A/Prof Saurabh Kumar How do I manage AF with heart failure?

How do I manage AF with heart failure?

In our busy work lives, it is difficult to set aside time for proper education and clinical updates. I thought I would send you a **short case and update on atrial fibrillation (AF) with heart failure** from the perspective of a heart rhythm cardiologist (cardiac electrophysiologist.



Case Notes: Adam is a 51 year old man presenting with symptomatic palpitations and shortness of breath. He has no prior medical history, does not smoke, drink nor takes any medications. He is obese (BMI 34). He has no family history of coronary artery disease. **Opportunistic ECG screening** (can use Alivecor Kardia [see right image] in a general practice, or 12 lead ECG). This diagnosed AF.

Comments: AF is so common, that is thought to be the "back pain" equivalent of cardiology. We now recognise this as a progressive disease starting "at-risk" patient who do not yet have AF (Stage 1) and progresses to those in a permanent state of AF (Stage 4).

There are <u>3 central pillars of AF management "SOS"</u> (figure right): **S**troke risk assessment, **O**ptimise modifiable risk factors, and **S**ymptom management. Shared decision making/communication is critical between the patient, GP and a cardiologist. Lifestyle and risk factor management is the central pillar of management and we use the <u>HEAD2TOES</u> acronym to help identify what risk <u>factors to screen for and treat</u> even in "at risk" patients who have not developed AF. HEAD2TOES risk factors are <u>H</u>eart failure, **E**xercise [at least 210 minutes of moderate exercise/week], **A**rterial hypertension, **D**iabetes, **T**obacco use [smoking cessation], **O**besity [loose at least 10% body weight], **A**lcohol intake and **S**leep apnoea [identify and treat]). We must enable patient's lifestyle behaviours behavioural change, or the AF may progress



to more persistent forms. Stroke risk is assessed using CHA2DSVASC risk score (Points in subscript: <u>C</u>ongestive heart failure₁, <u>Hypertension₁</u>, <u>Age2 >75</u>, <u>D</u>iabetes₁, Previous <u>S</u>troke/TIA or systemic embolism₂, <u>V</u>ascular disease₁, Age 65-74y₁, Sex category female₁). Novel oral anticoagulants are agents of choice (apixaban, rivaroxaban, dabigatran) for score \geq 1 (excluding female gender), but warfarin is the drug of choice if AF exists with mitral valve disease.

<u>Case Notes: What would I do next?</u> Investigate causes and risk factors of AF

- (a) Exam **hypertension and obesity** are strongest risk factors for AF. <u>His exam showed a BP of 120/85mmHg</u> (normal).
- (b) Bloods thyrotoxicosis, anaemia, electrolyte disturbances can lead to AF. <u>FBC/EUC/LFTs/TSH were all normal.</u>
- (c) Tests: typically Holter monitors, echocardiogram are needed. The longer the Holter the better (I use 5 day Holters or a Heartbug 30 day monitor). Echocardiogram will rule out ventricular dysfunction and valvular heart disease which are strong risk factors for AF. <u>Adam's echo showed moderate LV dysfunction</u>. <u>Holter showed</u> <u>persistent (continuous AF with average heart rate 98 range 70-160 bpm)</u>. CTCA (an important cause of AF and LV dysfunction) was normal.

Comments

AF can co-exist with heart failure (HF or LV dysfunction). It is well known that patients with HF can develop AF, which makes HF worsen. More recently it is recognised at AF can cause transient LV dysfunction (called AF-induced cardiomyopathy), which reverses after restoration to sinus rhythm. <u>Whilst AF can be treated with rate or rhythm control, in young and symptomatic patients and those with LV dysfunction (and/or HF), rhythm control is preferred.</u>

Continued overleaf...



Case Notes: Progress and next steps

Adam was started on apixaban and bisoprolol. Sotalol and flecainide were not used (to be used with caution in HF). I thought he was too young to be on amiodarone (thyroid, skin, liver, lung toxicity). I used bisoprolol for its known beneficial effects on LV remodelling in HF patients. A transesophageal echo and external cardioversion was performed for rhythm control, however it maintained sinus rhythm for 2 weeks only. He was referred to me for <u>consideration of catheter ablation for AF</u>.

Comments

Numerous recent randomised clinical trials have shown that <u>catheter ablation is superior to medical therapy</u> for atrial fibrillation associated with left ventricular dysfunction with a demonstrable morbidity and mortality benefit.

Ablation is a key hole procedure whereby small electrical wires are navigated from the femoral vein to the left atrium and energy sources are used to eradicate the source of AF. The commonest source of AF is the pulmonary veins (PVs). Ablation can electrically disconnect electrical signals from the PVs to the left atrium, providing cure from AF (Figure Below).



The key points to note about AF ablation are:

- Best outcomes (lowest risk, highest success rate) are when ablation is performed in high volume centres (e.g. Westmead Public or Private Hospital) where ≥100 procedures/year are performed and with operators performing ≥50/year. Ablation requires sophisticated 3D mapping systems, skilled medical and technical staff and anaesthetists/nurses.
- Ablation takes ~1-3 hours. Heat, freezing energy or the newly available Pulsed Field ablation (using DC current) can be used for ablation. <u>Pulsed field</u> <u>ablation (available at Westmead) has been a major</u> <u>advance in AF ablation, making it safer and faster</u> (as short as 1 hour).
- Ablation results in 99% reduction in AF burden and 80% of patients may experience cure. Majority of patients enjoy a vastly improved quality of life. Ablation can improve and even restore LV dysfunction. Complications can occur in 1-2% of patients.

Case notes: Adam's AF ablation was successful. Given his CHA2DSVASc score was 0, apixaban was stopped in 3 months. His LV function recovered. A cardiac MRI (done to exclude underlying scar) was normal. He maintained sinus rhythm for 2 years after ablation. He lost 26kg in weight with bariatric surgery.

Key case reminders: Opportunistic AF screening is key (Alivecor/ECG); remember "SOS" as central pillar of care for all patients; use **HEAD2TOES** for risk factor identification and treatment, aim for **rate or rhythm control** (rhythm in young/symptomatic/or those with LV dysfunction), **AF ablation can cure AF** and improves quality of life and improves life expectancy in patients with LV dysfunction.

Westmead

Private Hospital Part of Ramsay Health Care



A/Prof Saurabh Kumar bsc(Med)/mbbs, fracp, phd, fcsanz

Cardiologist

Westmead Private Hospital Suite 20, Level 1 Cnr Mons & Darcy Roads Westmead, NSW, 2145

- P: 02 7258 1792
- F: 02 8526 2081
- E: admin@thecardiologygroup.com.au

I am a staff specialist cardiologist and cardiac electrophysiologist at Westmead Public and Private Hospitals. I love treating all cardiac arrhythmias and managing patients with pacemakers/defibrillators, genetic heart disease and cardiomyopathies.

Corner Mons & Darcy Roads Westmead NSW 2145 Ph: 02 8837 9000 I have trained in top academic electrophysiology centres in Australia (Westmead, Melbourne) and did a post doctorate fellowship in electrophysiology at Brigham & Women's Hospital at Harvard Medical School in Boston. Over the past 8 years I have performed over 5000 arrhythmia procedures. I run a busy private and public practice, and an academic research program on cardiac arrhythmia research at the University of Sydney, supervising over 12 Masters/PhD students and publishing over 300 papers in this field. Ring me any time on 0455 552 664 to discuss any cases you wish. I'd be happy to help! My private practice is in Suite 20, Westmead Private Hospital. Phone: 02 7258 1792; Fax: 02 8526 2081; email: admin@thecardiologygroup.com.au

People caring for people.