CAPS 422
November 2014

ECG’s and Arrhythmia’s

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“Artistic Fibrillation” by Bhavik Mistry
How do you go from this?

To this?
Single Lead ECG

1) Calculate the heart rate (explain how)
2) Comment on the Rhythm
3) Comment on the P waves
4) Measure the PR Interval
5) Measure the QRS Interval
6) What would you call this rhythm?
Single Lead ECG
Rate?

Rhythm?

P waves?

PR/QRS Intervals?

Pacemaker?

Dx?
Rate?

Rhythm?

P waves?

PR/QRS Intervals?

Pacemaker?

Dx?
An alteration in AP conduction that results in generation of tachyarrhythmias.
Reentry

• An abnormal **circular** electrical circuit

• Requirements:
  – Two parallel pathways
  – Each pathway has different characteristics of **refractoriness** and conduction velocity
  – The arrival of an atrial premature beat
A word about the Absolute “Refractoriness”
A function of time

A function of voltage

OPEN

INACTIVE

CLOSED
Reentry

• An abnormal circular electrical circuit

• Requirements:
  – Two parallel pathways
  – Each pathway has different characteristics of refractoriness and conduction velocity
  – The arrival of an atrial premature beat
No Reentry!

Adapted from Figure 11.9 Lilly
No Reentry!

(long refractory period)

No Reentry!

+ an Atrial Premature Beat!!

= Reentry Tachycardia!!
Rate?

Rhythm?

P waves?

PR/QRS Intervals?

Pacemaker?

Dx?
Rate?

Rhythm?

P waves?

PR/QRS Intervals?

Pacemaker?

Dx?
Wolf Parkinson White (WPW)

One beat from a rhythm strip in $V_2$ demonstrating characteristic findings in Wolff–Parkinson–White syndrome. Note the characteristic delta wave (above the blue bar), the short PR interval (red bar) of 80 ms, and the long QRS complex (blue bar plus green bar) at 120 ms.