matters in Perspective

### ORIGINAL INVESTIGATION

#### Choosing Antithrombotic Therapy for Elderly Patients With Atrial Fibrillation Who Are at Risk for Falls

Malcolm Man-Son-Hing, MD, MSc, FRCPC; Graham Nichol, MD, MPH, FRCPC;  
Anita Lau; Andreas Laupacis, MD, MSc, FRCPC

**Objective:** To determine whether the risk of falling (with a possible increased chance of subdural hematoma) should influence the choice of antithrombotic therapy in elderly patients with atrial fibrillation.

**Design:** A Markov decision analytic model was used to determine the preferred treatment strategy (no antithrombotic therapy, long-term aspirin use, or long-term warfarin use) for patients with atrial fibrillation who are 65 years of age and older, are at risk for falling, and have no other contraindications to antithrombotic therapy. Input data were obtained by systematic review of MEDLINE. Outcomes were expressed as quality-adjusted life-years.

**Results:** For patients with average risks of stroke and

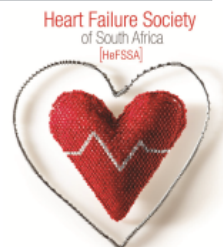
falling, warfarin therapy was associated with 12.90 quality-adjusted life-years per patient; aspirin therapy, 11.17 quality-adjusted life-years; and no antithrombotic therapy, 10.15 quality-adjusted life-years. Sensitivity analysis demonstrated that, regardless of the patients' age or baseline risk of stroke, the risk of falling was not an important factor in determining their optimal antithrombotic therapy.

**Conclusions:** For elderly patients with atrial fibrillation, the choice of optimal therapy to prevent stroke depends on many clinical factors, especially their baseline risk of stroke. However, patients' propensity to fall is not an important factor in this decision.

*Arch Intern Med.* 1999;159:677-685

*Arch Intern Med* 1999; 159:677-685

A patient with a 5% annual stroke risk from AF would need to fall **295 times** in a year for the calculated risk of subdural hematoma from falling to outweigh the stroke reduction benefit of warfarin



# Atrial fibrillation and heart failure

- What about stroke risk?
  - 61 year old female with heart failure
    - CHA2DS2-VASc score is 2: heart failure + female gender
  - Acutely can consider LMWH or NOAC
  - Longer term Warfarin or NOAC
  - DON'T FORGET THIS STEP
  - Be honest when assessing benefit of OAC versus risk and don't look for excuses not to give



# Atrial fibrillation and heart failure

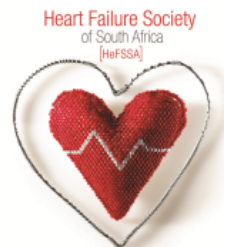
- Mrs S improves significantly and heart rate drops to 80/min – is this OK?
- On Furosemide 40mg daily, Carvedilol 25mg bd, Ramipril 2.5mg bd, Spironolactone 25 mg daily, Digoxin 0.125mg daily and Rivaroxaban 20 mg daily
- Still in AF – what now?

# Atrial fibrillation and heart failure

- Consider electrical cardioversion

# Atrial fibrillation and heart failure

- Consider electrical cardioversion
  - Early on in anticoagulation – need TEE first
  - If can wait for 4 weeks of adequate anticoagulation then perhaps without TEE
- Successful cardioversion with 150J biphasic synchronized shock
- Feels significantly better
- EF improves to 40% after 4 weeks



# Atrial fibrillation and heart failure

- After 4 weeks AF recurs – what now?



# Atrial fibrillation and heart failure

- After 4 weeks AF recurs – what now?
  - Repeat cardioversion with or without loading with Amiodarone
  - Amiodarone improves chances of successful cardioversion and is best at maintaining sinus rhythm
  - This may allow for reverse remodeling – AF begets AF and similarly sinus rhythm begets sinus rhythm
  - NB - Avoid long term Amiodarone



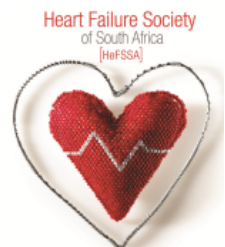
# Atrial fibrillation and heart failure

- Successful cardioversion – what now?
- How many cardioversions – occasional OK, frequent – look for alternatives and decide rhythm versus rate control
- What can you use in the longer term for the AF for rhythm control?



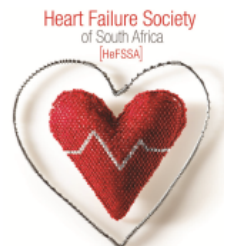
# Atrial fibrillation and heart failure

- What now for rhythm control
  - Remember to consider first whether rate control may be enough – eg when ventricular rate is well controlled and no/minimal symptoms
  - Remember that reducing intracardiac pressures reduces atrial stretch and the risk of atrial fibrillation, and B-blockers are in fact antiarrhythmic agents
  - In stable heart failure Dronedronone comes into the international guidelines but is not available locally leaving Amiodarone as the only real option for typical antiarrhythmic therapy



# Atrial fibrillation and heart failure

- What can you use in the longer term for the AF?
- Maintains sinus rhythm for 6 months and Amiodarone stopped
- EF 40%
- Remains with rare episodes of paroxysmal AF for 3 years
- Then develops persistent AF
- Symptomatic with a fast rate and EF decreases to 35%



# Atrial fibrillation and heart failure

- Where does ablation fit in?

Ablation should be considered for

1. Symptomatic AF as an alternative to Amiodarone (not when Amiodarone fails)

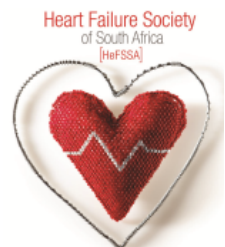
Please remember that long-term Amiodarone carries significant risk of multisystem side effects some of which are life-threatening and they do occur!

2. When rate control cannot be obtained  
Poor response to medication  
Intolerance of medication



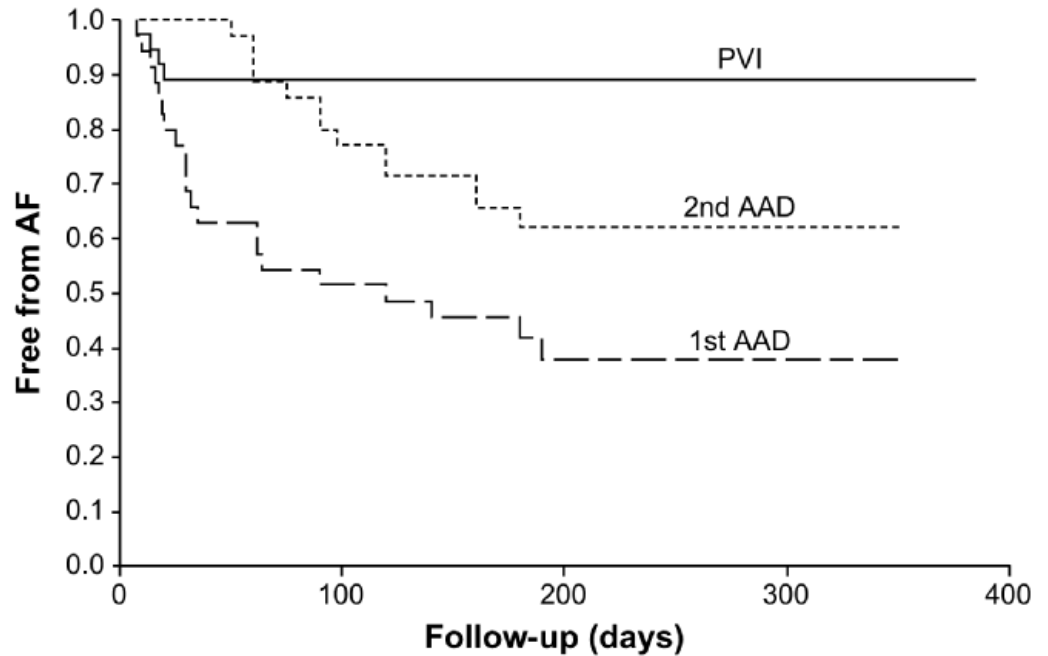
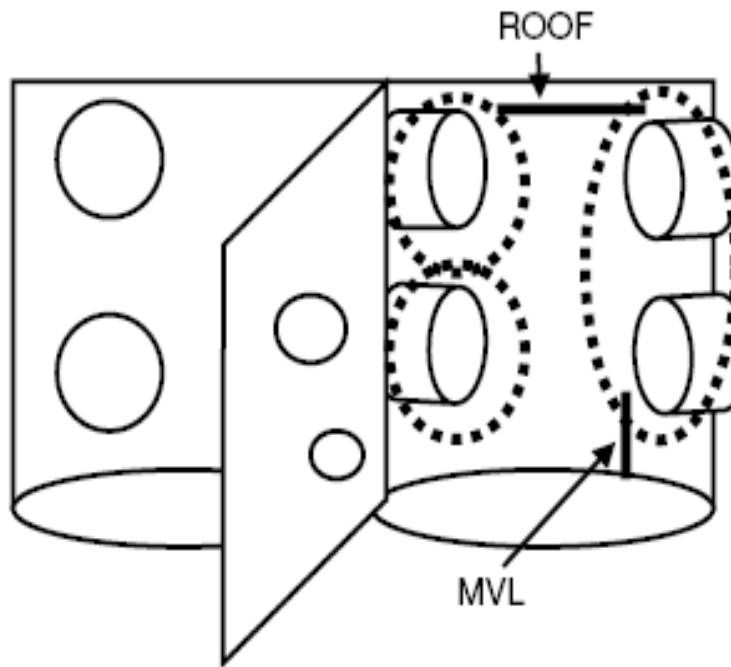
# Atrial fibrillation and heart failure

- Catheter ablation for AF
  - Rhythm control = left atrial ablation
    - Generally used for symptomatic control
    - Very occasionally used without symptoms with reduced EF due to AF where sinus rhythm is preferred
  - Rate control = AV node ablation plus pacemaker
    - VVI/single chamber pacemaker if EF normal
    - Biventricular pacemaker if EF reduced
    - AV node ablation “disconnects” the ventricles from the atria and the pacemaker controls the heart/pulse rate (regular pulse but still AF – can't stop the OAC!)



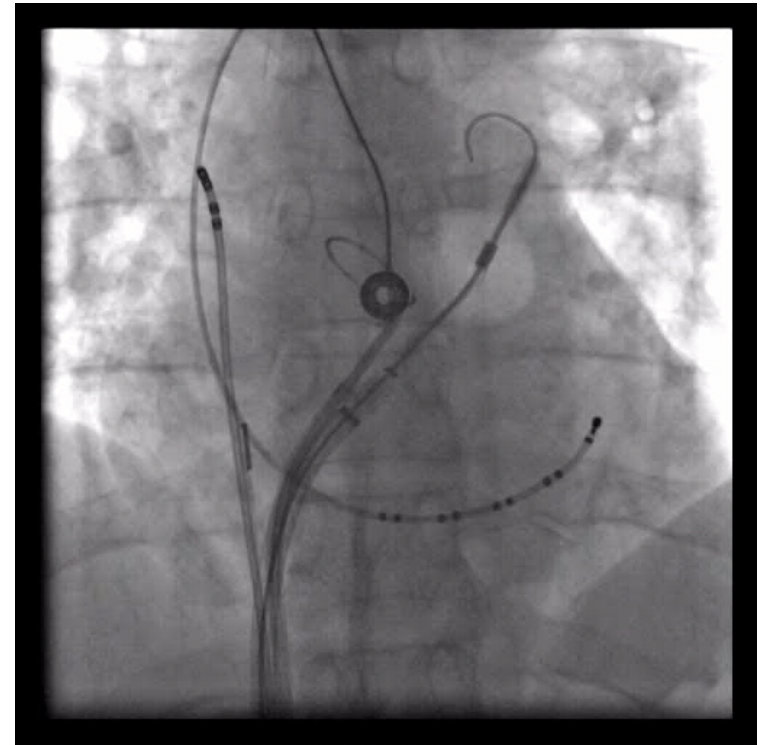
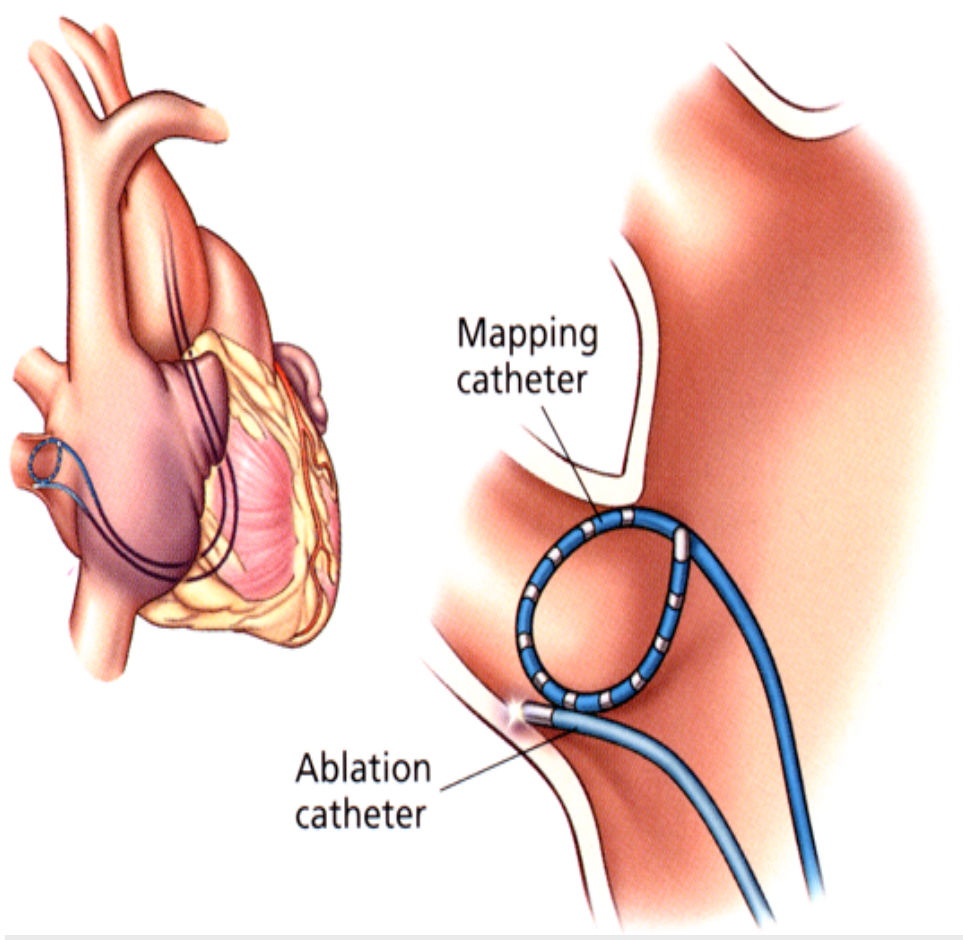
# Atrial fibrillation and heart failure

- AF ablation



# Atrial fibrillation and heart failure

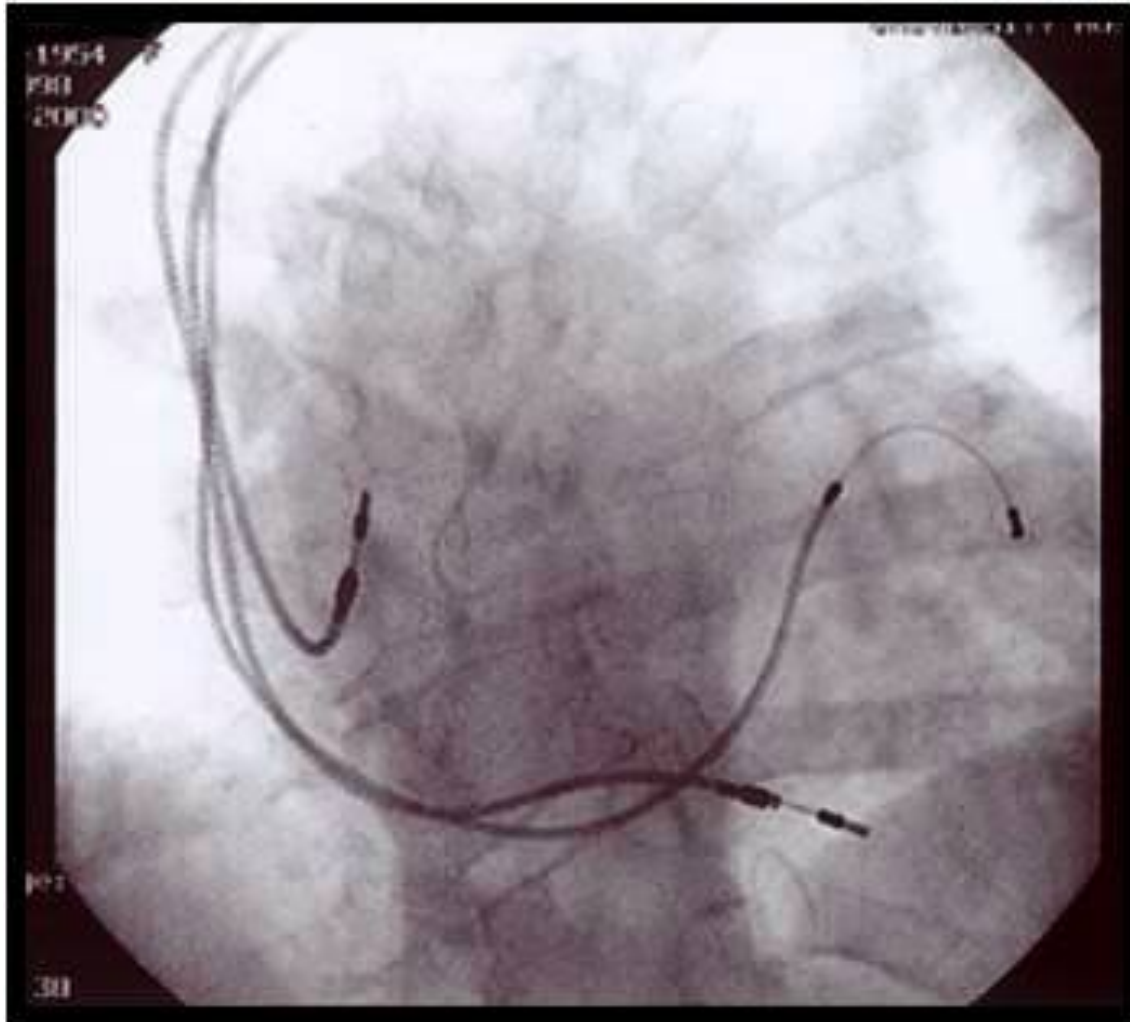
- AF ablation





# Atrial fibrillation and heart failure

- AV node ablation and biventricular pacemaker/ICD



# Atrial fibrillation and heart failure

- AF ablation – 75% improvement/success but not cure, multiple procedures over time not uncommon, 2 to 6% complication rate
- AV node ablation – 95% effective, low risk, pacemaker dependent, no restoration of sinus rhythm and atrial kick



# Atrial fibrillation and heart failure

- Mrs S decides on AV node ablation as she had a pacemaker inserted 7 years ago and wants a simple straightforward procedure with low risk of more than 1 procedure

# Atrial fibrillation and heart failure

- Mrs S has a massive GIT bleed with no reversible cause found – what now?

# Atrial fibrillation and heart failure

- Mrs S has a massive GIT bleed with no reversible cause found – what now?
- May need to consider left atrial appendage occlusion device

