Premature Beats

- Early beat
- Arises from an ectopic stimulus (focus) – outside of SA node
- 2 types
  - Supraventricular
    - Atrial
    - Junctional or nodal
  - Ventricular

Causes

- Epinephrine (Stress)
- Increased sympathetic stimulation
- Stimulants – caffeine, β₁ agonists
- Drugs – digitalis
- Hyperthyroidism
- Low O₂

PAC’s

Premature atrial contractions

- Very common
- Abnormal P wave and/or different PR interval than preceding P wave
- Early
- Followed by brief pause
- QRS is usually similar to QRS in preceding beats but sometimes the PAC is not conducted

PAC

- Question 1 – rhythm is not regular
- Question 3 – P wave followed by a QRS – usually but not always sometimes blocked
- Question 4 – no P waves look different
- Question 6 – PR interval may vary

PJC

Premature Junctional Contraction

- Premature stimulus from AV node
- Atria are stimulated retrogradely
  - Negative P wave in lead II
  - Positive P wave in aVR
  - QRS usually narrow
- P waves may occur before, during or after the QRS
- QRS usually normal
**PVC**

Premature Ventricular Contraction

- Premature beats that arise in the ventricles
- Wide QRS (ventricles not stimulated simultaneously)
- T wave in opposite direction of QRS
- Followed by a compensatory pause usually
- Causes a weaker beat (ventricles not filled)

- Question 1 – irregular rhythm
- Question 2 – no
- Question 5 – QRS complexes not similar
- Question 7 – QRS wide

- Six or more PVCs/min is considered pathological
- PVC’s may be …
  - Unifocal - same focus
  - Multifocal - >1 focus
  - Appearance of PVC will change with a different focus
Premature Beats

- Interpolated – sandwiched between two normal beats
- Two in a row – couplet
- Bigeminy – every other beat is premature
- Trigeminy – every third beat is premature
- Quadrigeminy – every fourth beat is premature

Name That Premature Beat!
Ventricular Arrhythmias

- Ventricular Tachycardia - Run of 3 or more consecutive PVC’s (100-200 bpm)
- Sustained VT - > 30 sec
  - Life-threatening arrhythmia
    - Hypotensive
    - May degenerate into V Fibrillation (cardiac arrest)
    - Usually have underlying HD
    - CHD most common cause

Ventricular Arrhythmias

- V Flutter – VT with sine-wave appearance
  - 250-350 bpm
  - Precursor to...
- V Fibrillation – totally erratic
  - 350-450 bpm
  - Numerous foci – ventricular twitching
Couplet with multifocal PVC’s

“R on T” initiates
V Tachycardia