EKG Conference

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Normal EKG
Review from prior sessions

- 1\textsuperscript{st} Degree AV block
- >200 ms from onset of P wave to onset of QRS
2nd Degree AV Block
Type 1 - Wenkebach

- P-R interval prolongs until QRS is dropped
2nd Degree Heart Block
Type 2

- PR interval remains constant, QRS drops unexpectedly
3rd degree Heart Block

- P rate faster than QRS rate
- No correlation between P’s and QRS
Bundle Branch Blocks

- Right Bundle Branch Block
  - QRS duration >120ms (3 small boxes)
  - rsR’ in V1
  - ‘Rabbit Ears’
Bundle Branch Blocks

- Left Bundle Branch Block
  - QRS duration >120ms (3 small boxes)
  - R in V6
Axis
Left Anterior Fascicular Block

- Frontal Axis -45 to -90 degrees
- QRS <120ms
- rS pattern in II, II, aVF (inferior leads)
LAFB + RBBB
Left Posterior Fascicular Block

- Frontal Axis +/-120 degrees (typically right axis deviation)
- QRS <120ms
- RS pattern I, qR pattern in II, II, aVF (inferior leads)
EKG Rhythms

- Sinus rhythm
  - Typically upright P waves in the inferior leads
- Atrial fibrillation
- Atrial flutter
- Multifocal atrial tachycardia
- “SVT” (AVNRT)
- VT
Sinus Rhythm

CARDIAC CONDUCTION SYSTEM

- Sinoatrial node
- Bundle of His
- Atrioventricular node
- Right bundle branch
- Right ventricle
- Left atrium
- Left bundle branch
- Left anterior hemibundle
- Left posterior hemibundle
- Left ventricle

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Atrial Fibrillation

- No distinct P waves
- Irregularly irregular
Atrial Fibrillation
LAFF
RBBB
Mechanism of Typical Atrial Flutter

ATRIAL ACTIVATION IN TYPICAL ATRIAL FLUTTER

- Line of crista termanilis
- Ablation catheter
- Line of block across isthmus
- Flutter circuit

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Typical Atrial Flutter

ELECTROCARDIOGRAM OF TYPICAL ATRIAL FLUTTER

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Atrial Flutter

2:1 and 3:1 conduction, PVC, LAFB
Multifocal Atrial Tachycardia

- Variable atrial foci
- Usually associated with hypoxia or pulmonary disease
- Due to enhanced automaticity or triggered activity
- 3 P wave morphologies with variable P-R intervals, rate >100
MAT
SVT

- Supraventricular tachycardia
- Most common type is AV nodal re-entrant tachycardia
- Regular, narrow complex tachycardia
- P waves?
Telemetry – SVT-> NSR
Sinus rhythm
Ventricular Tachycardia

- Wide Complex
- Tachycardic (>100 beats/minute)
- Fusion/Capture beats

- May be hemodynamically stable or unstable
- Do not assume that a wide complex regular tachycardia is “SVT with aberrancy”
VT
VT terminated by Shock
note fusion beats
During the course of a tachycardia characterized by widespread, abnormal QRS complexes, the presence of fusion beats and capture beats provides maximum support for the diagnosis of VT.
Torsades de Pointes
Polymorphic VT

Initiation of polymorphic VT
Long-short-long cycle
• Atrial Fibrillation with WPW