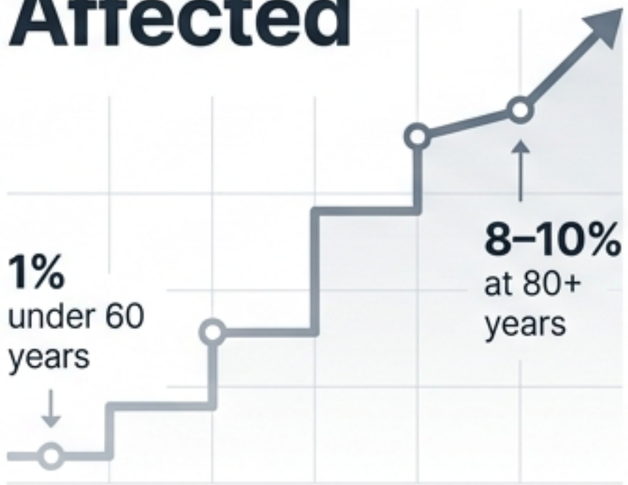
Atrial Fibrillation: The Clinical Blueprint

Diagnosis, Stroke Prevention, and Holistic Management Guidelines (Med2Date, 2026)

The Escalating Burden of Atrial Fibrillation

Prevalence

380,000+ Affected



Clinical Impact

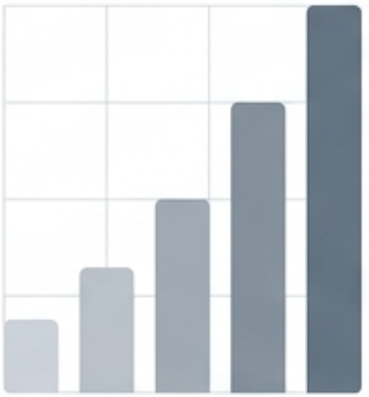
5x Stroke Risk

AF-related strokes are more severe, with higher mortality and disability.

Critical Trap: Up to 1/3 of episodes are asymptomatic, yet carry the exact same stroke risk.

Systemic Cost

$1.5 Billion Annually



90,000 hospital admissions a year

A leading cardiovascular presentation.

The Temporal Spectrum of AF Classification

Phase 1: First Detected

Newly identified, regardless of duration.

Setting: GP / Emergency

Phase 2: Paroxysmal

Self-terminating episodes, usually <48 hours, almost always <7 days.

Setting: Ambulatory Monitoring

Phase 3: Persistent

Sustained >7 days, or requiring pharmacological/ electrical cardioversion.

Setting: Cardiology / EP Referral

Phase 4: Long-Standing

Continuous AF >12 months with an active rhythm control strategy.

Setting: EP Specialist Management

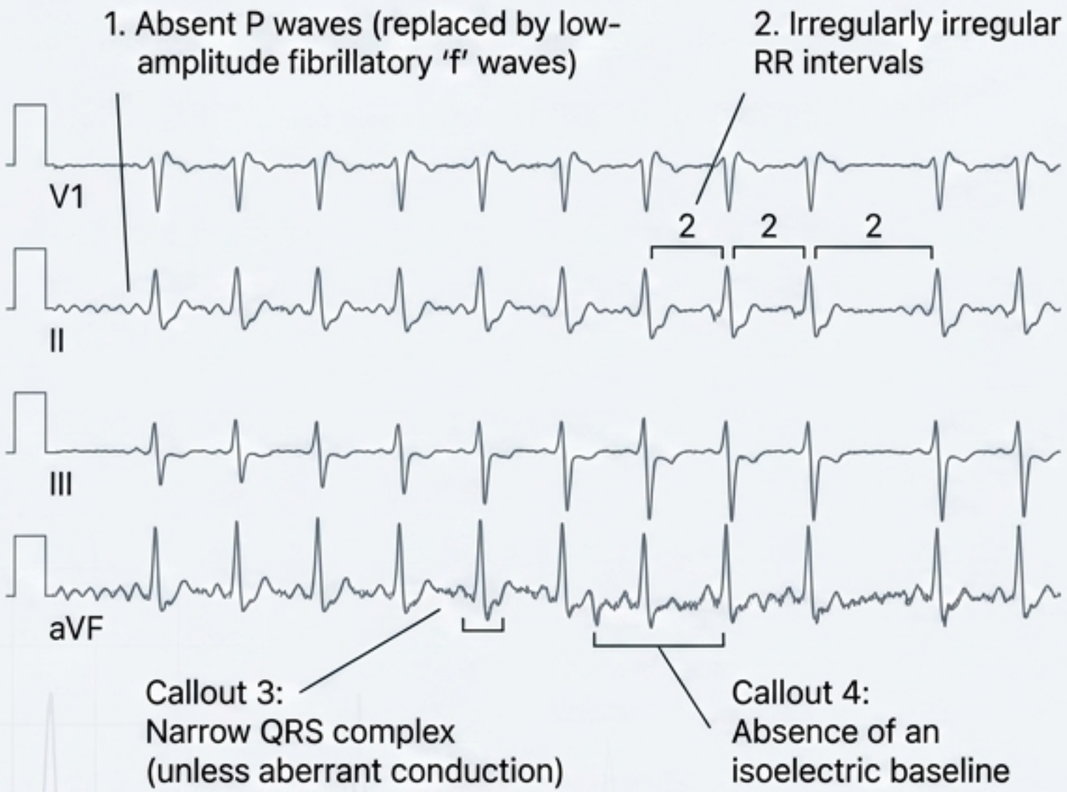
Phase 5: Permanent

Accepted by patient and clinician; rhythm control abandoned.

Setting: GP / Specialist Co-management

Diagnostic Hallmarks and Ambulatory Modalities

The Acute Presentation



The Monitoring Matrix

Symptom Frequency	Diagnostic Modality
Daily Symptoms	24–48-hour Holter (1-2 days)
Weekly Symptoms	Extended Holter / 7-day patch (7-14 days)
Monthly Symptoms	Event recorder (external, up to 30 days)
Infrequent / Cryptogenic Stroke	Implantable loop recorder (ILR, up to 3 years)

The Standardized Diagnostic Workup

Essential
(Every Patient)

- ✓ **ECG** (confirm rhythm/ischaemia)
- ✓ **TFTs** (hyperthyroidism is a reversible cause)
- ✓ **Renal Function / eGFR** (determines DOAC dosing)
- ✓ **FBE** (anaemia/thrombocytopaenia)
- ✓ **LFTs** (baseline before anticoagulation)
- ✓ **Electrolytes** (hypokalaemia/magnesaemia triggers AF)

Available
(Clinical Direction)

- ✓ **Transthoracic Echo / TTE** (LVEF, LA size, valvular disease)
- ✓ **Transoesophageal Echo / TOE** (exclude LA/LAA thrombus pre-cardioversion)
- ✓ **CXR** (pulmonary pathology)

Specialist
(Advanced Planning)

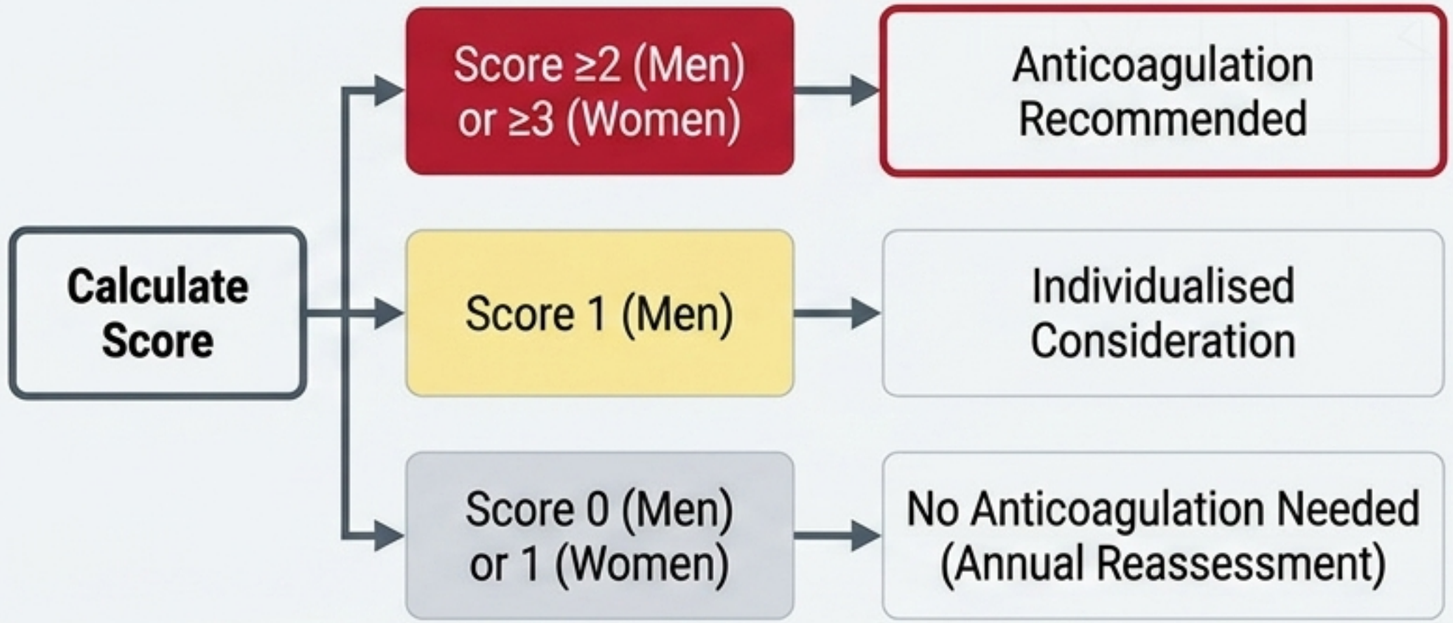
- ✓ **CT Cardiac / Cardiac MRI** (atrial fibrosis assessment, pre-ablation mapping)
- ✓ **Electrophysiology Study / EPS** (WPW accessory pathways)

Pillar A: Stroke Risk Stratification (CHA_2DS_2-VASc)

The Score

- Congestive Heart Failure (+1)
- Hypertension (+1)
- Age ≥75 (+2)
- Diabetes (+1)
- Stroke/TIA (+2)
- Vascular disease (+1)
- Age 65–74 (+1)
- Sex female (+1)

The Decision Logic

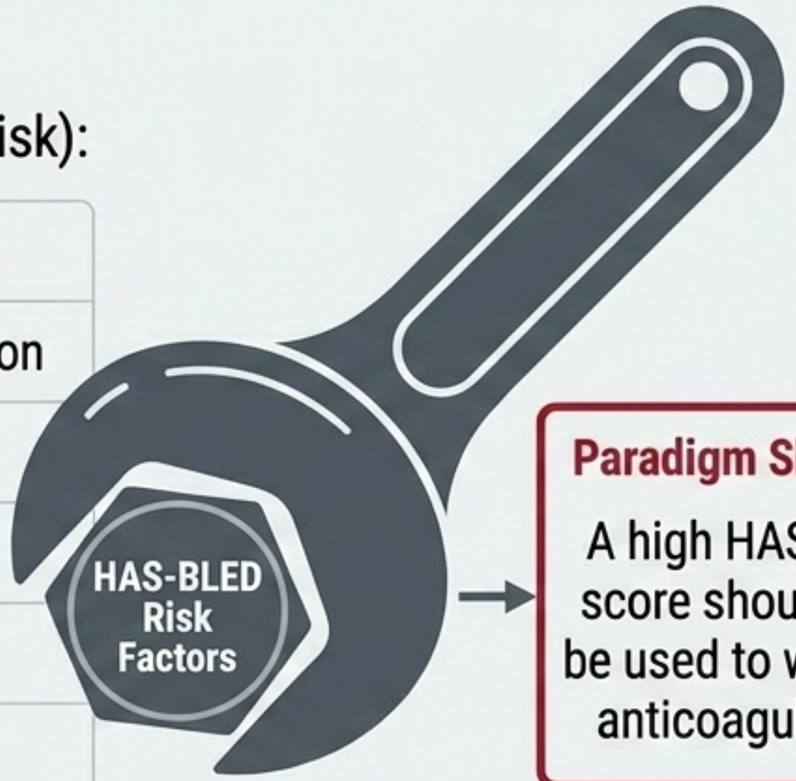


Crucial Alert: Antiplatelet monotherapy (aspirin) is NO LONGER RECOMMENDED for stroke prevention in AF.

Bleeding Risk is a Trigger for Optimization, Not a Barrier

HAS-BLED Score (≥3 = High Risk):

- ✓ Hypertension (SBP>160)
- ✓ Abnormal Renal/Liver function
- ✓ Stroke history
- ✓ Bleeding history
- ✓ Labile INR
- ✓ Elderly (>65)
- ✓ Drugs/Alcohol



Paradigm Shift Box

A high HAS-BLED score should NOT be used to withhold anticoagulation.

Actionable Pathways

- ✓ Control blood pressure.
- ✓ Discontinue concomitant NSAIDs or antiplatelets.
- ✓ Address excessive alcohol use.
- ✓ Trigger more frequent clinical reviews.

Note for refractory cases: If absolute contraindication to OAC (e.g., life-threatening haemorrhage), refer for Left Atrial Appendage Occlusion (LAAO / Watchman™ device).

Anticoagulant Selection Matrix: DOACs vs. Warfarin

DOACs are first-line over warfarin for non-valvular AF (RE-LY, ROCKET-AF, ARISTOTLE, ENGAGE AF-TIMI 48).

Apixaban (Eliquis®)	Rivaroxaban (Xarelto®)	Dabigatran (Pradaxa®)	Warfarin (Coumadin®)
5 mg BD. Reduce to 2.5 mg BD if 2 of: ≥80yrs, ≤60kg, Cr≥133. Avoid if eGFR <15.	20 mg daily with evening meal. Reduce to 15 mg if eGFR 15–49. Avoid if eGFR <15.	150 mg BD. Reduce to 110 mg if ≥80yrs or high bleed risk. Avoid if eGFR <30.	Target INR 2.0–3.0. No renal dose adjustment (monitor frequently).
Key Advantage: Lowest bleeding risk.	**Key Advantage:** Once-daily dosing.	**Key Advantage:** Specific reversal agent (idarucizumab)	**Key Advantage:** Mandatory for mechanical valves.

Critical Contraindications: The Valvular AF Exception

The Absolute Rule: DOACs are STRICTLY CONTRAINDICATED in patients with:

1. Mechanical Heart Valves
2. Moderate-to-Severe Mitral Stenosis (Rheumatic)

The Evidence: The RE-ALIGN trial was terminated early due to excess thromboembolic and bleeding events when using dabigatran in mechanical valve patients.

The Mandatory Solution: Warfarin remains the absolute standard of care for Valvular AF.

- Target INR 2.0–3.0 for most mechanical aortic valves.
- Target INR 2.5–3.5 for mechanical mitral valves.

DOACs may be considered for bioprosthetic valves (≥3 months post-implant) or mild mitral stenosis.

Pillar B: The Rate vs. Rhythm Decision Tree

Symptomatic AF Patient

Rate Control

Profile
Older, asymptomatic, or permanent AF

Target
Lenient control (Resting HR <110 bpm) per the RACE II trial. Strict (<80 bpm) only if symptoms persist.

Note
AFFIRM trial showed no mortality benefit of rhythm over rate control in established AF. Achieving rate control does NOT replace anticoagulation.

Early Rhythm Control

Profile
Recently diagnosed (<12 months), younger, symptomatic, tachycardia-mediated cardiomyopathy.

Target
Restore and maintain sinus rhythm.

Evidence
EAST-AFNET 4 trial demonstrated early rhythm control significantly reduces cardiovascular outcomes (stroke, HF, CV death).

Rate Control Agents at a Glance

Metoprolol (Beta-blocker)

25–50 mg BD-TDS.

⚠ **Caution:** Avoid in decompensated HF, severe asthma, 2nd/3rd degree AV block.

Bisoprolol (Beta-blocker)

2.5–10 mg daily.

Advantage: Well tolerated and proven in stable HFrEF (CIBIS-II). Caution in severe renal impairment.

Diltiazem (Non-DHP CCB)

180–360 mg daily.

Critical Warning: AVOID in HFrEF (LVEF <40%) due to negative inotropic effect. Preferred in COPD/Asthma.

Digoxin (Cardiac Glycoside)

62.5–250 µg daily.

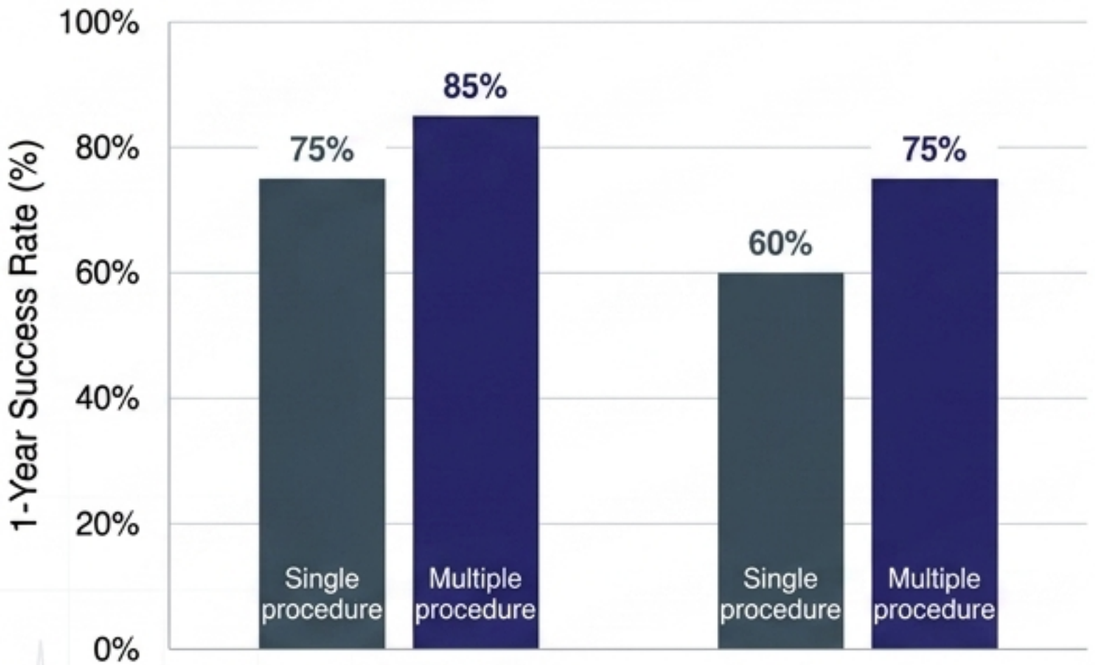
Role: Adjunct, not first-line monotherapy.
Caution: Narrow therapeutic index in renal impairment. Avoid in hypokalaemia.

Antiarrhythmic Drug Selection by Structural Heart Disease

Clinical Scenario	First-Line	Second-Line	AVOID
No Structural Heart Disease	Flecainide. (Can use pill-in-the-pocket 200-300mg PO stat)	Sotalol, Dronedarone, Ablation	(None)
Coronary Artery Disease (CAD)	Sotalol or Dronedarone	Amiodarone, Catheter Ablation	Flecainide (increased pro-arrhythmic risk)
HFrEF (LVEF ≤40%)	Amiodarone or Catheter Ablation	(None)	Flecainide, Sotalol. Dronedarone contraindicated in NYHA III-IV (PALLAS trial)
Hypertrophic Cardiomyopathy (HCM)	Amiodarone	Dronedarone, Catheter Ablation	Flecainide

Procedural Solutions: Catheter Ablation (PVI)

Efficacy

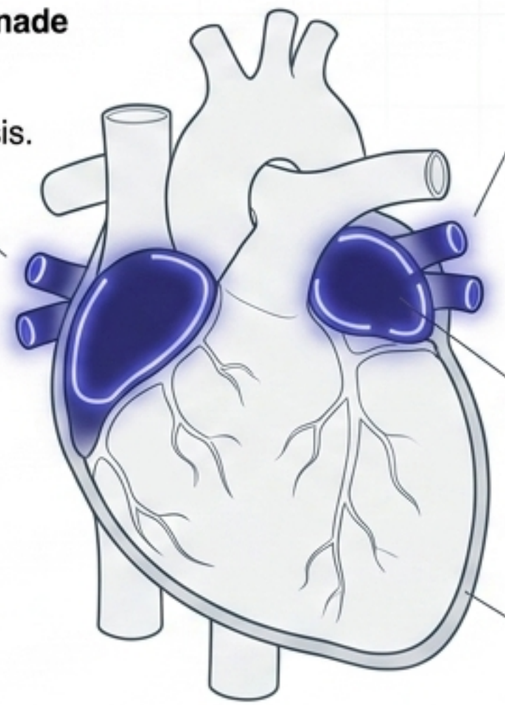


First-line indication over drugs for young/symptomatic (Class I).

Anatomical Risks

Cardiac Tamponade (1-2%): Requires pericardiocentesis.

Phrenic Nerve Injury (0.5-2%): More common with cryoballoon.



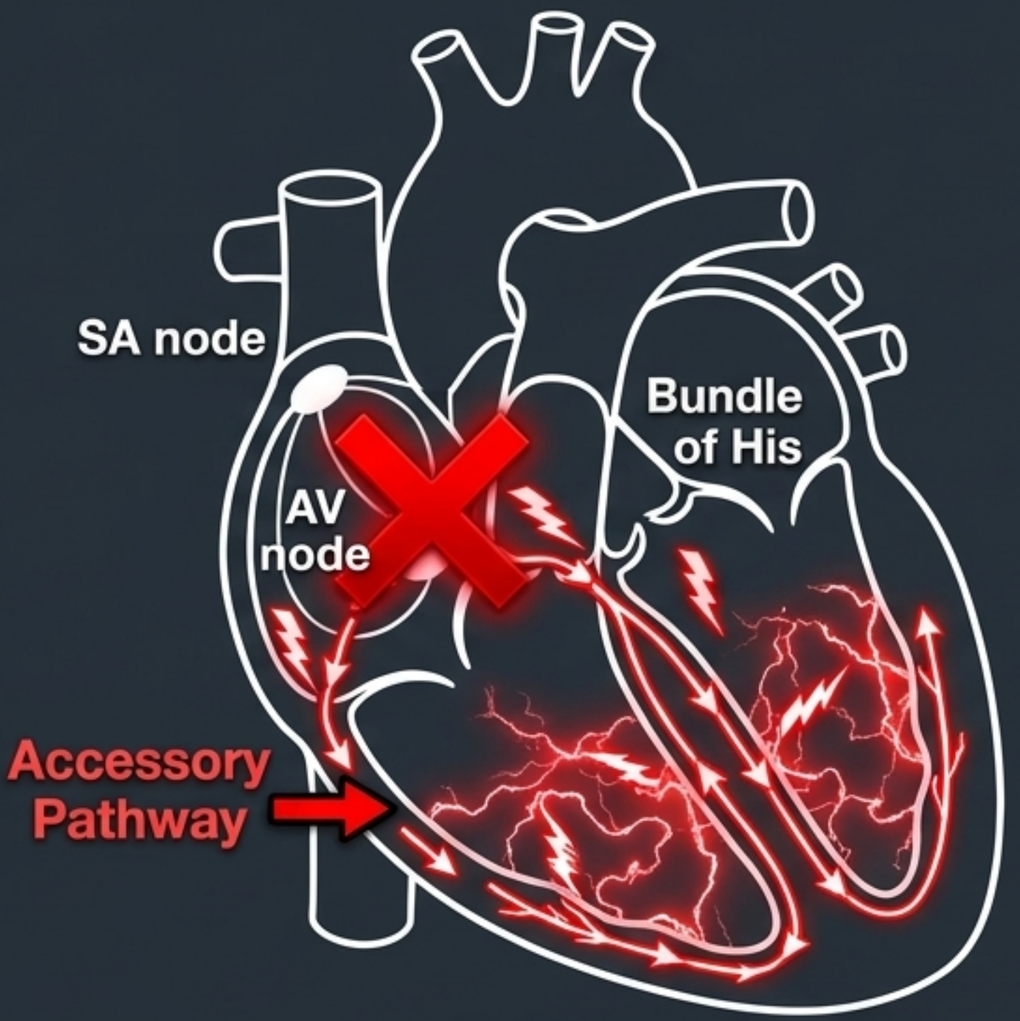
Atrio-oesophageal Fistula (0.01-0.25%): Rare but highly lethal; presents days/weeks later.

Stroke/TIA (0.5-1%).

The Pre-Excitation Hazard: AF with WPW Syndrome

The Mechanism:
Blocking the AV node in pre-excited AF **accelerates** conduction via the **accessory pathway**, precipitating VF and cardiac arrest.

The Forbidden Drugs (NEVER USE):
- ❌ Beta-Blockers
- ❌ Calcium Channel Blockers (Diltiazem/Verapamil)
- ❌ Digoxin
- ❌ Adenosine



The Safe Interventions:
- ✅ **Haemodynamically stable:** Procainamide.
- ✅ **Unstable:** Synchronised DC Cardioversion.
- ✅ **Definitive:** Urgent catheter ablation of the accessory pathway.

VENTRICULAR FIBRILLATION (VF)

Pillar C: Special Clinical Populations

Heart Failure (HFrEF)

AF worsens HF and vice versa.

Data: CASTLE-AF trial showed ablation reduces death/HF hospitalisation by 38% vs medical therapy.

Meds: Amiodarone preferred; Avoid Diltiazem.

Post-Operative AF

Peaks days 2-4 post-cardiac surgery.

Prevention: Perioperative beta-blockers or colchicine.

Action: Most self-terminate in 6 weeks; use rate control first.

The Athlete's Heart

2-5x higher risk in endurance athletes (vagally mediated).

Action: Ablation preferred over drugs (which impair performance or are banned).

Anticoagulation requires shared decision-making regarding contact sports trauma.

Pregnancy

Rate: Metoprolol/Atenolol preferred.

Anticoagulation: DOACs contraindicated. Warfarin contraindicated in 1st trimester. Use LMWH (enoxaparin 1 mg/kg BD).

Cardioversion is safe.

Closing the Treatment Gap: Aboriginal & Torres Strait Islander Health

The Disparity

- Younger onset, higher comorbidity rates (diabetes, CKD).
- Hospitalized for AF at 1.6x the rate of non-Indigenous Australians.
- **The Gap**: Significantly lower rates of DOAC/anticoagulant prescription.
- **Rheumatic Heart Disease (RHD)**: High prevalence in remote areas causes valvullar AF (requiring Warfarin, NOT DOACs).

Systemic Solutions

- **Access:** Utilize Telehealth and Section 100 PBS arrangements for remote medication supply.
- **Monitoring:** Point-of-care INR testing (CoaguChek®) in communities without pathology.
- **Cultural Safety**: Partner with Aboriginal Community Controlled Health Organisations (ACCHOs). Utilize yarning-based approaches and involve Aboriginal health workers.

The Patient Monitoring Dashboard

Baseline

eGFR, LFTs, FBE, Coagulation.

Confirm CHA_2DS_2-VASc and HAS-BLED.

2 Weeks

Early review for medication adherence and side effects (e.g., GI symptoms for dabigatran).

3 Months

Formal review.

If on Warfarin: check Time in Therapeutic Range (TTR aim >70%). If TTR <65%, switch to DOAC.

6 Months

eGFR and LFTs (critical for DOAC clearance).

If on Amiodarone: check TFTs and LFTs.

Annually

Comprehensive review. Reassess CHA_2DS_2-VASc and HAS-BLED.

Evaluate ongoing rhythm strategy.

on Amiodarone: CXR and Ophthalmology review.

Synthesis: The Integrated ABC Pathway

Pillar C (Cardiovascular Optimisation)

- Aggressively manage hypertension (<130/80), weight, OSA (CPAP), and alcohol reduction.

Goal: Disease Modification & Substrate Control.

Pillar A (Avoid Stroke)

- Assess CHA_2DS_2-VASc.
- Initiate DOACs or Warfarin.
- Address modifiable HAS-BLED factors.

Goal: Survival.

Pillar B (Better Symptom Management)

- Assess EHRA symptom score.
- Execute Rate vs. Rhythm decision tree. Consider early ablation (EAST-AFNET 4).

Goal: Quality of Life.