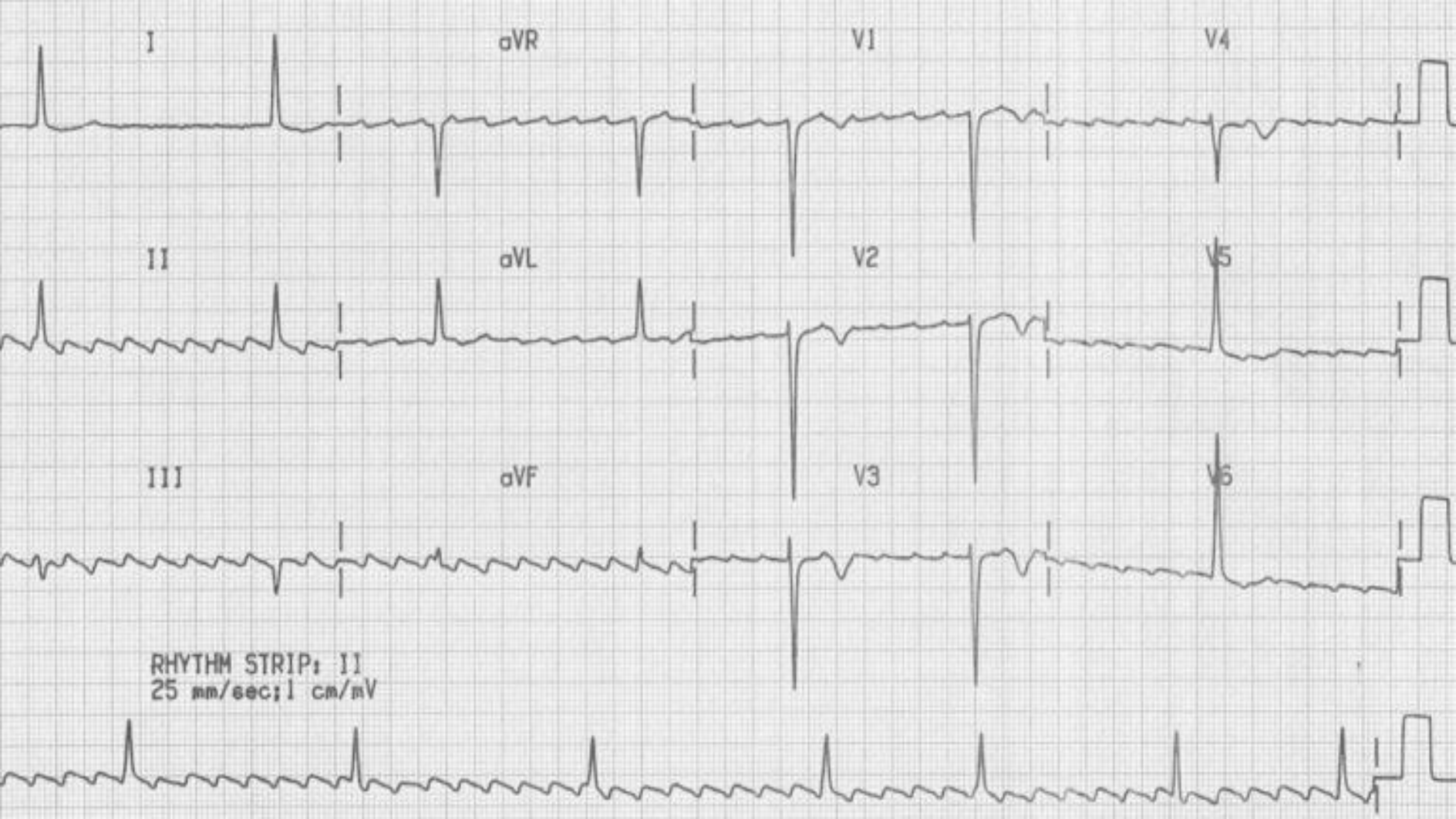
Anticoagulant in Arrhythmia

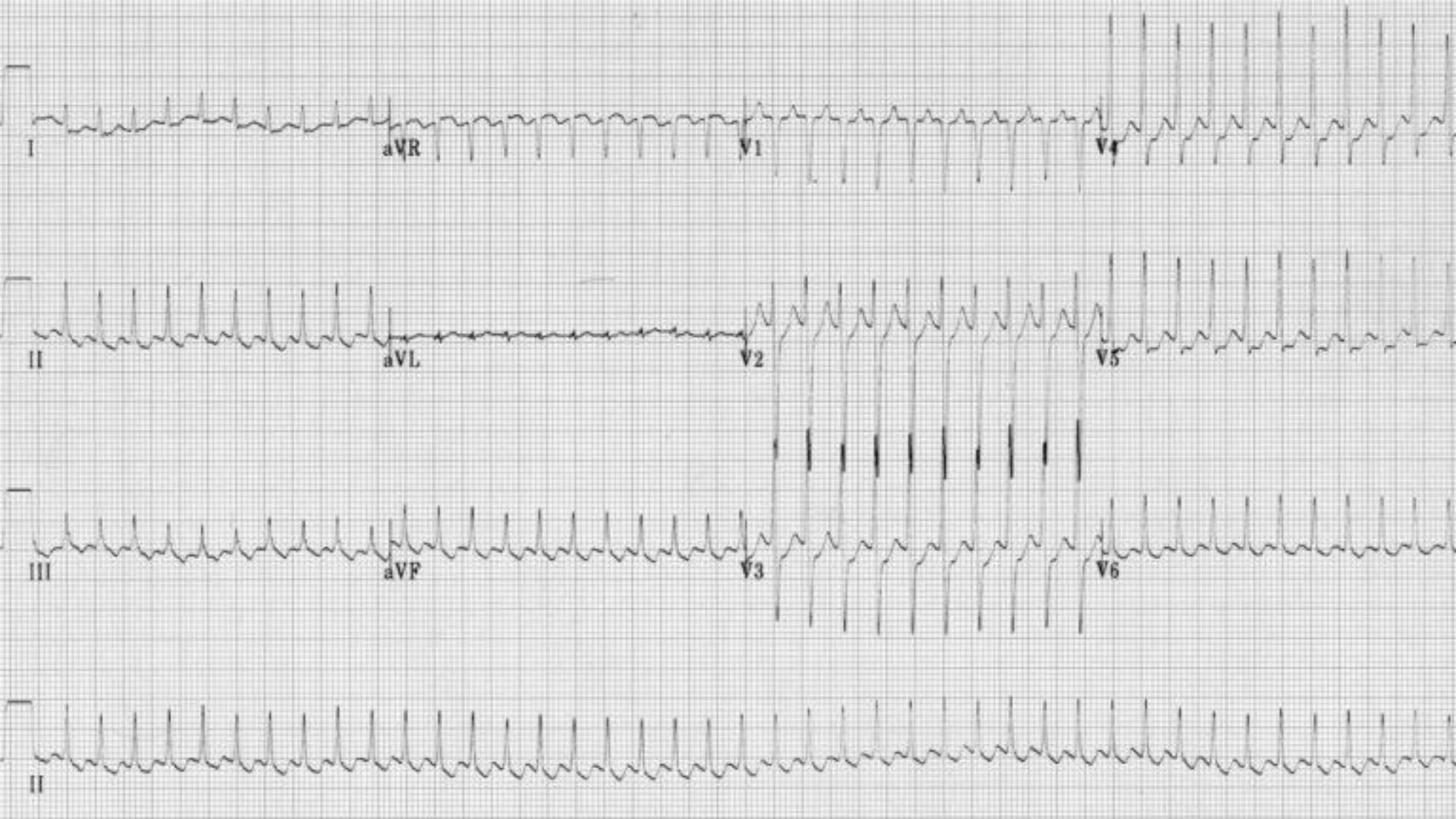
AF and anticoagulant ?

Most patients with atrial flutter should be considered for chronic anticoagulation in a manner similar to those with atrial fibrillation (AF). This recommendation is based not only on the fact atrial flutter carries a risk for systemic embolization but also that these patients usually have episodes of AF.

ECG features of atrial flutter

- Narrow complex tachycardia
- Regular atrial activity at ~300 bpm
- "Saw-tooth" pattern of inverted flutter waves in leads II, III, aVF
- Upright flutter waves in V1 that may resemble P waves
- Loss of the isoelectric baseline
- Ventricular rate depends on AV conduction ratio


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
RHYTHM STRIP: II
25 mm/sec; 1 cm/mV


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II

Recommendations for diagnosis of AF

ECG documentation is required to establish the diagnosis of AF.

- A standard 12-lead ECG recording or a single-lead ECG tracing of ≥30 s showing heart rhythm with no discernible repeating P waves and irregular RR intervals (when atrioventricular conduction is not impaired) is diagnostic of clinical AF.[6]

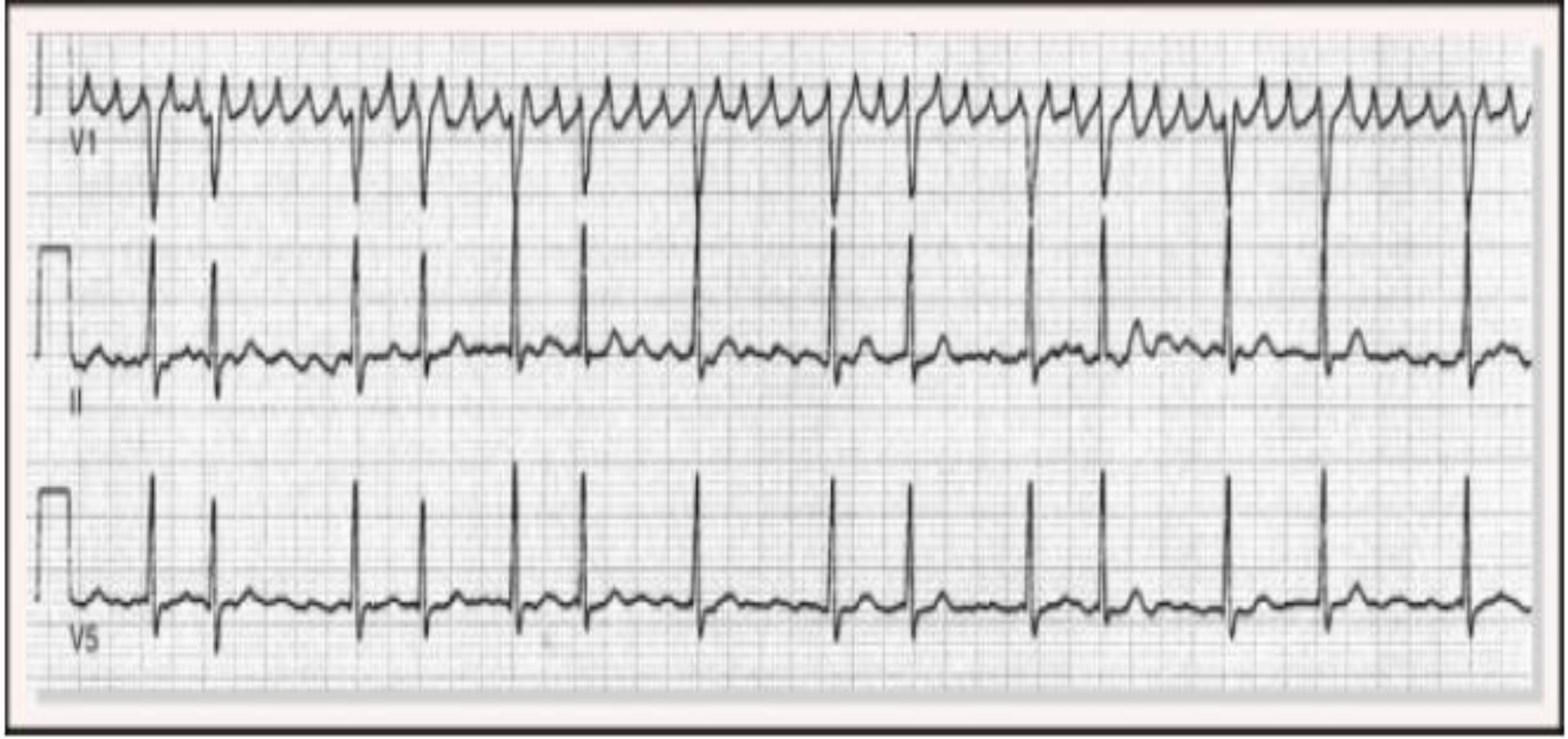


FIGURE 40-2 An example of AF with prominent f waves in V_1 that mimic atrial flutter waves. Note that typical f waves are present in leads II and V_5, establishing the diagnosis of AF.

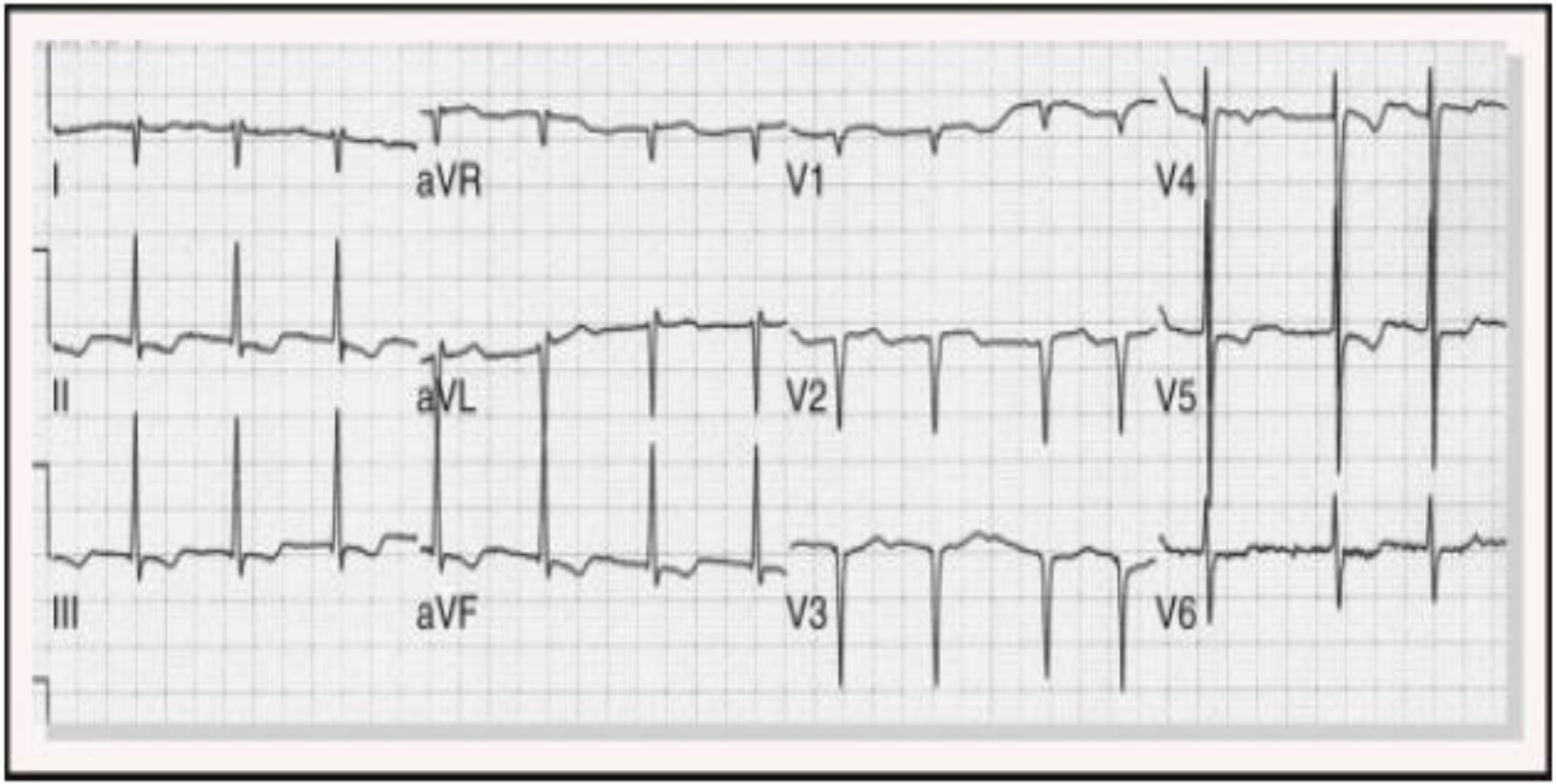


FIGURE 40-3 A 12-lead electrocardiogram of AF in which f waves are not discernible. The irregularly irregular ventricular rate indicates that this is AF and not a junctional rhythm.

AF pattern	Definition
First diagnosed	AF not diagnosed before, irrespective of its duration or the presence/severity of AF-related symptoms.
Paroxysmal	AF that terminates spontaneously or with intervention within 7 days of onset.
Persistent	AF that is continuously sustained beyond 7 days, including episodes terminated by cardioversion (drugs or electrical cardioversion) after ≥7 days
Long-standing persistent	Continuous AF of >12 months' duration when decided to adopt a rhythm control strategy.
Permanent	AF that is accepted by the patient and physician, and no further attempts to restore/maintain sinus rhythm will be undertaken. Permanent AF represents a therapeutic attitude of the patient and physician rather than an inherent pathophysiological attribute of AF, and the term should not be used in the context of a rhythm control strategy with antiarrhythmic drug therapy or AF ablation. Should a rhythm control strategy be adopted, the arrhythmia would be re-classified as 'long-standing persistent AF'.

AF increases the risk of stroke by fivefold and is estimated to be the cause of 25% of strokes.

A’ Anticoagulation/Avoid stroke: CHA2DS2-Vasc Score

Letter	Risk factor	Score
C	Congestive heart failure/LV dysfunction	1
H	Hypertension	1
A_2	Age ≥75	2
D	Diabetes mellitus	1
S_2	Stroke/TIA/thrombo-embolism	2
V	Vascular disease*	1
A	Age 65–74	1
S	Sex category (i.e., female sex)	1
	Maximum score	9

Congestive heart failure/LV dysfunction means LV ejection fraction ≤40%. Hypertension includes the patients with current antihypertensive medication. *Prior myocardial infarction, peripheral artery disease, aortic plaque. LV: left ventricular, TIA: transient ischemic attack

Table 10 Clinical risk factors in the HAS-BLED score[395]

Risk factors and definitions		Points awarded
H	**Uncontrolled hypertension** SBP >160 mmHg	1
A	**Abnormal renal and/or hepatic function** Dialysis, transplant, serum creatinine >200 μmol/L, cirrhosis, bilirubin > × 2 upper limit of normal, AST/ALT/ALP >3 × upper limit of normal	1 point for each
S	**Stroke** Previous ischaemic or haemorrhagic[a] stroke	1
B	**Bleeding history or predisposition** Previous major haemorrhage or anaemia or severe thrombocytopenia	1
L	**Labile INR[b]** TTR <60% in patient receiving VKA	1
E	**Elderly** Aged >65 years or extreme frailty	1
D	**Drugs or excessive alcohol drinking** Concomitant use of antiplatelet or NSAID; and/or excessive[c] alcohol per week	1 point for each
Maximum score		**9**

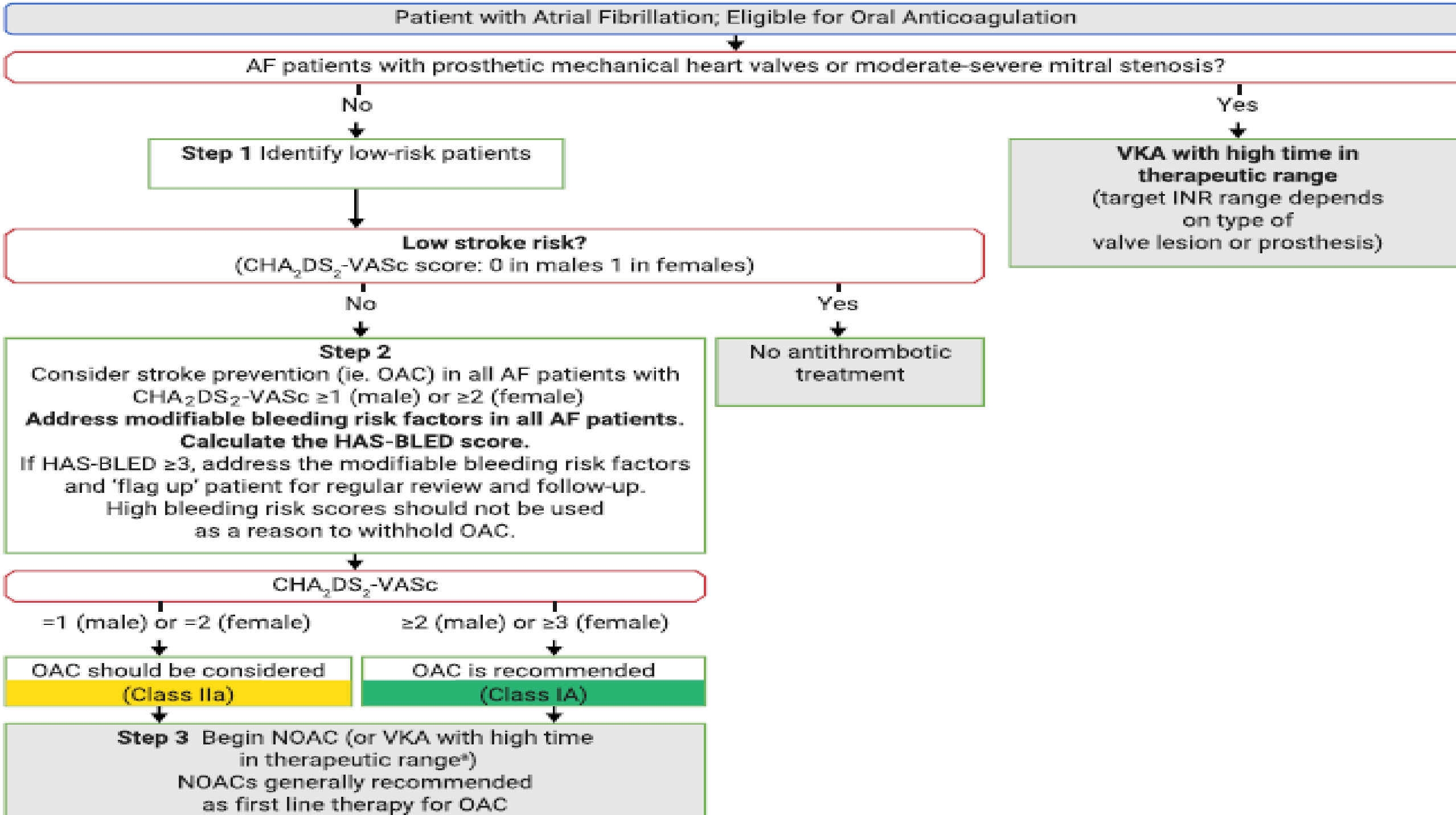

Patient with Atrial Fibrillation; Eligible for Oral Anticoagulation
AF patients with prosthetic mechanical heart valves or moderate-severe mitral stenosis?
No
Yes
Step 1 Identify low-risk patients
VKA with high time in therapeutic range (target INR range depends on type of valve lesion or prosthesis)
Low stroke risk? (CHA2DS2-VASc score: 0 in males 1 in females)
No
Yes
No antithrombotic treatment
Step 2
Consider stroke prevention (ie. OAC) in all AF patients with CHA2DS2-VASc ≥1 (male) or ≥2 (female)
Address modifiable bleeding risk factors in all AF patients.
Calculate the HAS-BLED score.
If HAS-BLED ≥3, address the modifiable bleeding risk factors and 'flag up' patient for regular review and follow-up.
High bleeding risk scores should not be used as a reason to withhold OAC.
CHA2DS2-VASc
=1 (male) or =2 (female)
≥2 (male) or ≥3 (female)
OAC should be considered
(Class IIa)
OAC is recommended
(Class IA)
Step 3 Begin NOAC (or VKA with high time in therapeutic range*)
NOACs generally recommended as first line therapy for OAC

Table I I Dose selection criteria for NOACs

	Dabigatran	Rivaroxaban	Apixaban	Edoxaban
Standard dose	150 mg b.i.d.	20 mg o.d.	5 mg b.i.d.	60 mg o.d.
Lower dose	110 mg b.i.d.			30 mg o.d.
Reduced dose		15 mg o.d.	2.5 mg b.i.d.	30 mg o.d./15 mg o.d.
Dose-reduction criteria	Dabigatran 110 mg b.i.d. in patients with: • Age ≥80 years • Concomitant use of verapamil, or • Increased bleeding risk	CrCl 15 - 49 mL/min	At least 2 of 3 criteria: • Age ≥80 years, • Body weight ≤60 kg, or • Serum creatinine ≥1.5 mg/dL (133 µmol/L)	If any of the following: • CrCl 30 - 50 mL/min, • Body weight ≤60 kg, • Concomitant use of verapamil, quinidine, or dronedarone

Absolute contraindications to oral anticoagulants

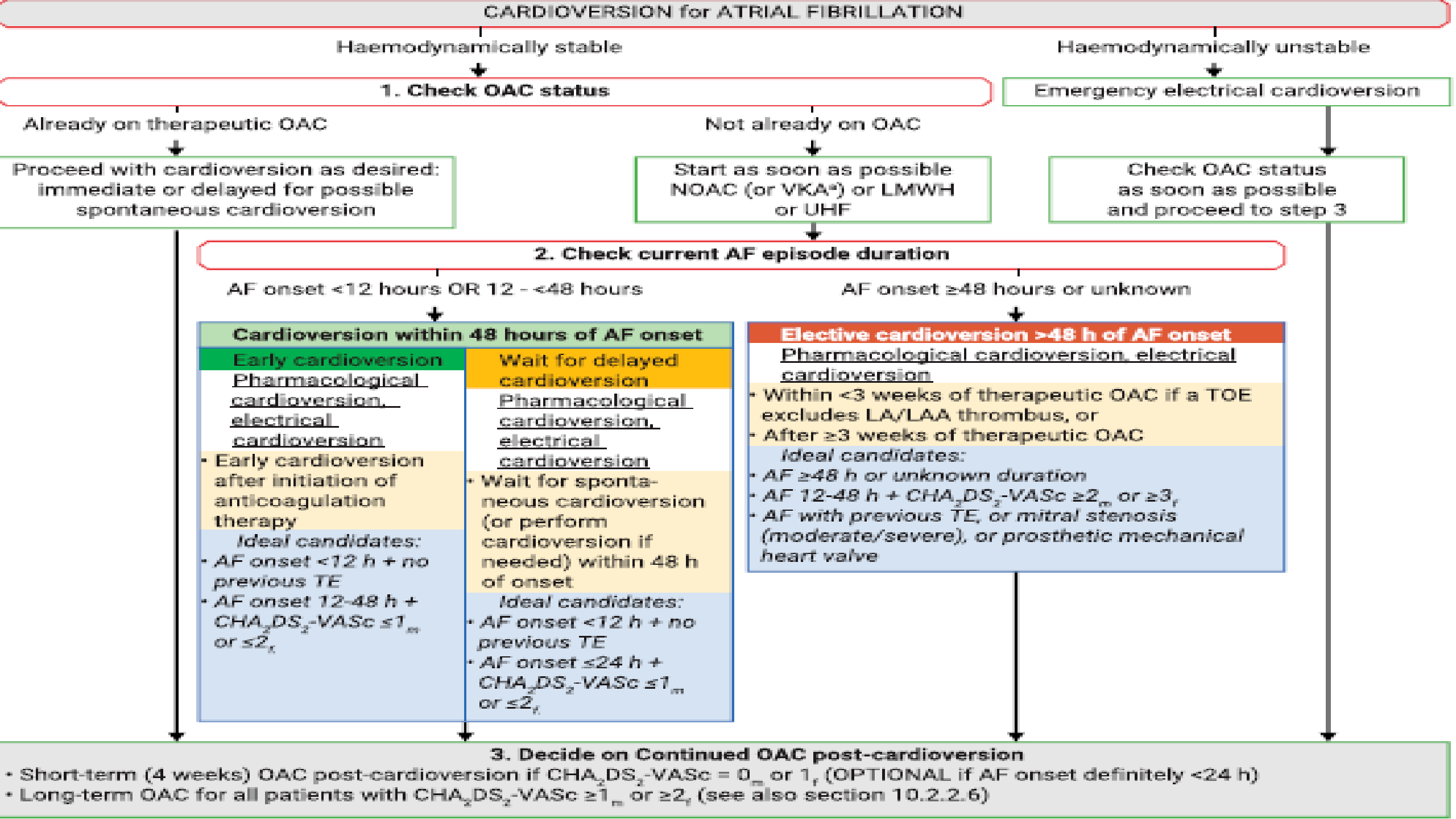
The few absolute contraindications to OAC include :

1-active serious bleeding (where the source should be identified and treated),

2-associated comorbidities (e.g. severe thrombocytopenia <50 platelets/lL, severe anemia under investigation, etc.),

3- recent high-risk bleeding event such as intracranial hemorrhage (ICH).

Non-drug options may be considered in such cases.


CARDIOVERSION for ATRIAL FIBRILLATION
Haemodynamically stable
Haemodynamically unstable
1. Check OAC status
Emergency electrical cardioversion
Already on therapeutic OAC
Not already on OAC
Proceed with cardioversion as desired: immediate or delayed for possible spontaneous cardioversion
Start as soon as possible NOAC (or VKA*) or LMWH or UHF
Check OAC status as soon as possible and proceed to step 3
2. Check current AF episode duration
AF onset <12 hours OR 12 - <48 hours
AF onset ≥48 hours or unknown
Cardioversion within 48 hours of AF onset
Early cardioversion
Pharmacological cardioversion, electrical cardioversion
• Early cardioversion after initiation of anticoagulation therapy
Ideal candidates:
• AF onset <12 h + no previous TE
• AF onset 12-48 h + CHA2DS2-VASc ≤1m or ≤2f
Wait for delayed cardioversion
Pharmacological cardioversion, electrical cardioversion
• Wait for spontaneous cardioversion (or perform cardioversion if needed) within 48 h of onset
Ideal candidates:
• AF onset <12 h + no previous TE
• AF onset ≤24 h + CHA2DS2-VASc ≤1m or ≤2f
Elective cardioversion >48 h of AF onset
Pharmacological cardioversion, electrical cardioversion
• Within <3 weeks of therapeutic OAC if a TOE excludes LA/LAA thrombus, or
• After ≥3 weeks of therapeutic OAC
Ideal candidates:
• AF ≥48 h or unknown duration
• AF 12-48 h + CHA2DS2-VASc ≥2m or ≥3f
• AF with previous TE, or mitral stenosis (moderate/severe), or prosthetic mechanical heart valve
3. Decide on Continued OAC post-cardioversion
• Short-term (4 weeks) OAC post-cardioversion if CHA2DS2-VASc = 0m or 1f (OPTIONAL if AF onset definitely <24 h)
• Long-term OAC for all patients with CHA2DS2-VASc ≥1m or ≥2f (see also section 10.2.2.6)

Therapeutic guidelines for postoperative atrial fibrillation

Class of recommendation I	In the presence of hemodynamic instability, electrical cardioversion is recommended.	Level of evidence C
Class of recommendation IIA	Oral anticoagulation may be considered in patients at risk of stroke, taking into account the risk and benefit in relation to bleeding.	Level of evidence B
Class of recommendation IIA	Antiarrhythmic drugs may be considered for symptomatic patients in an attempt to obtain sinus rhythm.	Level of evidence C

Management of anticoagulation therapy After PVI

- In general, OAC therapy is continued for 2 months following ablation in all patients. Beyond this time, a decision to continue OAC is determined primarily by the presence of CHA2DS2-VASc stroke risk factors rather than the rhythm status.

AF in pregnant women

Pregnancy is not considered as an additional RF

According to CHADS-VASC score

NOVAC is contraindicated