Pitfalls in the Acute Management of Atrial Fibrillation

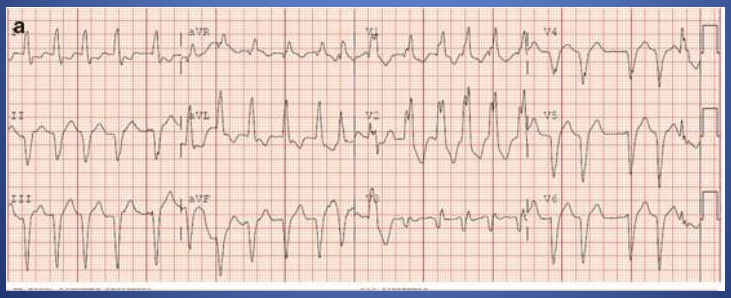
Walid Ammar
Associate professor of cardiology
Cairo University

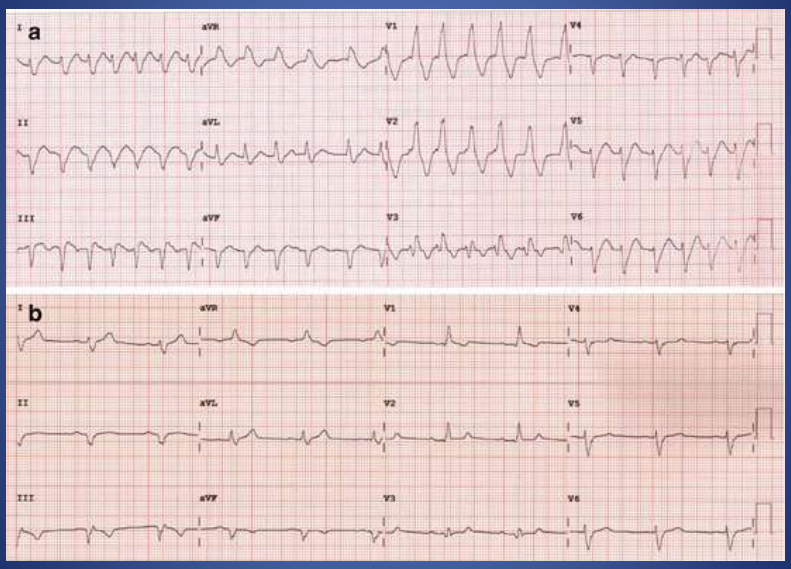
Pitfalls to avoid are numerous..

- Incorrect diagnosis can lead to improper treatment or omission of appropriate therapies
- Inappropriate management of anticoagulation in AF places the patient at risk of debilitating stroke or bleeding complication
- Inappropriate use of antiarrhythmic drug therapy can risk dangerous pro-arrhythmic side effects
- Direct current cardioversion carries its own unique procedural risks.

Irregular, Wide Complex Tachycardia

The differential diagnosis for such an arrhythmia includes:
- AF with underlying bundle branch block
- AF with aberrant conduction
- AF with accessory pathway
- VT with irregularity

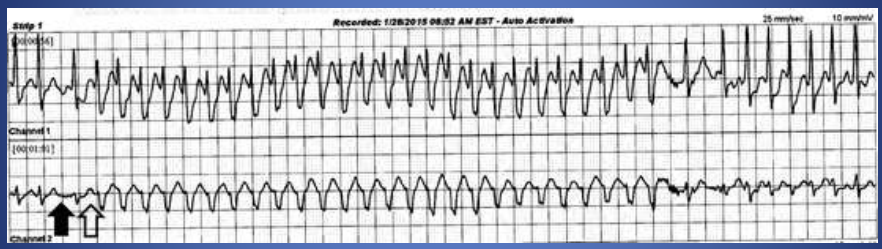




AF with aberrancy

- Aberration refers to intermittent, reversible block of one of the bundle branches, typically the right bundle branch, which usually has a longer refractory period than the left bundle branch.
- This phenomenon can exist at :
  - High heart rates (rate-dependent aberrancy)
  - After a “long-short” sequence of RR intervals (the so-called Ashman phenomenon).

AF with aberrancy



Irregular ventricular tachycardia (VT)

Irregular ventricular tachycardia (VT)

The regularly irregular pattern results from Wenckebach conduction (exit) block in the ventricular tissue surrounding the VT focus

Pitfall 2: Duration of AF Episodes

Atrial fibrillation is commonly classified according to the duration of arrhythmia episode (Table 14.2). These classifications are relevant to management and affect treatment recommendations.

Table 14.2
Atrial fibrillation classification

Recently diagnosed AF	Not yet clear into which category AF will be classified
Paroxysmal AF	Terminates spontaneously or with intervention within 7 days of onset
Persistent AF	AF that is sustained > 7 days
Long-standing persistent AF	AF > 12 months in duration
Permanent AF	AF with a decision by patient and clinician to make no further attempts to restore or maintain sinus rhythm

AF atrial fibrillation

Pitfall 3: Selecting Rate Versus Rhythm Control

- In the urgent setting, any patient who is unstable (hemodynamically, respiratory, or otherwise) and it is felt that his clinical status will be improved by restoration of sinus rhythm should be urgently cardioverted

Selecting Rate Versus Rhythm Control

- The AFFIRM trial was a multicenter trial of over 4000 patients with AF that randomized patients over age 65 or with other risk factors for stroke or death to either a rate control or rhythm control strategy
- This study showed no survival advantage to a rhythm control strategy over a rate-control strategy.
- As such, a rate-control strategy is often the primary strategy in patients with AF who are asymptomatic and whose heart rate is well controlled without drug therapy or on AV nodal blocking drug therapy.

Selecting Rate Versus Rhythm Control

- As such, younger patients, regardless of symptoms or heart rate control, and especially those with newly diagnosed atrial fibrillation and without structural heart disease, are appropriate candidates for consideration of a rhythm control strategy.

Pitfall 4 : Cardioversion without Appropriate Prior Systemic Anticoagulation

- If the duration of AF is certainly less than 48 h, DCCV can be safely performed.
- If the duration is at least 48 h or unknown, non-emergent DCCV should only be performed:
  - if the patient has been adequately anticoagulated for at least 3 weeks
  - if transesophageal echocardiography (TEE) has excluded intracardiac thrombi.

Pitfall 5: Failure to Confirm Therapeutic Systemic Anticoagulation for the Prior 3 Weeks

- If a patient has been on warfarin, INR values should be reviewed prior to proceeding with DCCV.
- If a patient is taking one of the new target-specific oral anticoagulants (OAC) (dabigatran, rivaroxaban, apixaban, or edoxaban), then we should confirm that the patient has been taking the medication without interruption or missed doses in the preceding 3 weeks

Pitfall 6 : Failure to Consider Post-procedure Anticoagulation

- When AF duration is > 48 h, structural changes occur at the cellular level resulting in atrial stunning and weakened atrial contraction despite sinus rhythm post-cardioversion .
- For this reason it is recommended that the patient with AF > 48 h duration prior to TEE/DCCV, even in the absence of thrombus at TEE, be anticoagulated for a minimum of 4 weeks post-cardioversion

DCCV preparations

- It is requisite to have the appropriate equipment for patient monitoring, as well as emergency equipment if complications occur.
- Intravenous access for medication administration should be established pre-procedure.
- Airway management tools including supplemental oxygen, a suction device, and intubation supplies should be in the room and available.

Pitfall 8: Failure of Appropriate Synchronization

- For cardioversion purposes, the external defibrillator shock should be synchronized to the QRS complex to avoid VF due to a shock on a T wave.
- Device synchronization can be improved by selecting different leads.
- Rarely, the external defibrillator device fails to appropriately synchronize to the QRS complex and the shock results in VF.
- If VF occurs, immediate non-synchronized defibrillation should be performed.

Pitfall 9: Failure to Distinguish Failure to Cardiovert Versus Early Return of Atrial Fibrillation (ERAF)

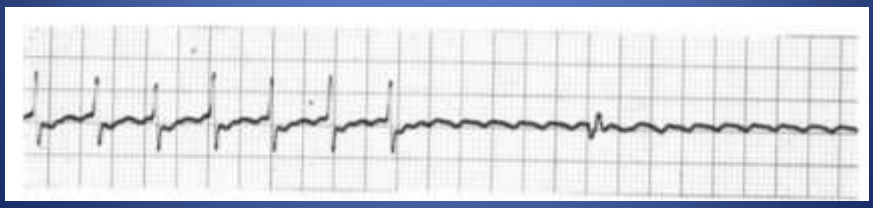
- After cardioversion, AF may recur after as few as 1–2 sinus beats. ERAF must be distinguished from failure to cardiovert, when no sinus beats are observed.
- Failure to cardiovert (without sinus rhythm for even 1–2 beats) implies a failure to deliver sufficient energy to overcome the defibrillation threshold of the atria.

Pitfall 10: Incorrect management of Pacemaker or ICD during cardioversion

- In a patient with a permanent pacemaker or ICD, external cardioversion paddles should not be placed directly over the device generator.
- The device generator should be kept out of the external cardioversion shock vector.
- The device should be checked before and after cardioversion to ensure stable lead impedances, sensing, pacing thresholds, and battery status.

Pitfall 11: Unexpected Post Cardioversion Brady-arrythmia

- if we are not aware of the patient's underlying sinus node function, we should be prepared for possible bradycardia post-cardioversion.
- Conversion pauses on termination of atrial fibrillation are not rare and are indicative of sinus node dysfunction.
- Separately, a pause during AF or AFL indicates AV nodal disease.



CHA 2 DS 2 VASc score

CHA_2DS_2-VASc	Stroke risk factors	Score
	*C*ongestive heart failure/LV dysfunction	1
	*H*ypertension	1
	*A*ge ≥ 75 years	2
	*D*iabetes mellitus	1
	*S*troke/TIA/thromboembolism	2
	*V*ascular disease (CAD/MI, PAD)	1
	*A*ge 65–74 years	1
	*S*ex category (female gender)	1

Pitfall 12 :Not to Start Systemic Anticoagulation Because of AF Duration or AF Burden

- In the patient with clinically apparent AF, risk stratification for stroke, and initiation of systemic anticoagulation if appropriate, is recommended irrespective of AF duration or AF burden.
- Analysis of patients in the Stroke Prevention in Atrial Fibrillation (SPAF) studies demonstrated that those with intermittent AF had stroke rates similar to patients with sustained AF

Pitfall 13: Not to Start Systemic Anticoagulation Because of an Elevated Estimated Bleeding Risk

- Bleeding risk is an important variable to consider when weighing the risks and benefits of systemic anticoagulation
- The HAS-BLED score may help define patients at elevated bleeding risk . A score of > 3 may identify patients at increased risk of bleeding on systemic anticoagulation
- Such patients may benefit from closer observation for bleeding complications, and in patients on warfarin, closer monitoring of INR levels

Bleeding Risk Assessment

HAS-BLED score

Bleeding risk factor	Score
*H*ypertension	1
*A*bnormal renal/liver function (1 point each)	1 or 2
*S*troke	1
*B*leeding tendency or predisposition	1
*L*abile INRs (only applies if on warfarin)	1
*E*lderly (age >65)	1
*D*rugs (aspirin, NSAIDs, etc.) or alcohol abuse (1 point each)	1 or 2

Pitfall 14: Not Initiating Anticoagulation Because a Patient Is Elderly

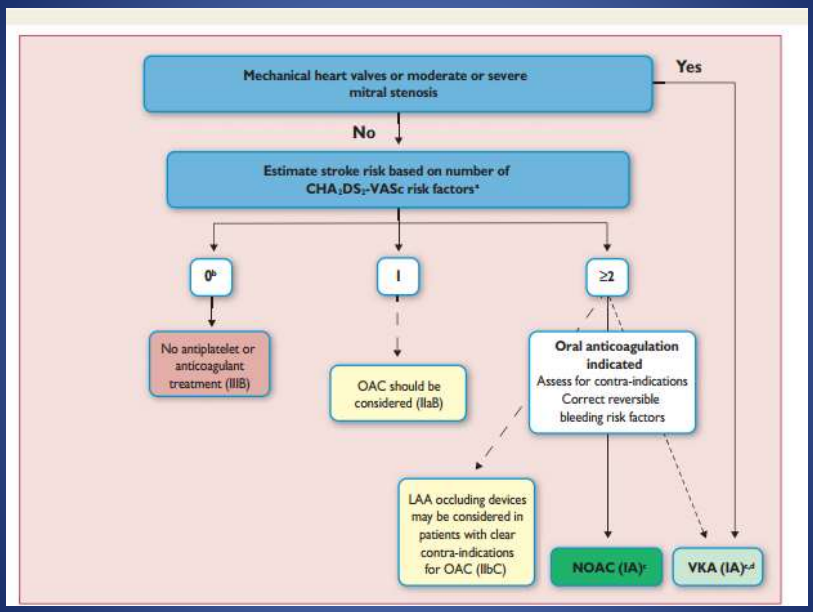
- Advanced age is a prominent risk factor for AF-associated thromboembolic events , elderly patients are one of the groups that stand to benefit most from systemic anticoagulation .
- Paradoxically, elderly are less likely to be started on systemic anticoagulation
- Like others, elderly patients should be risk stratified for thromboembolic stroke, and the decision regarding antithrombotic therapy should be made based on individual risks and benefits and taking into account patient and family values and preferences.

Pitfall 15: Not Initiating Anticoagulation Because of a "Fall Risk"

- A history of prior falls or perception of elevated fall risk often results in a clinician withholding systemic anticoagulation.
- Even though a history of falls is associated with an elevated risk of bleeding, these elderly patients also have an increased risk of stroke and all-cause mortality .

Warfarin versus target-specific OAC

- Treatment with a target-specific OAC drug is not indicated for valvular atrial fibrillation:
  - AF in the presence of mitral stenosis
  - AF with Mechanical or bioprosthetic heart valve
- Patients in whom warfarin may be preferred over target-specific OAC therapy include those with significantly reduced renal function and patients with an inability to afford expensive medications.



Pitfall 16: Anticoagulation in Special AF Populations (LA Appendage)

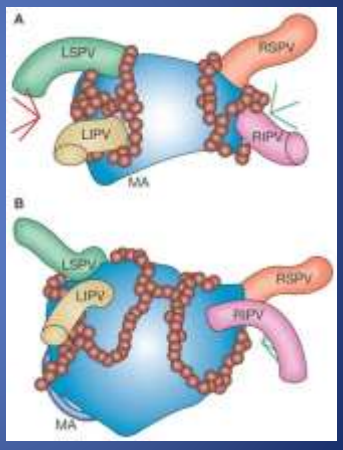
- TEE performed after surgical left atrial appendectomy has demonstrated incomplete LAA ligation in roughly one-third of patients.
- Thrombus formation may occur in areas of the heart outside of the LAA .

Pitfall 17: Inappropriate Discontinuation of Systemic Anticoagulation

- In the patient already receiving systemic anticoagulation for AF who is seen in an acute care setting for reasons other than arrhythmia, systemic anticoagulation should be continued unless a specific contraindication (planned invasive procedure, active bleeding) exists.

Pitfall 18: Inappropriate Discontinuation of Systemic Anticoagulation

- After AF ablation, guidelines recommend anticoagulation for a minimum of 2 months. Thereafter, long-term anticoagulation should be based on the patient's CHA 2 DS 2 VASc score, even if the patient is in sinus rhythm and doing well.



Pitfall 19: Failure to Consider Systemic Anticoagulation Prior to Initiating AAD Therapy

- Thromboembolic risk associated with pharmacologic cardioversion from AAD therapy is comparable to that with DCCV.
- As such, the clinician initiating AAD therapy is responsible for ensuring appropriate systemic anticoagulation before and after conversion to sinus rhythm in patients with AF of over 48 h duration.

Pitfall 20: Failure to Recognize Pre-excited Atrial Fibrillation

Pitfall 21: Aspirin for AF

- Aspirin has no role in stroke prevention in AF
- Clopidogrel has no role in stroke prevention in AF
- Combining Aspirin and Clopidogrel has no role in stroke prevention in AF and increases risk of bleeding

Combinations of oral anticoagulants and platelet inhibitors increase bleeding risk and should be avoided in AF patients without another indication for platelet inhibition.	III (harm)	B
In male or female AF patients without additional stroke risk factors, anticoagulant or antiplatelet therapy is not recommended for stroke prevention.	III (harm)	B
Antiplatelet monotherapy is not recommended for stroke prevention in AF patients, regardless of stroke risk.	III (harm)	A

Thank You for kind attention