

Preoperative Management of New Onset Atrial Fibrillation

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Key Amendment

Date	Amendment	Approved by
21 st January 2019	Inclusion of advice for edoxaban. Additional information for the management of medicines for diabetes	Medicines Safety Committee
25 th June 2020	Document extended for 6 months during COVID-19 period.	QGC
4 th January 2021	Pre-operative assessment Key Documents approved for 3 years	Pre-op Directorate Governance Meeting
27 th December 2023	Extended document for 6 months whilst under review. Updated owner details.	Dr Harsha Mistry
12 th November 2024	Document extended for 12 months whilst awaiting National Guidelines to inform if changes are required	Dr Harsha Mistry

Introduction

Atrial Fibrillation (AF) is a common rhythm disturbance affecting 5% of the population over 65. It is characterised by a complete absence of coordinated atrial contractions. It may be initially detected on a routine pre-operative electrocardiogram (ECG).

The main feature of AF is rapid, irregular and disorganised atrial depolarisation. This causes irregular ventricular contraction. The loss of regular atrial function reduces cardiac output by up to 30%. The ventricular response rate depends on drugs, AV node electrophysiology, sympathetic and vagal tone. A rapid ventricular response results in impaired cardiac output due to inadequate filling of the ventricles. Persisting fast AF may result in a dilated cardiomyopathy.

This guideline has been produced to assist peri-operative staff manage the patient newly diagnosed with AF. Complete management of AF is outside the remit of the pre-operative assessment staff, however there is an important role to play in communicating with the GP and patient and ensuring a patient is optimised pre-operatively.

Details of Guideline

Classification

Atrial Fibrillation is classified as:

- First onset: first clinical presentation and episode is present for less than 48 hours
- Paroxysmal: occurrence of recurrent episodes lasting minutes to hours
- Persistent: when arrhythmia is not self-terminating but pharmacological/electrical cardioversion is required to restore sinus rhythm
- Permanent: when all attempts to restore sinus rhythm have been abandoned (may be patient/physician decision or inability to cardiovert)

Causes

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The main causes of AF include:

- Non Cardiac: Alcohol, Surgery, Myocarditis, Pulmonary Embolism, Chest infections, Hyperthyroidism
- Cardiac: Myocardial Infarction, Hypertension, Valvular disease, Sick Sinus Syndrome and Diabetes)
- Lone AF: No cause identified (many patients do not have a reversible cause identified)

Clinical Consequences of AF

- Loss of atrial component to diastole which can severely reduce cardiac output, particularly in patients with pre-existing cardiac failure or the elderly
- Rapid ventricular rates, shortening diastolic filling times and coronary perfusion
- Systemic thromboembolism
- Patient discomfort due to palpitations, syncope or dizziness

Investigation

History

Symptoms of previous breathlessness, dyspnoea, palpitations, syncope/dizziness, chest discomfort, reduced exercise tolerance and stroke/TIA should be sought.

Examination

The pulse will usually be irregularly irregular

Signs of associated valvular disease should be sought, particularly on cardiac auscultation

Signs of associated heart failure should be sought.

Investigations

Required routine investigations include resting ECG, Blood tests (FBC, TFT, U&E and Magnesium) and chest X-ray.

24 hour ECG may be considered if paroxysmal AF is suspected (see below) or to assess ventricular rate control in persistent AF. An event recorder may be used for patients with symptomatic episodes more than 24 hours apart.

If a patient has newly diagnosed Atrial Fibrillation they should have an echocardiogram performed as part of their pre-operative investigation (within 12 months of surgery).

NICE Guideline CG180 also recommends the following groups should have an echocardiogram performed.

- When a baseline echocardiogram is important for long term management
- For whom a rhythm control method is being considered
- In whom there is high risk of underlying structural/functional heart disease (heart failure or murmur) that influences subsequent management
- In whom refinement of clinical risk stratification for antithrombotic therapy is needed.

Where surgery is urgent the preoperative anaesthetist could request relevant investigations to facilitate timely surgery. Otherwise the GP should arrange further investigation as required.

Pre-operative management of Atrial Fibrillation

Complete management of new onset AF is beyond the remit of the pre-operative team although there is an important role to play in communicating findings with the patient and GP.

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In the elective setting, the patient should be referred to their GP for further investigation and management of their AF. A template letter to send to the GP is included as Appendix 1. Where urgent surgery is required it may be appropriate to consult cardiology and organise initial relevant investigations, such as bloods tests (FBC, U+E, TFT) 24 hour tape or echocardiogram.

For new onset Atrial Fibrillation:

If there is evidence of haemodynamic instability, chest pain, or excessively rapid heart rates then the patient should not be allowed to go home and should be referred for urgent medical review. If the patient is at home they should be contacted urgently and requested to seek urgent medical review.

Where the untreated resting heart rate is above 80 bpm, or symptomatic (see above), the patient should be considered for ventricular rate control as their heart rate could become rapid under anaesthesia. This will usually be commenced by their GP, who should be informed of the AF diagnosis.

Where resting AF rate is above 100 per minute, the rate should always be slowed pre-operatively as chronic tachycardia can lead to impairment of left ventricular function. Patients in AF with resting heart rates above 100 bpm are not suitable for Kidderminster Treatment Centre as they may experience rapid heart rates under anaesthesia.

Patients with new onset AF can be considered for KTC when they have been fully investigated (usually by their GP) and have a stable resting heart rate (i.e. less than 100 bpm) on appropriate rate control medication. If a patient is not taking rate controlling medication a resting heart rate below 80 is preferable for surgery at KTC.

For patients with previously diagnosed AF on rate control treatment, if the rate is above 100, or if there are symptoms, then the patient should be referred to their GP for improved rate control prior to elective surgery. If the rate is below 100, on rate control therapy, it may be appropriate to continue unless the patient is symptomatic.

When the GP has completed the relevant investigations and instituted therapy they should contact the relevant surgeon's secretary to enable the patient to be re-listed for their surgery.

Preoperative Management of Paroxysmal Atrial Fibrillation

Paroxysmal Atrial Fibrillation (PAF) is defined as AF that terminates spontaneously, or with intervention, in less than 7 days. It may progress to persistent AF (up to 25% of patients progress to persistent AF at 5 years). Because the episodes of AF are 'paroxysmal' the preoperative ECG may be sinus rhythm.

PAF is associated with risk factors similar to AF, i.e. hypertension, coronary artery disease, hyperthyroidism and rheumatic heart disease.

Episodes of paroxysmal AF may be asymptomatic and it may be necessary to arrange a 24 hour tape to assess arrhythmia disease burden before surgery.

Where patients with PAF are symptomatic it is worth eliciting the symptoms they experience when they are in AF. Common features include breathlessness, dyspnoea on exertion, irregular palpitations, angina and light-headedness. If they tolerate AF episodes poorly they should be referred to their GP for consideration of pharmacological prophylaxis, i.e. a Beta-blocker or Amiodarone before planned surgery. This is important as the sympathetic tone and stress of surgery can precipitate an AF rhythm.

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Patients with PAF have similar risks of thromboembolism to patients with AF and may be on therapeutic anticoagulation depending on their CHA2DS2-VASc score and individualised treatment plan.

NICE recommendations on Atrial Fibrillation Management

For information, a summary of the 2014 NICE principles of AF management (NICE CG180) are included. Care should be personalised and delivered in association with patient education and information.

The three principles of AF management include:

1. Rate Control
2. Rhythm Control
3. Prevention of thromboembolism

Ventricular rate control – this is offered as the first line strategy to people with atrial fibrillation (some exceptions below). For those who have been in AF for greater than 48 hours, or uncertain, a standard beta-blocker or rate limiting calcium channel blocker is offered. Digoxin monotherapy may only be offered for people who are very sedentary or have dilated heart failure. Amiodarone is not recommended for long term rate control. Exceptions include:

- When AF has a reversible cause
- When heart failure is due primarily to AF
- For patients with new onset AF
- For patients in whom rhythm control would be more suitable based on clinical judgement
- For patients with atrial flutter suitable for ablation therapy

Rhythm control – for those patients with symptoms continuing after heart rate has been controlled or where heart rate control is unsuccessful. Rhythm control may be achieved pharmacologically or electrically. Where the onset of AF is over 48 hours, or uncertain, cardioversion is delayed until 3 weeks of therapeutic anticoagulation. Electrical cardioversion is offered (rather than pharmacological).

Drugs may however be required for long term rhythm control. The first line choice is a beta blocker, alternatives include Dronedarone and Amiodarone (for patients with heart failure). For patients with persisting AF an ablation treatment may be offered, although details of this are beyond the remit of this guideline.

Prevention of thromboembolism - stroke awareness and measures to prevent stroke are based on CHA2DS2-VASc stroke risk score and HAS-BLED bleeding risk score (Appendix 2 and Appendix 3). Anticoagulation is usually arranged by the patient's GP, although generally anticoagulation is offered (after discussion with the patient):

- To men with a CHA2DS2-VASc of 1
- To people with a CHA2DS2-VASc of 2 or above

Summary of Guideline

Atrial Fibrillation is a common finding and may be detected as part of a pre-operative assessment. Patients with newly diagnosed AF should be referred to their GP for further diagnosis and management, although it may be appropriate to initiate investigations for patients requiring urgent surgery.

For new onset AF, a resting heart rate of below 80bpm is considered controlled. Atrial Fibrillation

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rates above 80 (at rest) or AF causing symptoms requires consideration of treatment before anaesthesia and surgery. For permanent AF when treatment is established, the resting heart rate should be below 100. AF with rates above 100bpm, or symptomatic permanent AF, require treatment before anaesthesia and surgery and are not suitable for surgery at KTC.

AF management consists of 3 principles: 1. Rate control 2. Rhythm control and 3. Thromboembolic prevention. The GP will arrange a personalised treatment package in conjunction with their patient. When the GP is satisfied with the management of the new onset AF they should arrange for relisting for surgery.