Ventricular Arrhythmia

By

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Learning Objectives

- What is Arrhythmia?
- How to calculate heart rate on ECG?
- What is sinus rhythm?
- What is sinus arrhythmia?
- What are the types of arrhythmia?
- What is the pre-excitation of ventricles by abnormal accessory pathways?
- What is WPW syndrome?
- What is heart block?
- What are the types of heart block?

Recognition of ventricular beat or QRS complex

- Broad QRS
- No P wave
- Concordance (all +ve or all -ve)
- May be bizarre type
- Inverted T wave after the QRS complex

Ventricular Rhythms

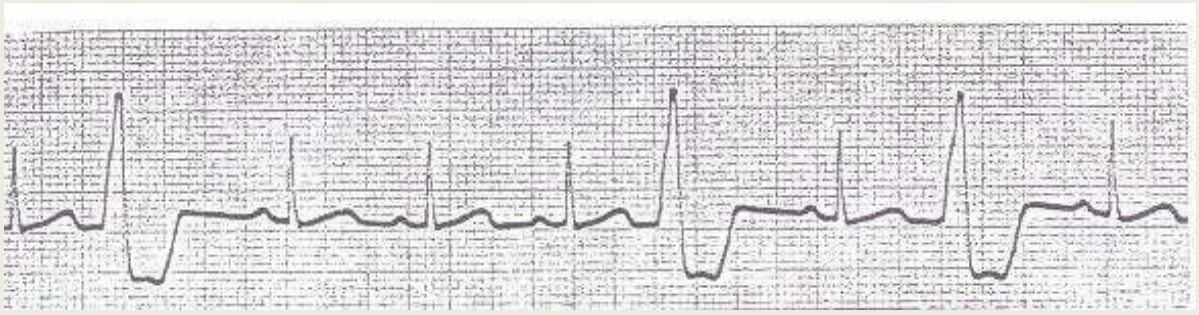
Premature Ventricular Contraction (PVC)

Heart Rate	Rhythm	P Wave	PR Interval (sec.)	QRS (Sec.)
Var.	Irregular	No P waves associated with premature beat	NA	Wide >.12

Ventricular Rhythms

- **Premature Ventricular Contraction (PVC)**
  - The ectopic beat is not preceded by a p-wave
  - Irregular rhythm due to ectopic beat
  - Rate will be determined by the underlying rhythm
  - QRS is wide and may be bizarre in appearance
  - Caused by a irritable focus within the ventricle which fires prematurely
  - Must identify an underlying rhythm

Ventricular Rhythm (unifocal)

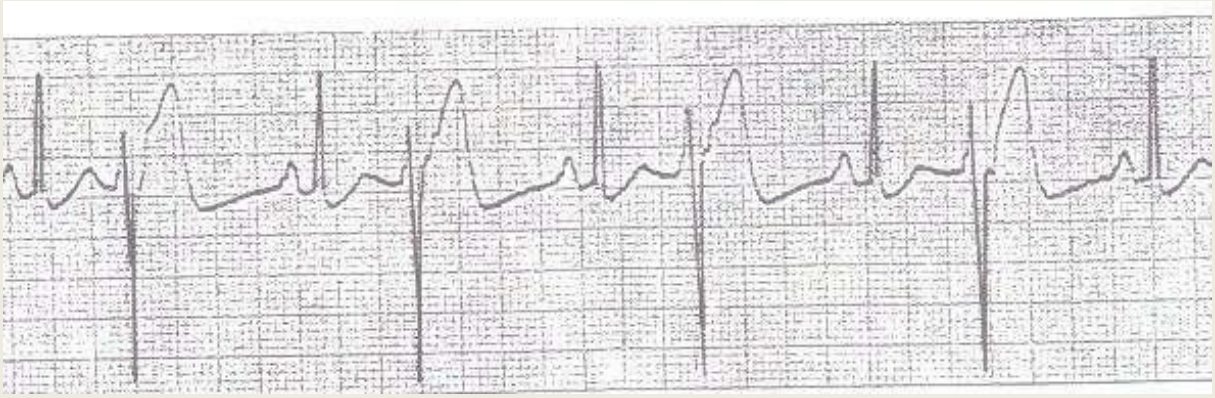


- **Premature Ventricular Contraction**
  - Classify as rare, occasional, or frequent
  - Classify as unifocal, or multifocal PVC's
    - Unifocal-originating from same area of the ventricle; distinguished by same morphology

Ventricular Rhythm
(multifocal)

- **Premature Ventricular Contraction**
  - Classify as unifocal, or multifocal PVC's
  - Multifocal-originating from different areas of the ventricle; distinguished by different morphology

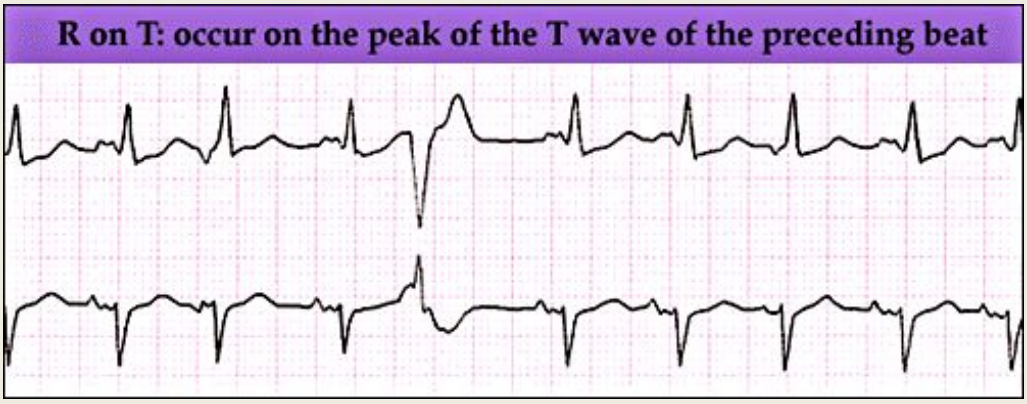
Ventricular Rhythm

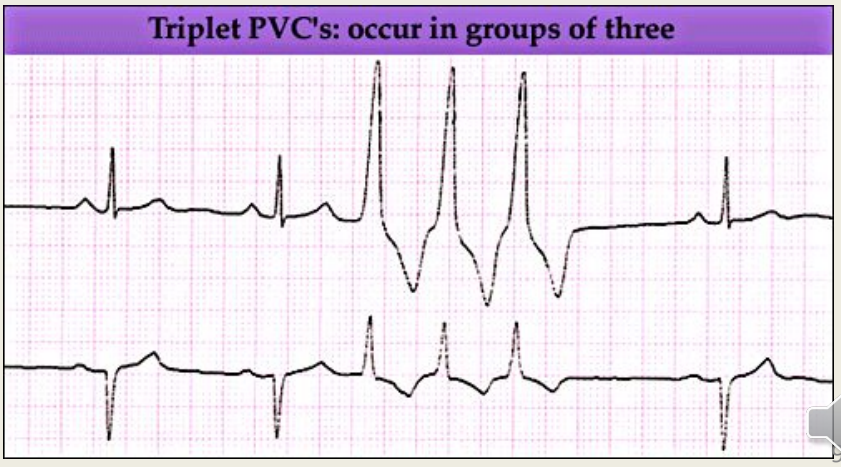


- Premature Ventricular Contraction
  - **Bigeminy**
    - A PVC occurring every other beat
  - Also seen as Trigeminy, Quadrigeminy

Ventricular Rhythm

- Dangerous PVC's
  - R on T





- Runs of PVC's
- 3 or more considered

V tachycardia

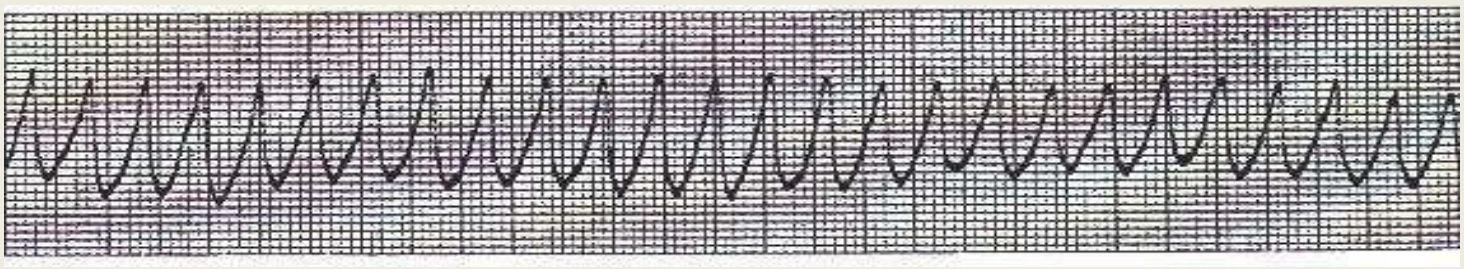
Ventricular Rhythm

Idioventricular Rhythm

Heart Rate	Rhythm	P Wave	PR interval (in seconds)	QRS (in seconds)
20-40	Regular	Absent or not related	N/A	≥ .12

Ventricular Rhythms

Ventricular Flutter



Heart Rate	Rhythm	P Wave	PR Interval (sec.)	QRS (Sec.)
150 – 300	Regular	No P waves	NA	Wide >.12

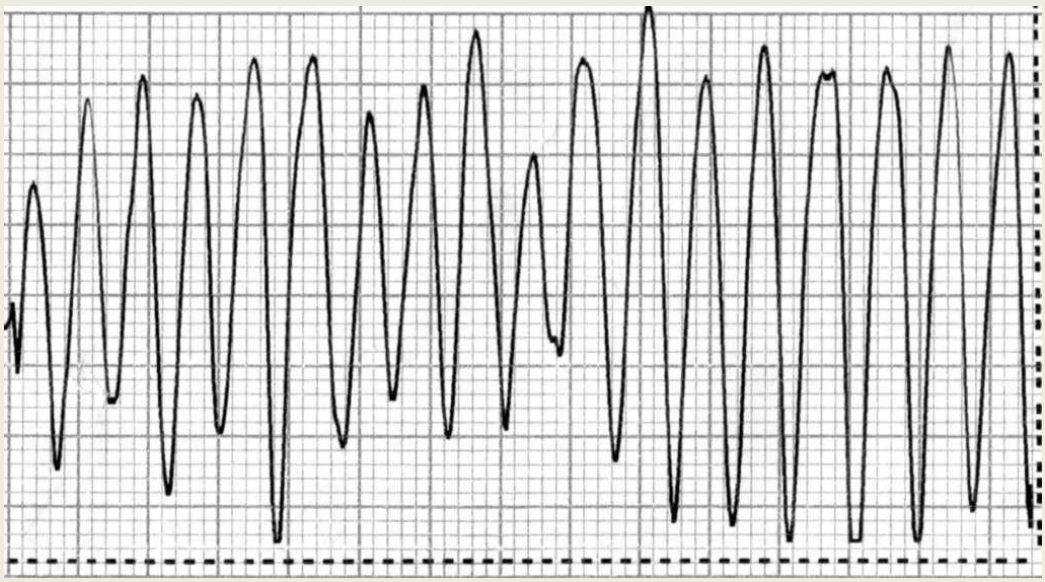
Ventricular Rhythms

Ventricular Flutter

"Extreme V-Tach"

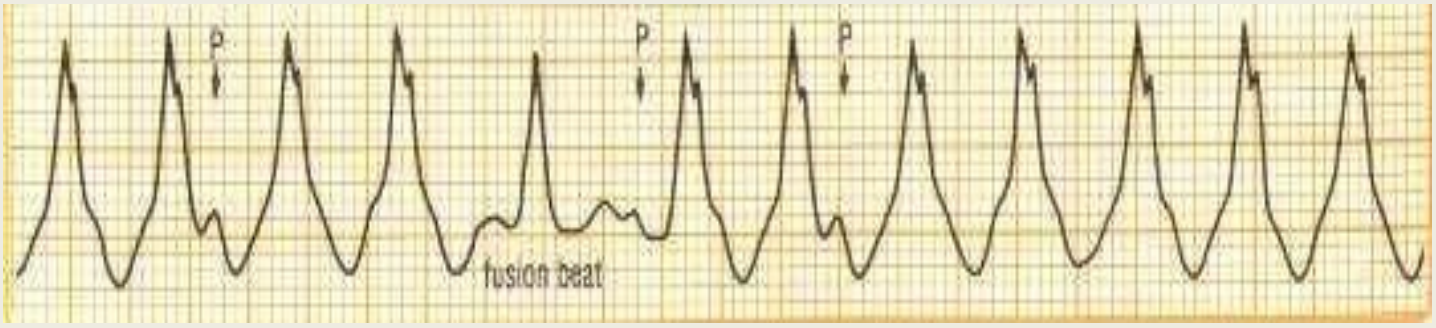
Call code

Begin CPR



Ventricular Rhythms

Ventricular Tachycardia



Heart Rate	Rhythm	P Wave	PR Interval (sec.)	QRS (Sec.)
100 – 250	Regular	No P waves corresponding to QRS, a few may be seen	NA	>.12

Ventricular Rhythms

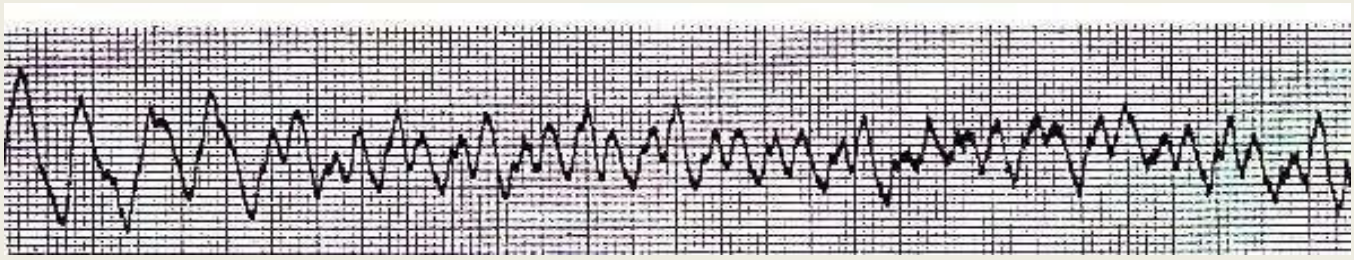
- **Ventricular Tachycardia**
  - *No discernable p-waves with QRS*
  - Rhythm is regular
  - Atrial rate cannot be determined, ventricular rate is between 150-250 beats per minute
  - Must see 4 beats in a row to classify as ventricular tachycardia

Ventricular Rhythms

- Ventricular Tachycardia
  - **THIS IS A DEADLY RHYTHM**
    - Check patient:
      - If patient awake and alert, monitor patient and call cardialogist
      - If patient has no vital signs, call code and start CPR
        - » Defibrillate

Ventricular Rhythms

Ventricular Fibrillation



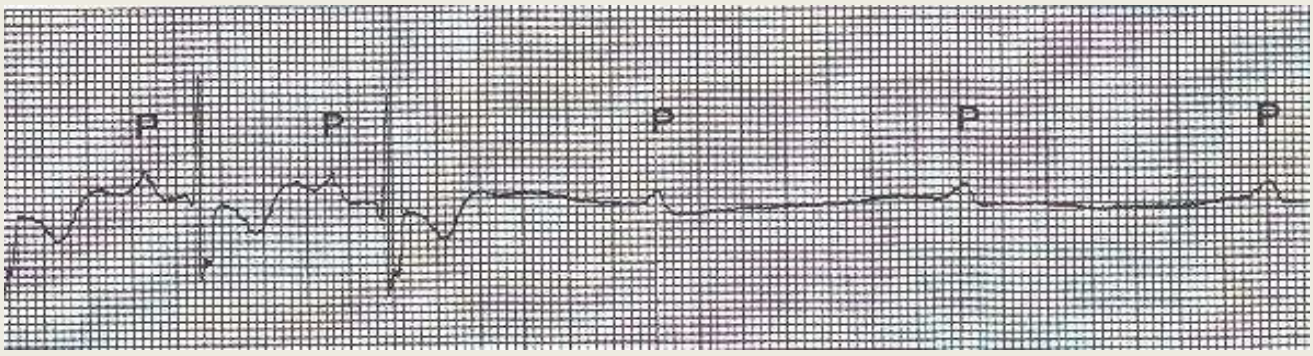
Heart Rate	Rhythm	P Wave	PR Interval (sec.)	QRS (Sec.)
0	Chaotic	None	NA	None

Ventricular Rhythms

- **Ventricular Fibrillation**
  - *No discernable p-waves*
  - *No regularity*
  - *Unable to determine rate*
  - *Multiple irritable foci within the ventricles all firing simultaneously*
  - *May be coarse or fine*
  - **This is a deadly rhythm**
    - **Patient will have no pulse**
    - **Call a code and begin CPR**

Ventricular Standstill

Primary ventricular standstill



Heart Rate	Rhythm	P Wave	PR Interval (sec.)	QRS (Sec.)
No QRS	No QRS	Present	NA	None

Asystole

Heart Rate	Rhythm	P Wave	PR Interval (sec.)	QRS (Sec.)
None	None	None	None	None

Asystole

- *No p-waves*
- *No regularity*
- *No Rate*
- **This rhythm is associated with death**
  - **Check patient and leads**
  - **No pulse**
- **Begin CPR**

THANK YOU