

JUNCTIONAL FAMILY OF RHYTHMS & ARRHYTHMIAS

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Junctional overview

- Sinus & atrial > junctional
- Location
- Retrograde depolarization
- Still with narrow QRS

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JUNCTIONAL P WAVES

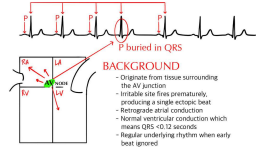
JUNCTIONAL FAMILY

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Premature junctional contractions

- Isolated junctional ectopy
- Must travel *away* from the positive electrode
- A narrow QRS indicates...?
- Is it a PAC or PJC?

PREMATURE JUNCTIONAL CONTRACTIONS (PJC)

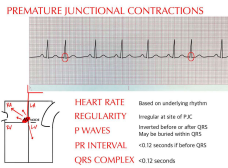


BACKGROUND

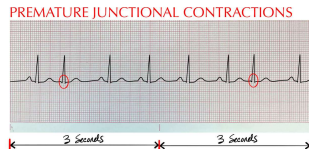
- Originates from tissue surrounding the AV junction
- Initiated via fire spontaneously producing a single ectopic beat
- Retrograde atrial conduction
- Normal ventricular conduction which means QRS < 0.12 seconds
- Regular underlying rhythm when early beat ignored

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Premature junctional contractions



HEART RATE Based on underlying rhythm
REGULARITY Irregular at site of PJC
P WAVES Inverted before or after QRS May be buried within QRS
PR INTERVAL < 0.12 seconds if before QRS
QRS COMPLEX < 0.12 seconds



RATE: Atrial: 60 Ventricular: 60
RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
P WAVES: Upright PR: 0.16 QRS: 0.06 QT: 0.40
ST SEGMENT: OK Elevated Depressed **T WAVES:** Upright

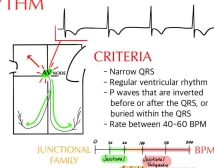
FINAL INTERPRETATION: Sinus rhythm with premature junctional contractions

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Junctional rhythm

- Key characteristics
- Rhythm is coming from an inherent pacemaker site *unlike* atrial fibrillation
- Difference between the two is regularity (junctional) versus irregularity (A-fib)

JUNCTIONAL RHYTHM



CRITERIA

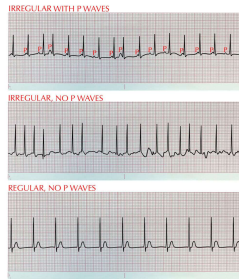
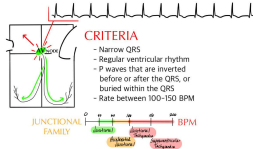
- Narrow QRS
- Regular ventricular rhythm
- P waves that are inverted before or after the QRS, or buried within the QRS
- Rate between 40-60 BPM

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Junctional tachycardia

- The oldest sibling in the family

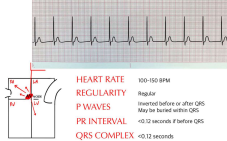
JUNCTIONAL TACHYCARDIA



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Junctional tachycardia

JUNCTIONAL TACHYCARDIA



JUNCTIONAL TACHYCARDIA



RATE: Atrial: N/A Ventricular: 110

RHYTHM: Atrial: Regular Irregular: Ventricular (Regular) Irregular

P WAVES: None PR: N/A QRS: 0.08 QT: 0.24 Consider QTc

ST SEGMENT: OK Elevated Depressed TWAVES: None

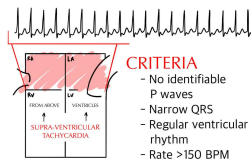
FINAL INTERPRETATION: Junctional tachycardia

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Supraventricular tachycardia

- An umbrella term encompassing a few rhythms
- Hallmark of SVT
- Not always regular rhythm but often will be for testing purposes

SUPRAVENTRICULAR TACHYCARDIA



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SUPRAVENTRICULAR TACHYCARDIA

PAROXYSMAL SVT (PST) (AVNRT)

RAPID ATRIAL FLUTTER

RAPID ATRIAL FIBRILLATION

MULTIFOCAL ATRIAL TACHYCARDIA

PAROXYSMAL ATRIAL TACHYCARDIA

CRITERIA

- No identifiable P waves
- Narrow QRS
- Regular ventricular rhythm *but not always!*
- Rate >150 BPM

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Supraventricular tachycardia

SUPRAVENTRICULAR TACHYCARDIA

HEART RATE >100 bpm
REGULARITY Regular or irregular
P WAVES None
PR INTERVAL None
QRS COMPLEX <0.12 seconds

SUPRAVENTRICULAR TACHYCARDIA

RATE: Atrial: N/A; Ventricular: 140
 RHYTHM: Atrial-Regular-Irregular; Ventricular: Regular Irregular
 P WAVES: None; PR: N/A; QRS: 0.08; QT: 0.35; Concordant ST
 ST SEGMENT: Okay Elevated (Depressed); T WAVES: Normal (Abnormal)

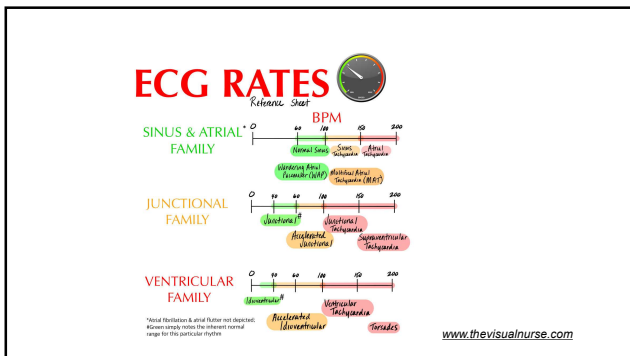
FINAL INTERPRETATION: Supraventricular tachycardia

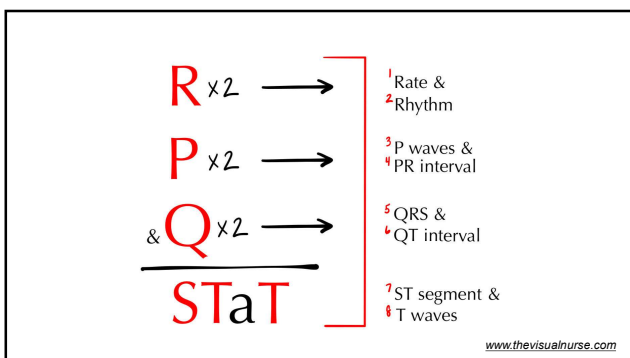
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SUPRAVENTRICULAR TACHYCARDIA

ADENOSINE FOR STABLE SVT

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Review

1. RATE: Atrial: _____ Ventricular: _____

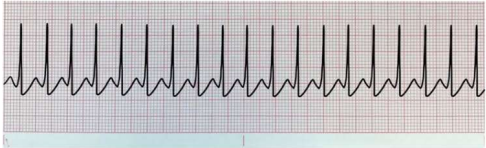
2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular

3. P WAVES: _____ 4. PR: _____ 5. QRS: _____ 6. QT: _____

7. ST SEGMENT: Okay Elevated Depressed 8. T WAVES: _____

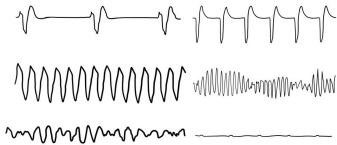
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Review



1. RATE: Atrial: _____ Ventricular: _____
 2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
 3. P WAVES: _____ PR: _____ QRS: _____ QT: _____
 7. ST SEGMENT: Okay Elevated Depressed T WAVES: _____

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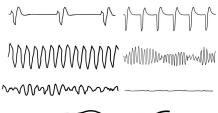
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VENTRICULAR FAMILY OF RHYTHMS & ARRHYTHMIAS

Ventricular family and ectopy overview

- Can be categorized as single or multiple site
- Inherent rate ~20-40 BPM
- Key characteristics
- Let's begin with ventricular ectopy before transitioning into ventricular rhythms

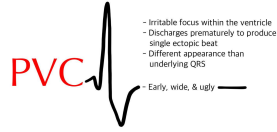
VENTRICULAR FAMILY



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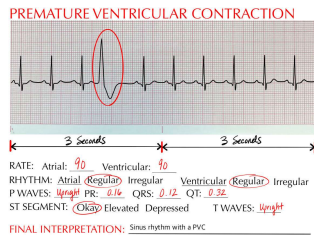
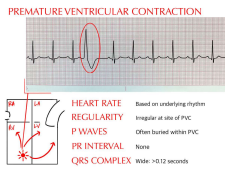
Premature ventricular contractions

- Early, wide, and ugly
- Why is the impulse wide?
- Potential causes



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Premature ventricular contractions

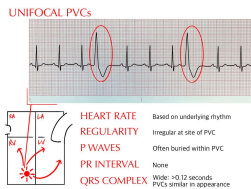
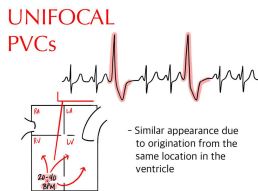


- Notes on the sample rhythm strip seen here →

FINAL INTERPRETATION: Sinus rhythm with a PVC
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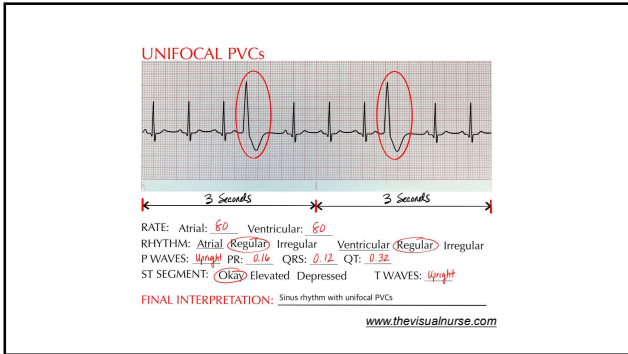
Unifocal PVCs

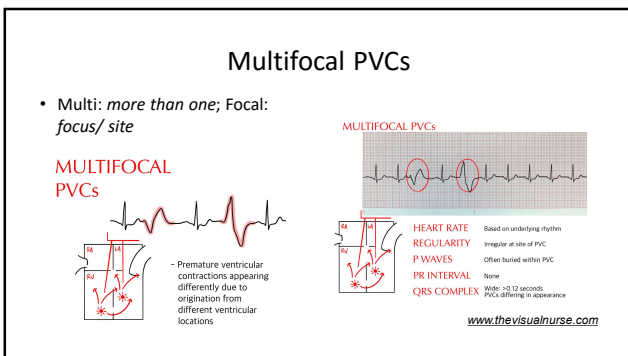
- Uni: singular; Focal: focus/ site

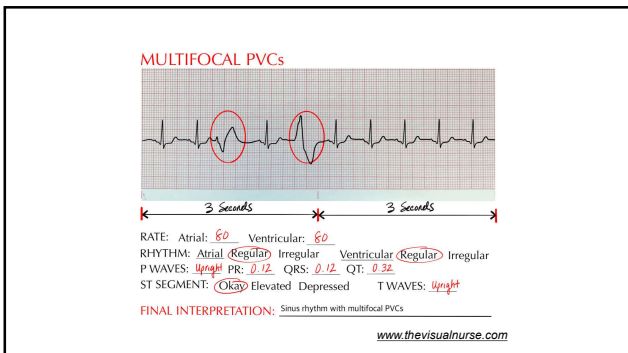


- Similar appearance due to origination from the same location in the ventricle

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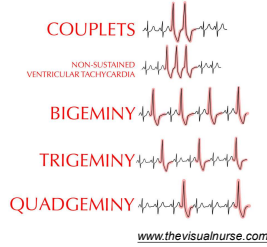






Ventricular ectopic groups & patterns

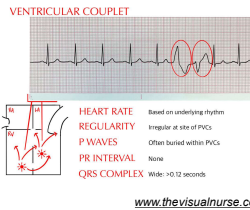
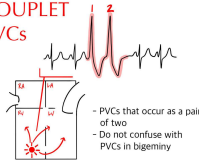
- With or without identifiable patterns
- Groupings
- Patterns



Couplet PVCs

- Do not confuse with ventricular bigeminy

COUPLLET PVCs



VENTRICULAR COUPLLET



RATE: Atrial: 70 Ventricular: 70

RHYTHM: Atrial (Regula) Irregular Ventricular (Regula) Irregular

P WAVES: Upright PR: 0.16 QRS: 0.10 QT: 0.400

ST SEGMENT: (Ok) Elevated Depressed T WAVES: Upright

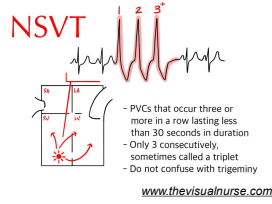
FINAL INTERPRETATION: Sinus rhythm with a multifocal ventricular couplet

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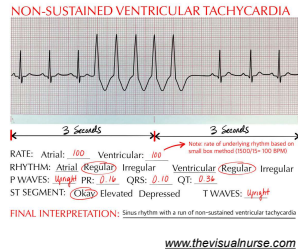
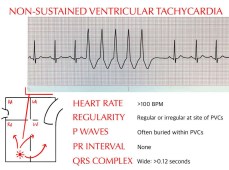
Note on the sample strip here

Non-sustained ventricular tachycardia

- What is the term “non-sustained” indicating?
- Sustained VT
- May be monomorphic or polymorphic (multifocal)
- Assess and report



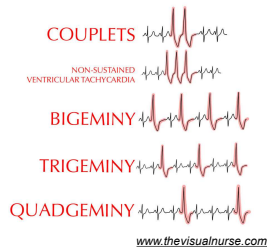
Non-sustained ventricular tachycardia



Note on the cheat sheet above

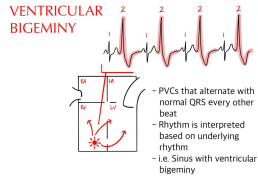
Ventricular groupings \rightarrow patterns

- Couplets versus bigeminy
- Triplets versus trigeminy
- Just remember to ask yourself: “Is it a grouping or a pattern?”



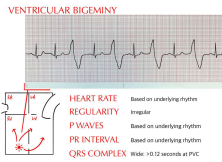
Bigeminy, trigeminy, & quadgeminy

- **Bigeminy:** every *second* beat is a PVC
- **Tri** = every *third*
- **Quad** = every *fourth*
- Describing the underlying rhythm
- Assess and report

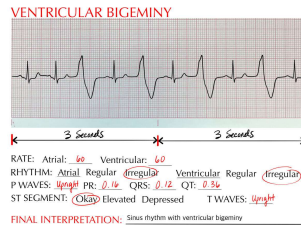


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Ventricular bigeminy

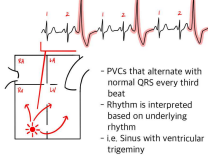


*Note

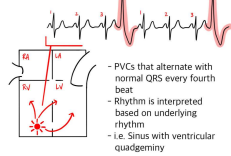


*Note www.thevisualnurse.com

VENTRICULAR TRIGEMINY



VENTRICULAR QUADGEMINY



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Ventricular rhythms & arrhythmias

- Single site rhythms
- Multi-site rhythms

VENTRICULAR FAMILY

OVERVIEW

- Inherent rate is much slower than upstream sites: 20-40 BPM
- Thick muscle cells depolarize slowly = wide, slow QRS
- The lethal rhythm family

VENTRICULAR RHYTHMS & ARRHYTHMIAS

SINGLE SITE IRRITATION

IDIOVENTRICULAR
 ACCELERATED IDIOVENTRICULAR
 VENTRICULAR TACHYCARDIA
 VENTRICULAR FIBRILLATION

MULTIPLE SITE IRRITATION

POLYVENTRICULAR
 VENTRICULAR TACHYCARDIA
 BUNDLE BRANCH BLOCK
 DEPOLARIZED

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Idioventricular rhythm & AIVR

- Share similar characteristics seen in the image to the right
- Rate is the major difference between the two
- Often transient

IDIOVENTRICULAR RHYTHM

CRITERIA

- No P wave
- Wide QRS
- Regular R-R rhythm
- HR: 20-40 BPM (sometimes slower)

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Idioventricular rhythm & AIVR

IDIOVENTRICULAR RHYTHM

HEART RATE	20-40 BPM
REGULARITY	Regular
P WAVES	None
PR INTERVAL	None
QRS COMPLEX	Wide >0.12 seconds

ACCELERATED IDIOVENTRICULAR RHYTHM

HEART RATE	50 to >100-120 BPM
REGULARITY	Regular
P WAVES	None
PR INTERVAL	None
QRS COMPLEX	Wide >0.12 seconds

*Note www.thevisualnurse.com

IDIOVENTRICULAR RHYTHM

RATE: Atrial: None Ventricular: 30

RHYTHM: Atrial: Regular Irregular: None Ventricular: Regular Irregular: None

P WAVES: None PR: None QRS: >0.12 QT: 0.40

ST SEGMENT: Okay Elevated Depressed T WAVES: Upright

FINAL INTERPRETATION: Idioventricular rhythm

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Ventricular tachycardia

- Monomorphic versus polymorphic
- Impaired filling and contraction
- Cardiac workloads
- Patient may or may not have a pulse

VENTRICULAR TACHYCARDIA
(Monomorphic)

CRITERIA

- No P wave
- Wide QRS
- Regular R-R rhythm
- HR >100 BPM

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Ventricular tachycardia

VENTRICULAR TACHYCARDIA (Monomorphic)

HEART RATE: >100 BPM
REGULARITY: Regular
P WAVES: None
PR INTERVAL: None
QRS COMPLEX: Wide >0.12 seconds

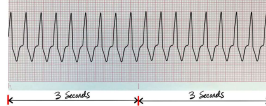
VENTRICULAR TACHYCARDIA (Polymorphic)

HEART RATE: >100 BPM
REGULARITY: Irregular
P WAVES: None
PR INTERVAL: None
QRS COMPLEX: Wide >0.12 seconds

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Ventricular tachycardia

MONOMORPHIC VENTRICULAR TACHYCARDIA



RATE: Atrial: *N/A* Ventricular: *160*
 RHYTHM: Atrial: Regular-irregular Ventricular: Regular Irregular
 P WAVES: *N/A* PR: *N/A* QRS: *>0.12* QT: *N/A*
 ST SEGMENT: Okay Elevated-Depressed T WAVES: *Inverted*
 FINAL INTERPRETATION: Monomorphic ventricular tachycardia

POLYMORPHIC VENTRICULAR TACHYCARDIA

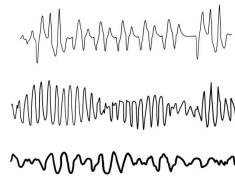
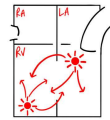


RATE: Atrial: *N/A* Ventricular: *170*
 RHYTHM: Atrial: Regular-irregular Ventricular: Regular Irregular
 P WAVES: *N/A* PR: *N/A* QRS: *>0.12* QT: *N/A*
 ST SEGMENT: Okay-Elevated-Depressed T WAVES: *N/A*
 FINAL INTERPRETATION: Polymorphic ventricular tachycardia

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VENTRICULAR RHYTHMS & ARRHYTHMIAS

MULTIPLE SITE IRRITATION

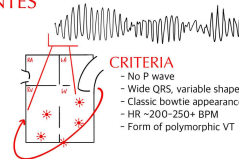


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Torsades de pointes

- A form of polymorphic VT
- Electrical focus is rotating around the heart
- Remember your cardiac vectors
- Bowtie appearance
- Hallmark causes
- Long QT syndromes
- R on T phenomenon

TORSADES DE POINTES

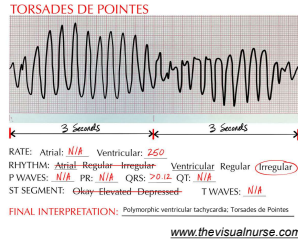
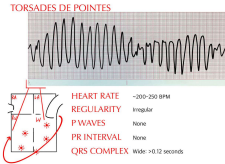


CRITERIA

- No P wave
- Wide QRS, variable shape
- Classic bowtie appearance
- HR ~200-250+ BPM
- Form of polymorphic VT

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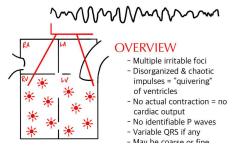
Torsades de pointes



Ventricular fibrillation

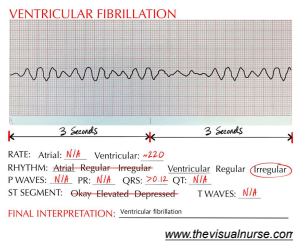
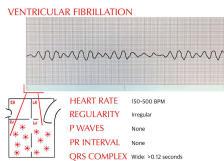
- Fibrillation = quivering
- Cardiac output is next to zero
- Immediate CPR and ACLS
- Defibrillation and early shocking

VENTRICULAR FIBRILLATION



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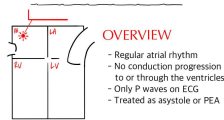
Ventricular fibrillation



Ventricular standstill

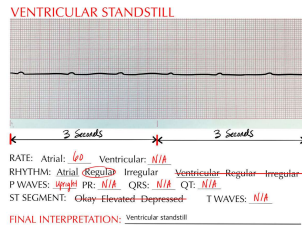
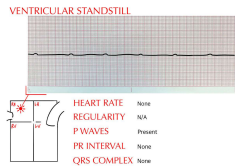
- P waves with absence of ventricular response
- Typically treated similar to PEA/ asystole

VENTRICULAR STANDSTILL



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Ventricular standstill

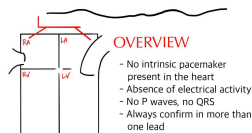


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Asystole

- Absence of electrical and mechanical activity
- Confirm in more than one lead
- ACLS protocols
- H's & T's

ASYSTOLE



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Asystole

ASYSTOLE

ASYSTOLE

HEART RATE	None		
REGULARITY	None		
P WAVES	None		
PR INTERVAL	None		
QRS COMPLEX	None		

RATE: Atrial: *N/A* Ventricular: *N/A*
 RHYTHM: Atrial: *Regular-Irregular* Ventricular: *Regular-Irregular*
 P WAVES: *N/A* PR: *N/A* QRS: *N/A* QT: *N/A*
 ST SEGMENT: *Okay-Elevated-Depressed* T WAVES: *N/A*
 FINAL INTERPRETATION: *Asystole*

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ECG RATES

Reference Strip

SINUS & ATRIAL FAMILY

- Normal Sinus (60-100)
- Sinus Bradycardia (<60)
- Sinus Tachycardia (>100)
- Accelerated Sinus (100-160)
- Pathologic Sinus (160-220)

JUNCTIONAL FAMILY

- Normal Junctional (70-100)
- Accelerated Junctional (100-140)
- Pathologic Junctional (140-220)

VENTRICULAR FAMILY

- Normal Ventricular (60-100)
- Accelerated Ventricular (100-140)
- Pathologic Ventricular (140-220)

*Normal distribution is not of flutter not depicted.
 †Normal range varies with the inherent normal range for this particular rhythm.

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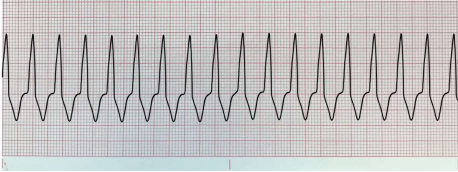
Review

- Non-sustained ventricular tachycardia (NSVT) is defined as 3 or more successive ventricular-origin beats lasting *less than*:
 - 15 beats
 - 20 beats
 - 30 seconds
 - 1 minute
- This pattern describes a rhythm in which every *second* beat is a premature ventricular contraction (PVC):
 - Ventricular couplets
 - Ventricular bigeminy
 - Ventricular trigeminy
 - Ventricular quadgeminy

NON-SUSTAINED VENTRICULAR TACHYCARDIA

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Review



1. RATE: Atrial: ____ Ventricular: ____
2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
3. P WAVES: ____ PR: ____ QRS: ____ QT: ____
7. ST SEGMENT: Okay Elevated Depressed T WAVES: ____

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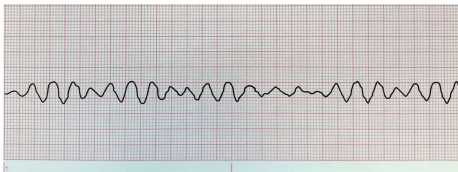
Review



1. RATE: Atrial: ____ Ventricular: ____
2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
3. P WAVES: ____ PR: ____ QRS: ____ QT: ____
7. ST SEGMENT: Okay Elevated Depressed T WAVES: ____

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Review



1. RATE: Atrial: ____ Ventricular: ____
2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
3. P WAVES: ____ PR: ____ QRS: ____ QT: ____
7. ST SEGMENT: Okay Elevated Depressed T WAVES: ____

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ATRIOVENTRICULAR BLOCKS

1st DEGREE

2nd DEGREE (1)

2nd DEGREE (2)

3rd DEGREE

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HEART BLOCKS

DEGREE	ALSO CALLED	CONDUCTION	P-P INTERVAL	P-R INTERVAL	R-R INTERVAL
First		One P wave per QRS	Regular (Marches out)	Constant >0.20 seconds	Regular
Second	Type I Mobitz I Wenckebach	More P waves than QRS	Regular (Marches out)	Variable Progressively longer until one QRS drops	Irregular
	Type II Mobitz II	More P waves than QRS	Regular (Marches out)	Constant (when conducted)	Irregular
Third	Complete	More P waves than QRS	Regular (Marches out)	Variable No relation between P wave & QRS	Regular

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First degree AV delay

- Natural function of the AV node
- Normal PR interval
- Consider patient population

HEART BLOCKS

DEGREE	ALSO CALLED	CONDUCTION	P-P INTERVAL	P-R INTERVAL	R-R INTERVAL
First		One P wave per QRS	Regular	Constant >0.20 seconds	Regular

1st DEGREE

FIRST DEGREE AV BLOCK DELAY

OVERVIEW

- One upright P wave per QRS
- Constant PR interval but > 0.20 seconds

PR INTERVAL > 0.20s

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First degree AV delay

FIRST DEGREE AV BLOCK

HEART RATE Based on underlying rate
REGULARITY Regular or irregular (i.e. sinus or rhythmia)
P WAVES Upright
PR INTERVAL Greater than 0.20 seconds
QRS COMPLEX Based on underlying rhythm

FIRST DEGREE AV BLOCK

RATE: Atrial: 60 Ventricular: 60
 RHYTHM: Atrial (Regular) Irregular Ventricular (Regular) Irregular
 P WAVES: 4mg⁺ PR: 0.3s QRS: 0.1s QT: 0.4s
 ST SEGMENT: 0.2s Elevated Depressed T WAVES: 4mg⁺

FINAL INTERPRETATION: Sinus rhythm with first degree AV block

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Second degree Type I AVB

- Normal conduction review
- Common causes
- A fatiguing AV node?
- Differentiating between Type II

HEART BLOCKS

Block	ECG	ECG	ECG	ECG	ECG
1st DEGREE	Normal	Normal	Normal	Normal	Normal
2nd DEGREE	Normal	Normal	Normal	Normal	Normal
3rd DEGREE	Normal	Normal	Normal	Normal	Normal

2nd DEGREE (Type I)

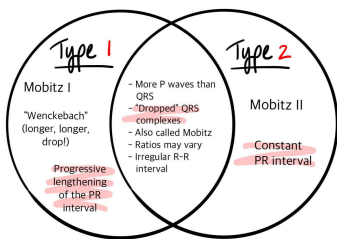
SECOND DEGREE AV BLOCK TYPE I

OVERVIEW

- More P waves than QRS
- Variable and progressively lengthening PR interval
- "Dropped" QRS beats
- Regular ventricular (R to R) rhythm
- AKA Wenckebach phenomenon
- AKA Mobitz I

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SECOND DEGREE HEART BLOCKS



Second degree Type I AVB

SECOND DEGREE AV BLOCK Type 1



HEART RATE: Based on underlying rate
 REGULARITY: Irregular
 P WAVES: Upright
 PR INTERVAL: Variable and lengthening
 QRS COMPLEX: based on underlying rhythm

SECOND DEGREE AV BLOCK (Type 1)

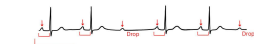


RATE: Atrial: 90 Ventricular: 70
 RHYTHM: Atrial (Regular) Irregular Ventricular Regular (irregular)
 P WAVES: Upright PR: Variable QRS: 0.12 QT: 0.44
 ST SEGMENT: Elevated Depressed T WAVES: Upright
 FINAL INTERPRETATION: Sinus rhythm with second degree type I AV block
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Second degree Type II AVB

- Comparing to Type I
- Rapid identification
- Patient presentation

SECOND DEGREE AV BLOCK TYPE 2



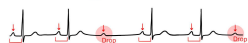
OVERVIEW
 - More P waves than QRS
 - "Dropped" QRS beats
 - No progressive lengthening of PR interval (beats dropped without warning)
 - Irregular ventricular (R to R) rhythm
 - Also called Mobitz II
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Second degree Type II AVB

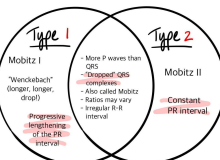
HEART BLOCKS

DEGREE	ALSO CALLED	CONDUCTION	P-R INTERVAL	P-R INTERVAL	Q-R INTERVAL
Second	Type I	Non-P waves	Regular	Constant	Irregular
	Mobitz I	Short QRS	Variable (Wenckebach)		

2nd DEGREE (Type 2)



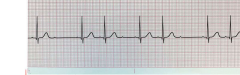
SECOND DEGREE HEART BLOCKS



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Second degree Type II AVB

SECOND DEGREE AV BLOCK Type 2



HEART RATE: Based on underlying rate
 REGULARITY: Irregular
 P WAVES: Upright
 PR INTERVAL: Constant when present
 QRS COMPLEX: based on underlying rhythm



SECOND DEGREE AV BLOCK (Type 2)



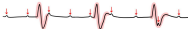
RATE: Atrial: 100 Ventricular: 70
 RHYTHM: Atrial (Regular) Irregular Ventricular Regular (Irregular)
 P WAVES: Upright PR: 0.12 QRS: 0.09 QT: 0.42
 ST SEGMENT: Okay Elevated Depressed T WAVES: Upright
 FINAL INTERPRETATION: Sinus rhythm with second degree type 2 AV block
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Third degree AVB (Complete heart block)

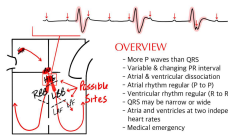
- Sinus & ventricular rate review
- Independent upper and lower activity
- Result
- Careful PR interval consideration

HEART RATE	REGULARITY	P WAVES	PR INTERVAL	QRS COMPLEX
Based on underlying rate	Irregular	Upright	Constant when present	based on underlying rhythm

3rd DEGREE



COMPLETE HEART BLOCK (3rd Degree)

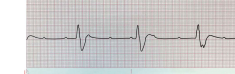


OVERVIEW
 - More P waves than QRS
 - Variable & changing PR interval
 - Atrial & ventricular dissociation
 - Atrial rhythm regular (P to P)
 - Ventricular rhythm regular (R to R)
 - QRS may be narrow or wide
 - Atria and ventricles at two independent heart rates
 - Medical emergency

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Third degree AVB (Complete heart block)

COMPLETE HEART BLOCK



HEART RATE: Based on underlying rate
 REGULARITY: Irregular
 P WAVES: Upright
 PR INTERVAL: May be narrow or wide
 QRS COMPLEX: based on underlying rhythm



COMPLETE HEART BLOCK



RATE: Atrial: 70 Ventricular: 30
 RHYTHM: Atrial (Regular) Irregular Ventricular (Regular) Irregular
 P WAVES: Upright PR: Variable QRS: 0.28 QT: 0.42
 ST SEGMENT: Okay Elevated Depressed T WAVES: Upright
 FINAL INTERPRETATION: Complete heart block
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Review

- Which of the following heart (AV) blocks are associated with a variable (changing) PR interval?
 - First degree
 - Second degree Type I
 - Second degree Type II
 - Third degree (CHB)

HEART BLOCKS

DEGREE	ALSO CALLED	CONDUCTION	P-P INTERVAL	P-R INTERVAL	R-R INTERVAL
First		One P wave per QRS	Regular (Marches out)	Constant >0.20 seconds	Regular
Second	Type I Mobitz I Wenckebach	More P waves than QRS	Regular (Marches out)	Variable (Progressively longer until one QRS drops)	Irregular
Second	Type II Mobitz II	More P waves than QRS	Regular (Marches out)	Constant (when conducted)	Irregular
Third	Complete	More P waves than QRS	Regular (Marches out)	Variable (No relation between P waves & QRS)	Regular

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Review



1. RATE: Atrial: ____ Ventricular: ____
 2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
 3. P WAVES: ____ 4. PR: ____ 5. QRS: ____ 6. QT: ____
 7. ST SEGMENT: Okay Elevated Depressed 8. T WAVES: ____

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Review



1. RATE: Atrial: ____ Ventricular: ____
 2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
 3. P WAVES: ____ 4. PR: ____ 5. QRS: ____ 6. QT: ____
 7. ST SEGMENT: Okay Elevated Depressed 8. T WAVES: ____

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Review




1. RATE: Atrial: _____ Ventricular: _____
2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
3. P WAVES: _____ PR: _____ QRS: _____ QT: _____
7. ST SEGMENT: Okay Elevated Depressed 8. T WAVES: _____


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PACEMAKERS


ATRIAL PACED



VENTRICULAR PACED



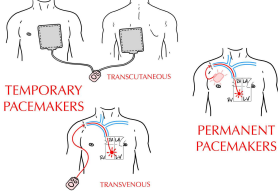

ATRIOVENTRICULAR PACED



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Pacemakers

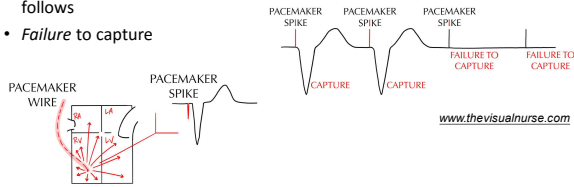
- Types of pacemakers
- Uses
- Artificial pacemakers



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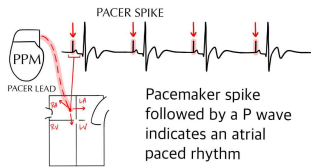
Capture

- The pacemaker spike
- Capture: the deflection that follows
- Failure to capture

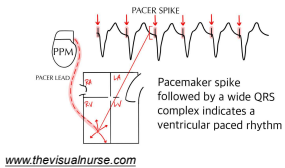


Naming paced rhythms

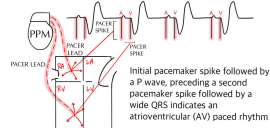
ATRIAL PACED



VENTRICULAR PACED

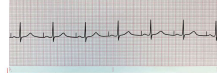


ATRIOVENTRICULAR PACED



Atrial pacing

ATRIAL PACED RHYTHM



HEART RATE: Based on underlying rate
 REGULARITY: Regular
 P WAVES: Upright
 PR INTERVAL: Based on underlying conduction
 QRS COMPLEX: May be narrow or wide



ATRIAL PACED RHYTHM



RATE: Atrial: 70 Ventricular: 70
 RHYTHM: Atrial (Regular) Irregular Ventricular (Regular) Irregular
 P WAVES: upright PR: 0.20 QRS: 0.12 QT: 0.32
 ST SEGMENT: (Ok) Elevated Depressed T WAVES: upright
 FINAL INTERPRETATION: Atrial paced rhythm

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Ventricular & AV pacing

VENTRICULAR PACED RHYTHM



HEART RATE: Based on underlying rate
 REGULARITY: Regular
 P WAVES: None
 PR INTERVAL: None
 QRS COMPLEX: Wide >0.12 seconds



ATRIOVENTRICULAR PACED RHYTHM



HEART RATE: Based on underlying rate
 REGULARITY: Regular
 P WAVES: Upright
 PR INTERVAL: Based on underlying conduction
 QRS COMPLEX: Wide >0.12 seconds

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Malfunctions

- Routine device checks
- Failure to capture
- Failure to pace
- Failure to sense/ under-sensing



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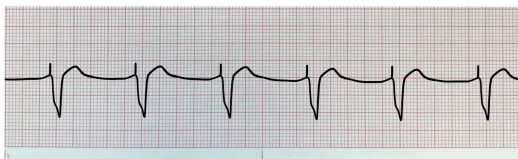
Review



1. RATE: Atrial: ____ Ventricular: ____
 2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
 3. P WAVES: ____ 4. PR: ____ 5. QRS: ____ 6. QT: ____
 7. ST SEGMENT: Okay Elevated Depressed 8. T WAVES: ____

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Review



1. RATE: Atrial: ____ Ventricular: ____
 2. RHYTHM: Atrial Regular Irregular Ventricular Regular Irregular
 3. P WAVES: ____ 4. PR: ____ 5. QRS: ____ 6. QT: ____
 7. ST SEGMENT: Okay Elevated Depressed 8. T WAVES: ____

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That's it! Thank you!



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Basic ECG 10/7/20

What is an Electrocardiogram?

Read More

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