Atrial fibrillation

Atrial Fibrillation

- Atrial Fibrillation (AF) is the most common sustained arrhythmia.
- The incidence and prevalence of AF is increasing.
- Lifetime risk over the age of 40 years is ~25%.
- Complications of AF include hemodynamic instability, cardiomyopathy, cardiac failure, and embolic events such as stroke.
- Characterized by disorganized atrial electrical activity and contraction.

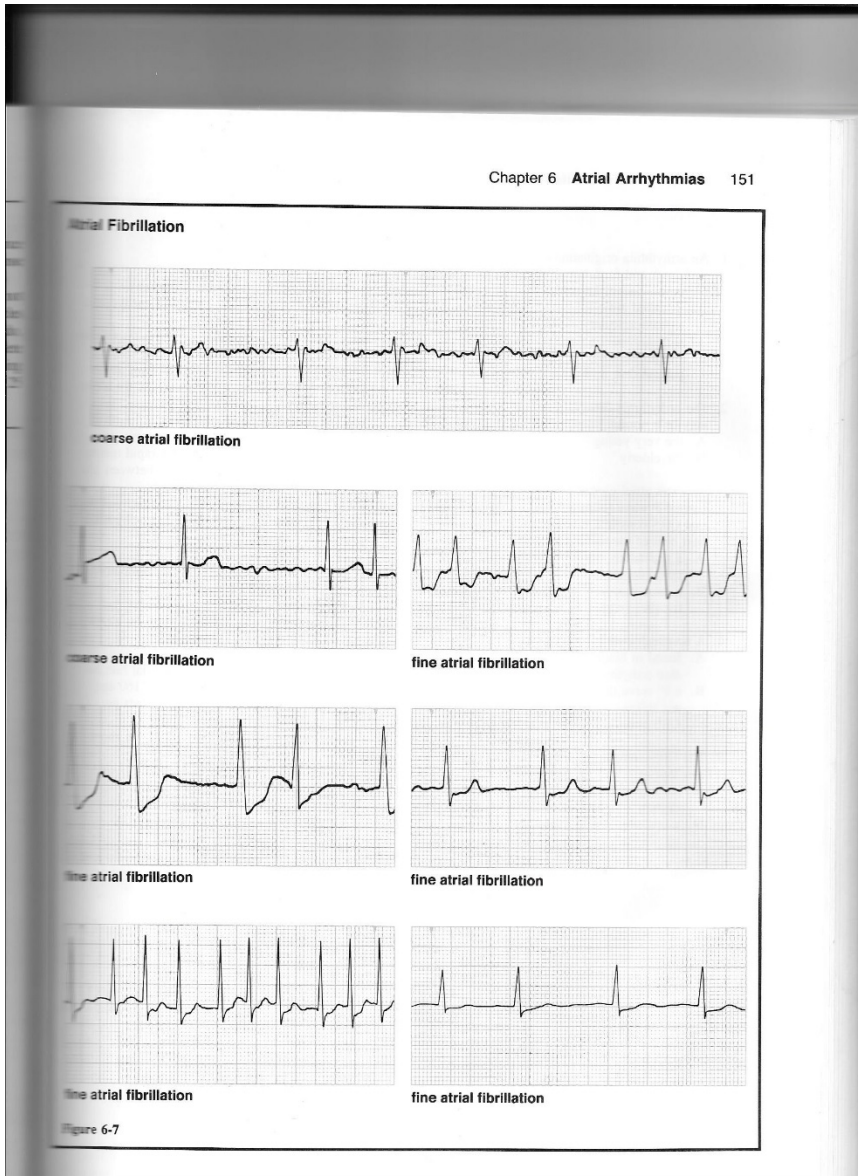
Atrial Fibrillation

- Possible causes:
  - Ischemic heart disease
  - Hypertension
  - Valvular heart disease (esp. mitral stenosis / regurgitation)
  - Acute infections
  - Electrolyte disturbance (hypokalemia, hypomagnesaemia)
  - Drugs (e.g. sympathomimetics)
  - PE
  - Pericardial disease
  - Acid-base disturbance
  - Cardiomyopathy

ECG Features of Atrial Fibrillation

- Irregularly irregular rhythm.
- No P waves.
- Absence of an isoelectric baseline.
- Variable ventricular rate.
- QRS complexes usually < 120 ms unless pre-existing bundle branch block, accessory pathway, or rate related aberrant conduction.
- Fibrillatory waves may be present and can be either fine (amplitude < 0.5mm) or coarse (amplitude >0.5mm).
- Fibrillatory waves may mimic P waves leading to misdiagnosis.
- Commonly AF is associated with a ventricular rate ~ 110 – 160.
- AF is often described as having ‘rapid ventricular response’ once the ventricular rate is > 100 bpm.
- ‘Slow’ AF is a term often used to describe AF with a ventricular rate < 60 bpm.

ECG Features of Atrial Fibrillation



Atrial Fibrillation

coarse atrial fibrillation

coarse atrial fibrillation

fine atrial fibrillation

fine atrial fibrillation

fine atrial fibrillation

fine atrial fibrillation

fine atrial fibrillation

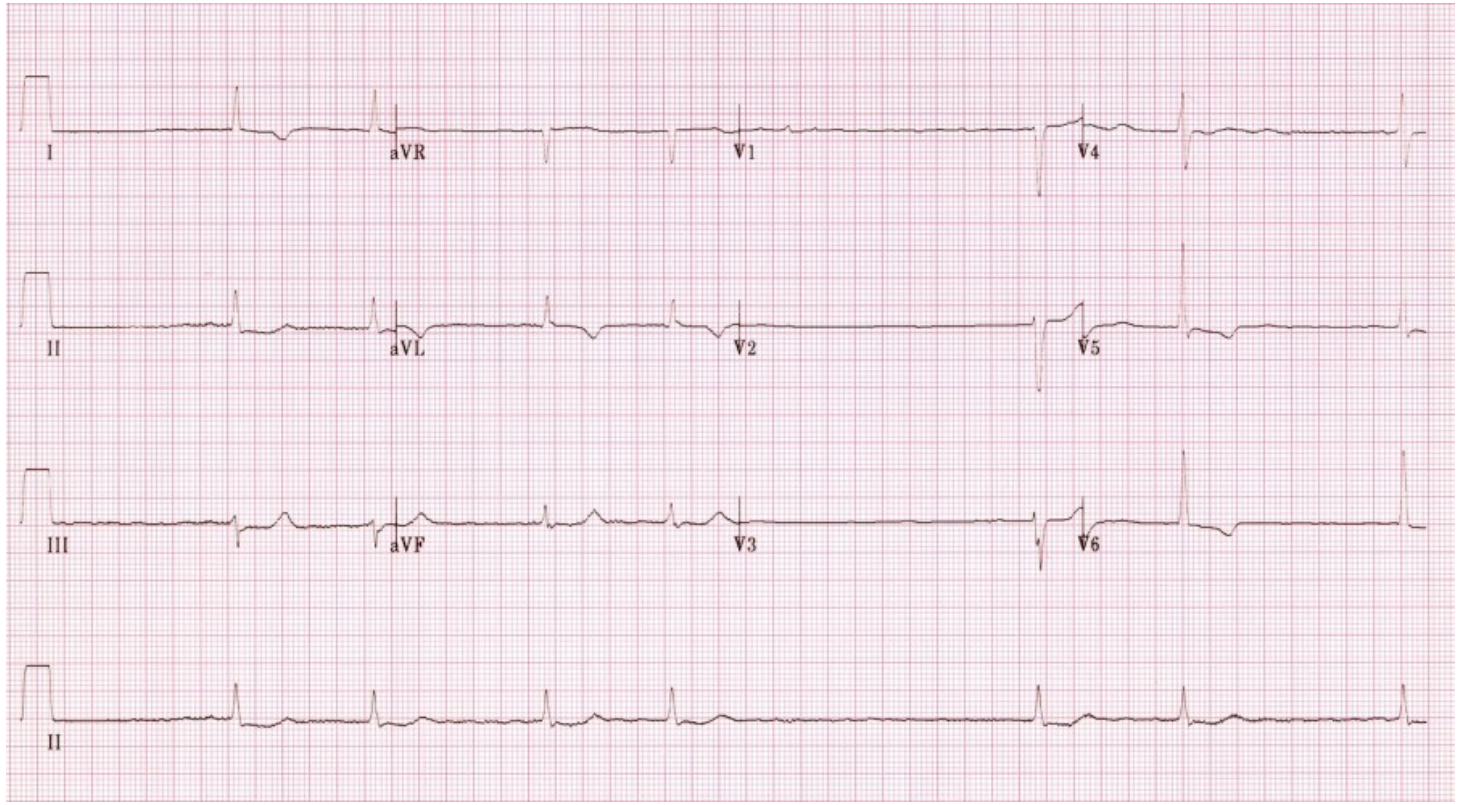
Figure 6-7

Atrial Fibrillation in WPW

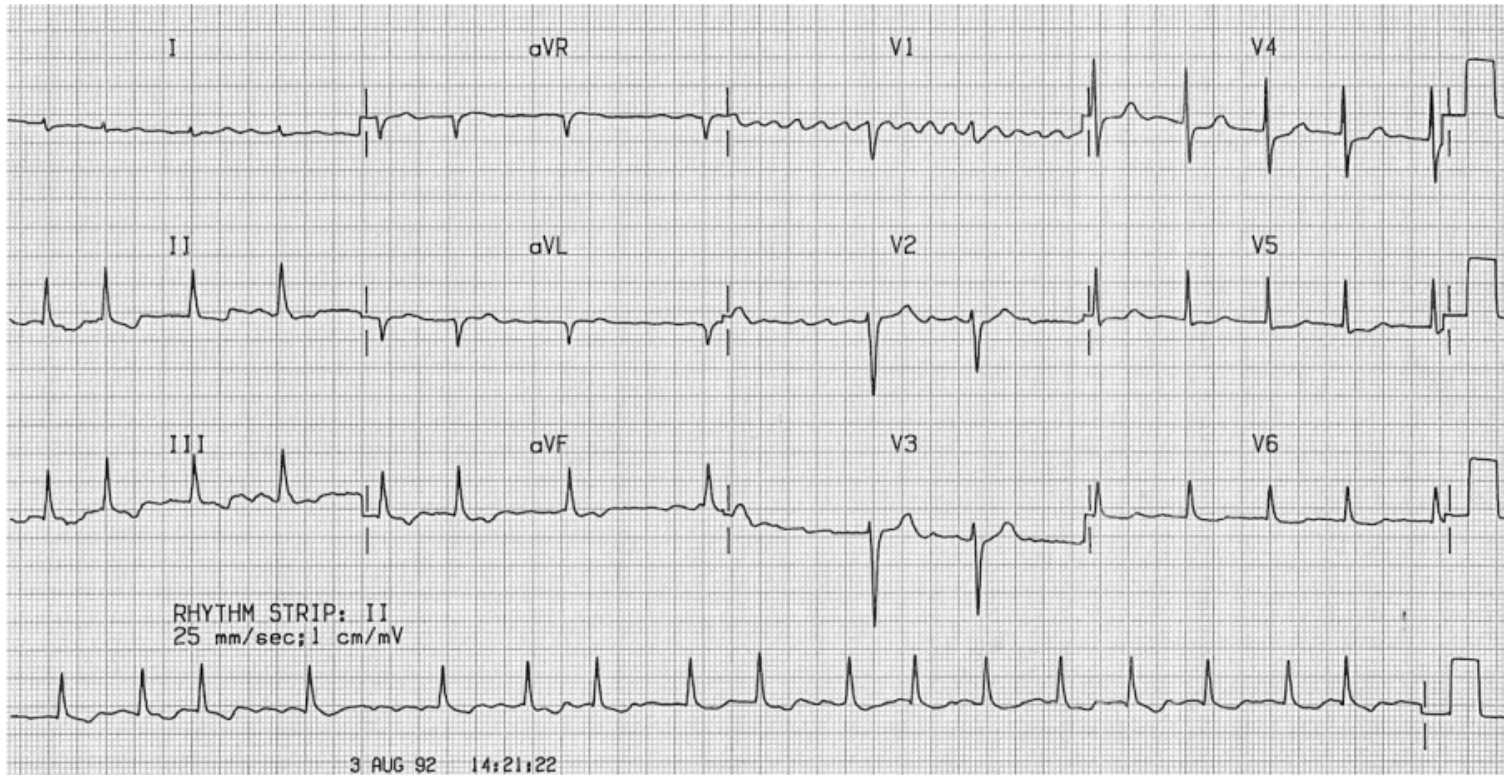
- Atrial fibrillation can occur in up to 20% of patients with WPW
- The accessory pathway allows for rapid conduction directly to the ventricles bypassing the AV node
- Rapid ventricular rates may result in degeneration to VT or VF.
- **ECG features of Atrial Fibrillation in WPW are:**
  - Rate > 200 bpm
  - Irregular rhythm
  - Wide QRS complexes due to abnormal ventricular depolarization via accessory pathway
  - QRS Complexes change in shape and morphology
  - Axis remains stable unlike polymorphic VT.

Cardizem (Diltiazem)

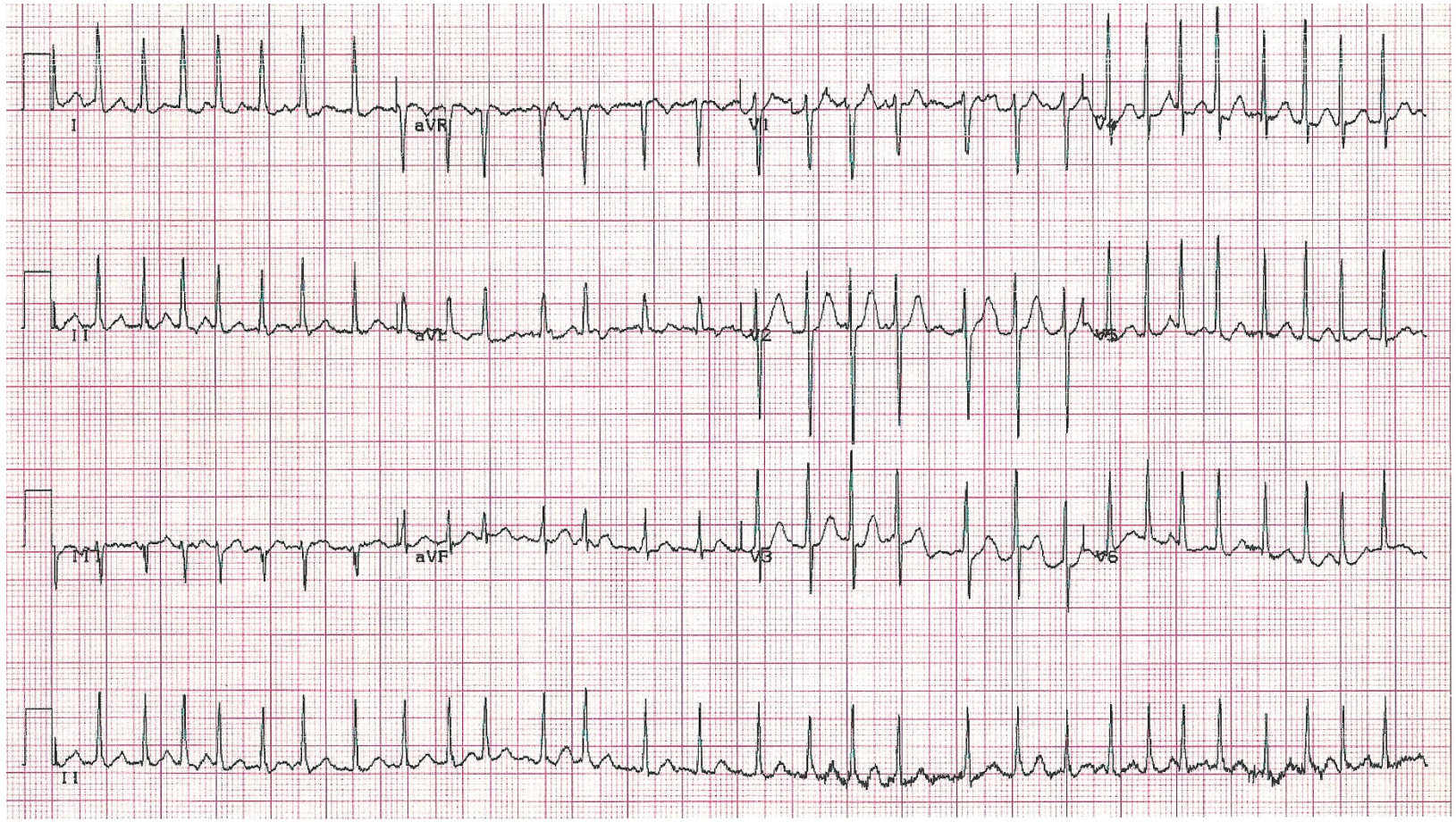
- Definition:
  - Cardizem is a calcium ion cellular influx inhibitor (slow channel blocker or calcium antagonist). Cardizem decreases peripheral vascular resistance. Cardizem is effective for initial ventricular rate control in patients with atrial fibrillation
    - Patient condition:
    - A-Fib and A-Flutter with rapid ventricular response.
    - Contraindications:
    - sick sinus syndrome without pacemaker
    - 2nd or 3rd degree AV block without pacemaker
    - Hypotension
    - MI with pulmonary congestion
    - ventricular tachycardia



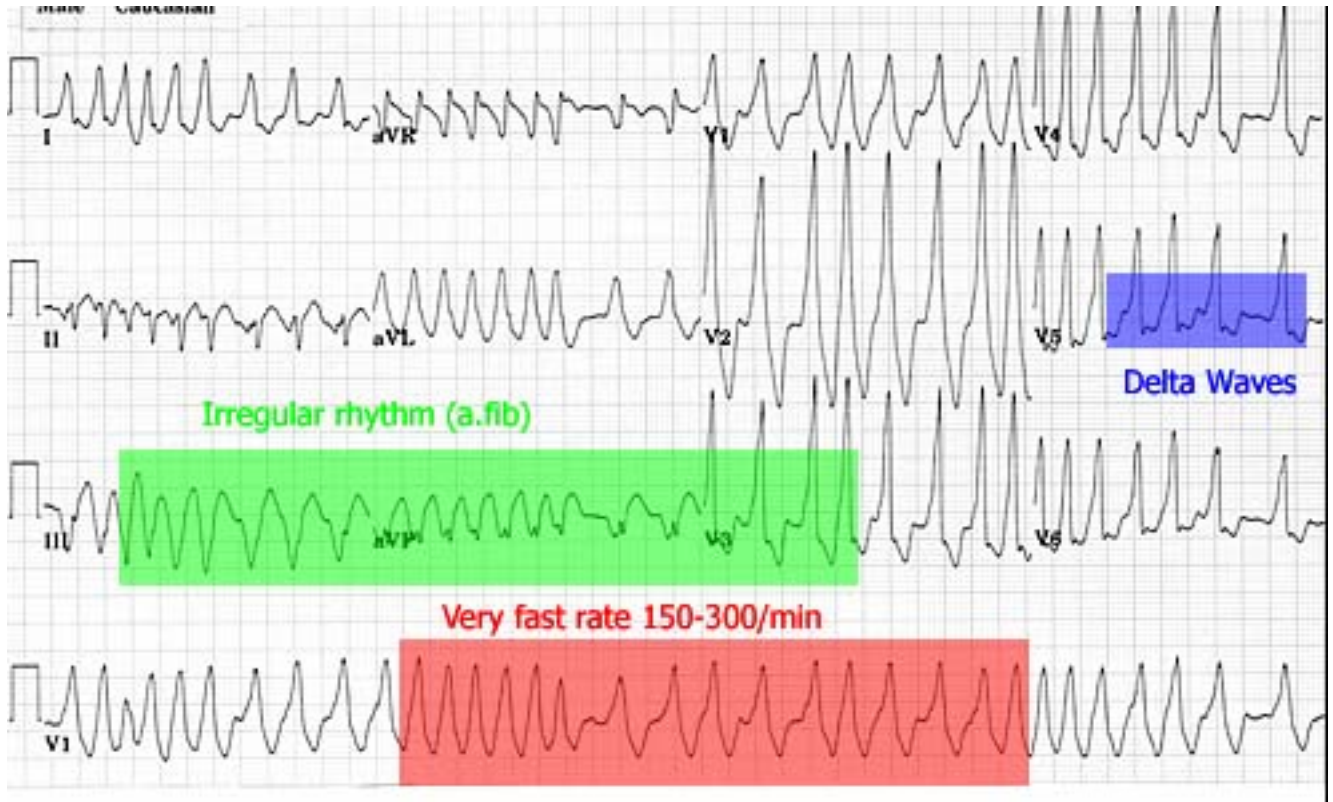
AF with slow ventricular response


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
RHYTHM STRIP: II
25 mm/sec;1 cm/mV
3 AUG 92 14:21:22

AF



AF rvr



Atrial Fibrillation in WPW

CLEMC Protocol

- For treatment guidelines, please refer to the updated CLEMC narrow complex tachycardia protocol.

https://youtu.be/qrhWH2_KKOY