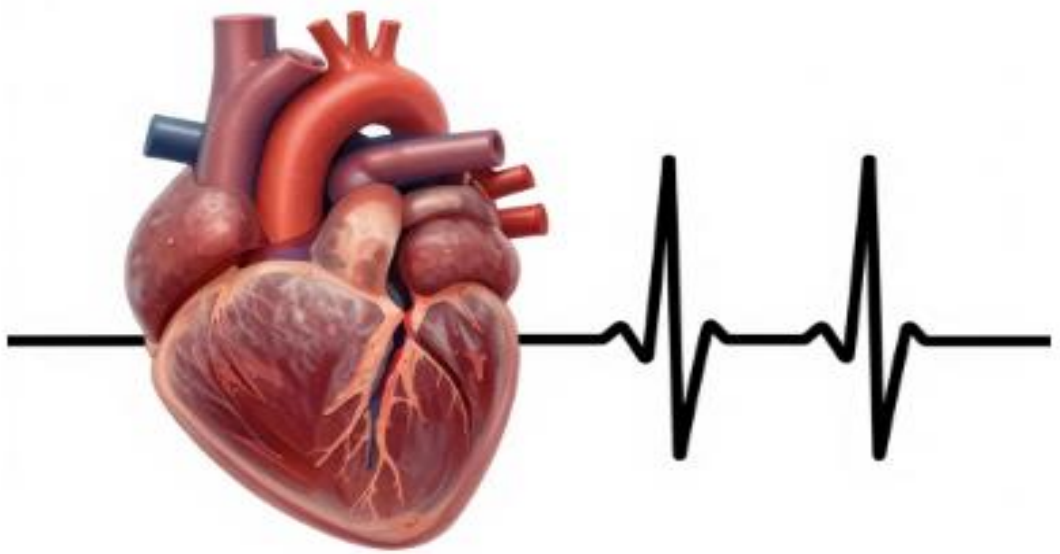

بسم الله الرحمن الرحيم



Atrial Fibrillation

OUTLINES

- WHAT IS ATRIAL FIBRILLATION?
- NORMAL HEART RHYTHM VS ATRIA FIBRILLATION
- PATHOPHYSIOLOGY OF ATRIAL FIBRILLATION
- TYPES OF ATRIAL FIBRILLATION
- CLINICAL SYMPTOMS OF AFIB
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- COMPLICATIONS OF ATRIAL FIBRILLATION
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- PROCEDURAL & SURGICAL INTERVENTIONS
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What is Atrial Fibrillation?

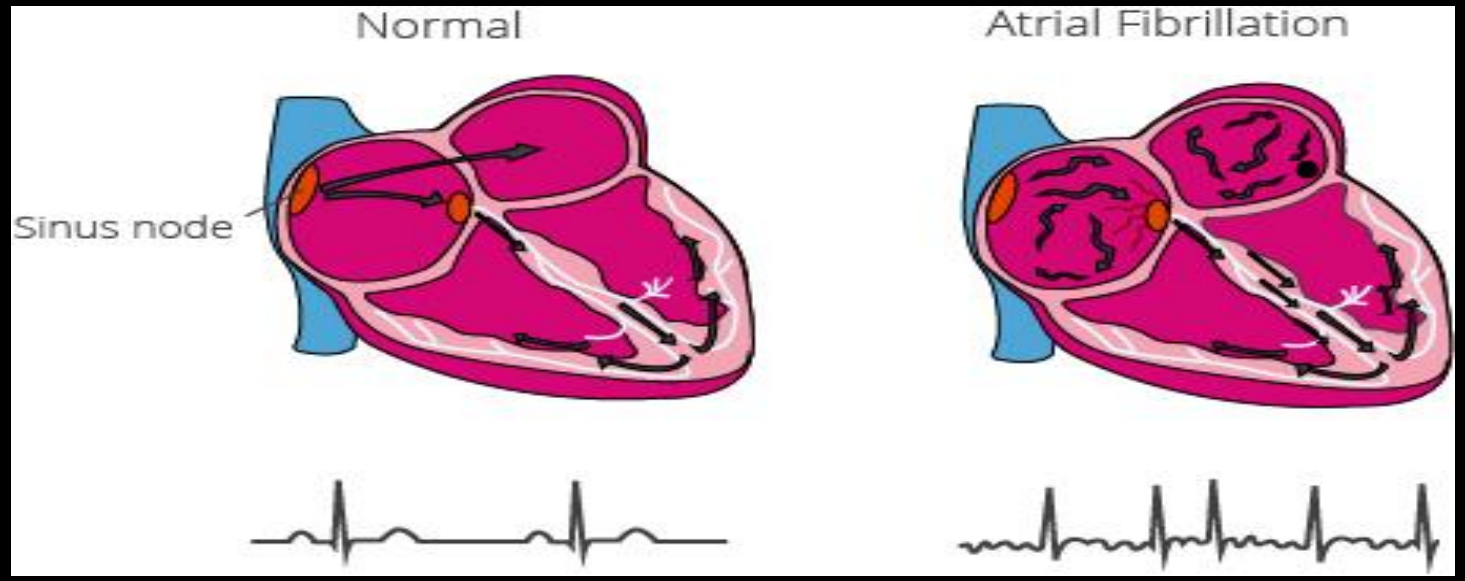
Atrial fibrillation is an irregular heartbeat, or arrhythmia. Atrial fibrillation also known as AFib or AF, caused by **chaotic electrical signals** in the heart's upper chambers (atria), can lead to blood clots, stroke, heart failure and other heart-related complications. AFib is the most common type of irregular heart rhythm.



Description: Irregular and often rapid heart rhythm originating in the atria.
Characteristics: ECG Rhythm with absence of distinct P-waves, irregular R-R intervals.

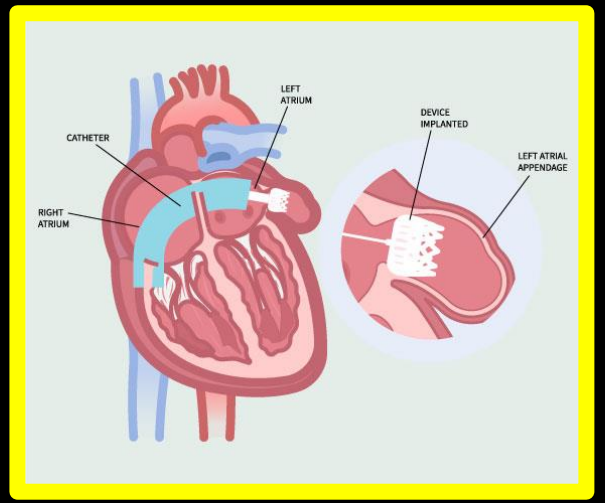
Normal Heart Rhythm vs Atrial Fibrillation

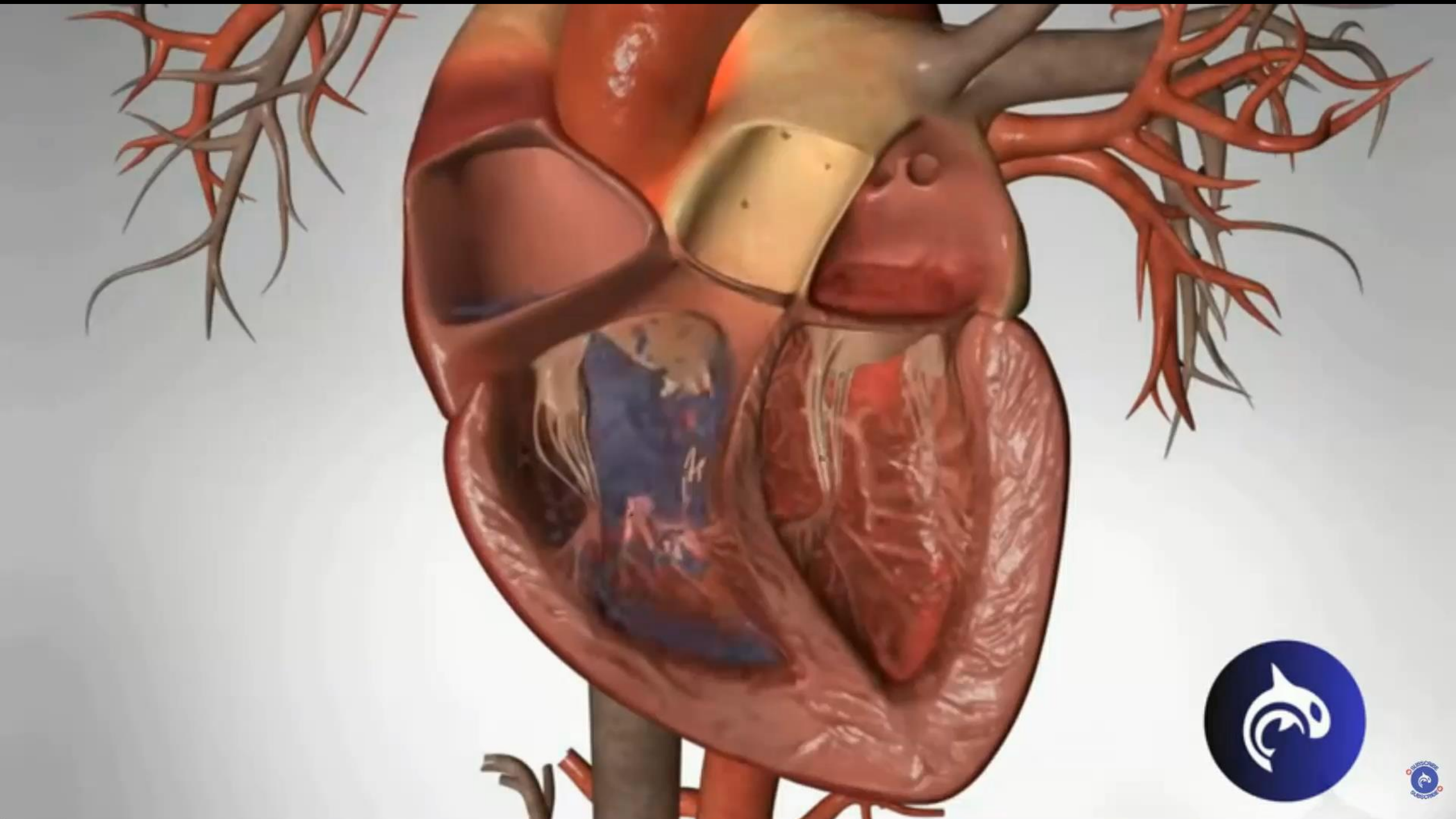
A **NORMAL HEART RHYTHM** is a coordinated heartbeat (60–100 bpm) initiated by the SA node,
while **Atrial Fibrillation (AFib)** is a chaotic, irregular, and often rapid arrhythmia originating from multiple sites in the atria, causing them to quiver



Pathophysiology of Atrial Fibrillation

- Rapid and disorganized electrical activity occurs in the atria
- Electrical impulses originate from ectopic foci (pulmonary veins) instead of the SA node
- Leads to ineffective atrial contraction (atria quiver, not pump properly)
- Results in reduced cardiac output
- AV node receives chaotic signals and transmits them irregularly
- Causes irregularly irregular ventricular rhythm
- Ineffective contraction leads to blood stasis, especially in the left atrial appendage
- Increases risk of thrombus (clot) formation
- Clots may embolize → can cause stroke
- Long-term AF leads to atrial remodeling (dilation and fibrosis)





Four Main Types Of Atrial Fibrillation (Afib)

1. Paroxysmal AFib

- Episodes **start suddenly and stop on their own**
- Usually lasts **less than 7 days** (often < 24 hours)
- Heart returns to normal rhythm **without treatment**
- Symptoms may come and go (palpitations, dizziness)

2. Persistent AFib

- Lasts **more than 7 days**
- Does **not stop on its own**
- Requires **treatment** (medications or cardioversion) to restore normal rhythm

Four Main Types Of Atrial Fibrillation (Afib) CONT....

3. Long-Standing Persistent AFib

- Continuous AFib lasting **more than 12 months**
- Rhythm control becomes **more difficult**
- Often associated with **structural changes in the atria**

4. Permanent AFib

- AFib is **accepted as ongoing**
- **No further attempts** to restore normal rhythm
- Focus is on:
  - **Rate control**
  - **Anticoagulation** (to prevent stroke)

Clinical Symptoms of Atrial Fibrillation (AFib)

- Palpitations
- Fatigue Or Weakness
- Shortness Of Breath (Dyspnea)
- Dizziness
- Chest Pain Or Discomfort
- Reduced Exercise Capacity
- Fainting (Syncope

Causes of Atrial Fibrillation (AFib)



- High blood pressure (Hypertension)
- Coronary artery disease
- Heart valve disease
- Heart failure
- Thyroid disorders (Hyperthyroidtum)
- Excessive alcohol intake (Holiday heart syndrome)
- Advanced age
- Obesity
- Diabetes mellitus
- Sleep apnea
- Lung diseases (COPD)
- Electrolyte imbalance
- Previous heart surgery

Complications of Atrial Fibrillation (AFib)



- Stroke (Ischemic stroke)
- Heart failure
- Blood clot formation (Thromboembolism)
- Cardiomyopathy
- Reduced cardiac output
- Chronic fafigue and weakness
- Cognitive decline / Dementia
- Increased risk of hospitalization
- Medication-related complications (Bleeding risk)
- Sudden worgening of existing heart conditions

Diagnosis of Atrial Fibrillation (AFib)

- **Electrocardiogram:** *Irregular rhythm* and absence of P waves.
- **Holter monitoring:** **24–48 hours or longer.**
- **Echocardiography (2D Echo)**:Assesses heart structure, valve disease, and atrial enlargement.
- **Chest X-ray** : Helps evaluate heart size and lung conditions contributing to AFib.
- **Blood tests** : Includes thyroid function tests (TSH), electrolytes, and renal function.

Atrial Fibrillation (AFib) Management

- **Control heart rate:** Maintain a safe ventricular rate to improve cardiac output.
- **Restore and maintain normal rhythm (sinus rhythm)** :convert irregular rhythm to normal.
- **Prevent thromboembolism (stroke prevention)**:Reduce risk of clot formation.
- **Improve symptoms and quality of life**: Reduce palpitations, fatigue, and breathlessness.
- **Treat underlying causes**:Manage conditions like hypertension, thyroid disorders, or heart disease.

Nursing Interventions

- Monitor vital signs (HR, BP, SpO_2) frequently.
- Assess ECG rhythm continuously.
- Symptom Assessment in which we evaluate for palpitations, chest discomfort, and shortness of breath.
- Administer prescribed medications (beta-blockers, calcium channel blockers, digoxin).
- INR Monitoring if the patient is on warfarin and heparin.
- Monitor for signs of bleeding (gums, urine, stool, bruising).
- Patient Position in semi-Fowler's position to improve cardiac output.
- Monitor signs of reduced perfusion (fatigue, hypotension, altered mental status).
- Assess neurological status regularly (speech, limb strength, consciousness).

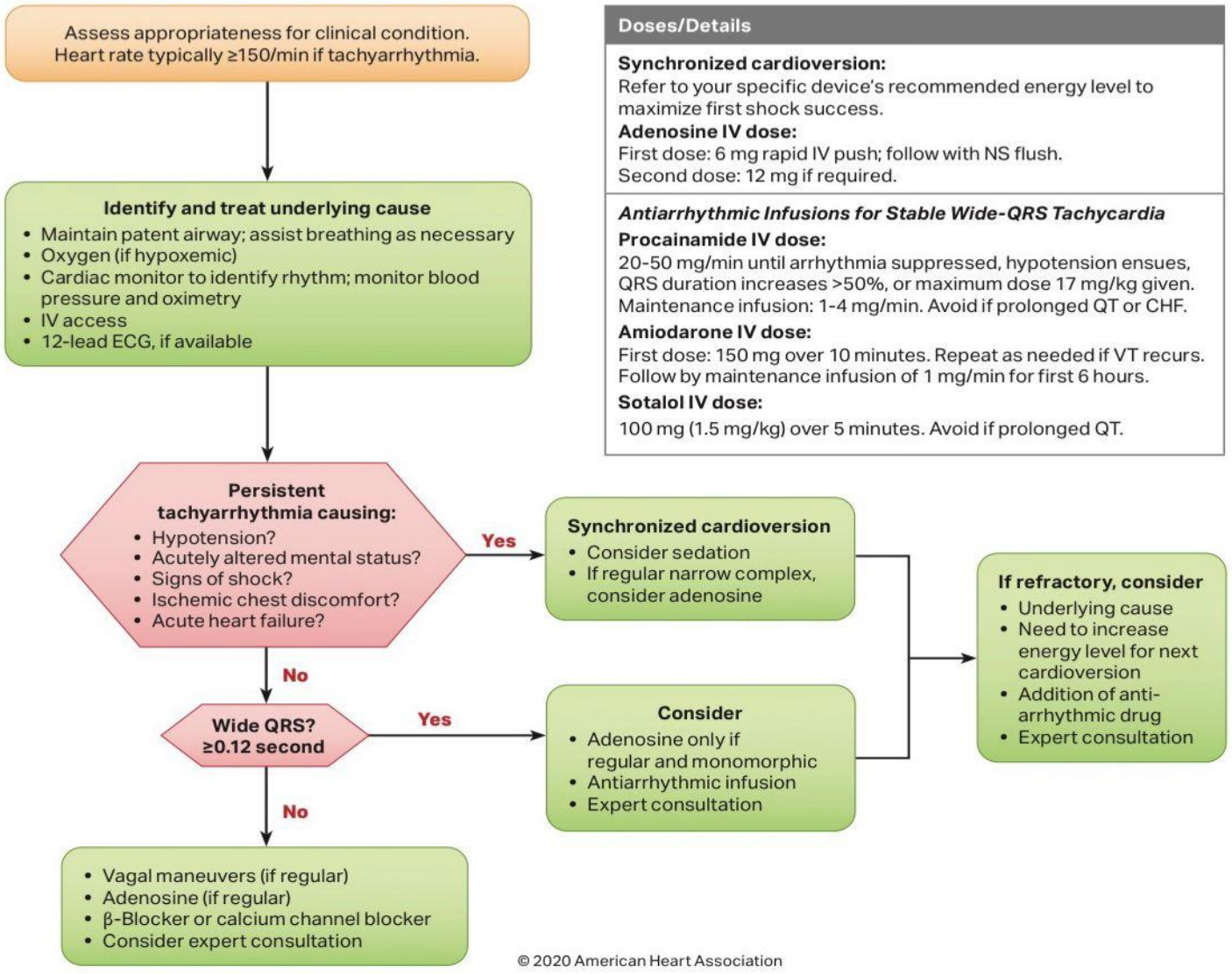
Pharmacological Management

- **Anticoagulants**: Prevent blood clot formation (e.g., warfarin, heparin, DOACs).
- **Beta-blockers:**Control heart rate (e.g., metoprolol, atenolol).
- **Calcium channel blockers:** Slow ventricular rate (e.g., diltiazem, verapamil).
- **Antiarrhythmic drugs:** Restore or maintain sinus rhythm (e.g., amiodarone, flecainide).
- **Digoxin:**Used for rate control, especially in heart failure patients.

Procedural & Surgical Interventions

Electrical cardioversion – Controlled shock to restore normal heart rhythm.
Catheter ablation – Destroys abnormal electrical pathways causing AFib.
Pacemaker implantation – Used in patients with slow heart rate or post-ablation.
Left atrial appendage closure (e.g., Watchman device) – Reduces stroke risk by preventing clot formation.
Maze surgery – Creates scar tissue pathways to correct abnormal electrical signals.

Adult Tachycardia With a Pulse Algorithm




THANK
YOU!