

Mastering The EKG Waleed Ibrahim-Ali,MD

(Rate-Rhythm-Intervals)→(Axis-Hypertrophy-Infarction)

1-Rate: Rule of 300→[300-150-100-75-60s-50s] Tachycardia or bradycardia

2-Rhythm: 4 questions: upright P wave in L-II→NSR

Narrow or wide complex?, Regular or Irregular rhythm?, P married to QRS?.

Irregularly irregular narrow complex tachycardia	Regular narrow complex Tachycardia
1-A Fib (No P waves, +fibrillatory waves) 2-A Flutter with variable conduction 3-MAT (Multiple Different P waves morphology) 4- Sinus Tach with PACs	1- Sinus tachycardia 2- A Flutter with fixed conduction (2:1) Atrial rate ~300 So ventricular rate would be ~150 (Saw tooth appearance in lead II,V1) 3- PSVT : rate >180 4-Junctional Tachycardia: absent, inverted, or retrograde P waves

Wide Complex Tachycardia: Think of V-Tach 1st (others.. SVT with BBB, WPW)

Heart block: 1st degree: long PR interval (more than one large box=0.2 sec)

2nd degree: Mobitz Type I : (gradual prolongation of P-R then dropped beat)

Mobitz TypeII: (intermittent 3:1 or 2:1 block)

2:1 AV block

3rd degree: constant P-P and R-R + (P&QRS are not MARRIED)

3-Intervals: P-R (short in WPW, Long in 1st degree HB)

Q-Tc(Long>0.43→ with meds, lytes, CNS catastrophies, and ischemia)(short in high Ca)

QRS: (wide if more than Half-Box= 0.1 sec)→BBB? (V1-V6)

LBBB: -QRS at least 0.12 sec

RBBB: -QRS at least 0.11 sec

-Negative QRS in V1

-rSR (rabbit ear) V1

-Upright monophasic

-wide terminal S wave V6-LI

(Notched) QRS in V6-LI

IVCD:Wide QRS but NO typical criteria for LBBB or RBBB

4-Axis: Look at the net QRS deflection in lead I and AVF:

I: Positive aVF: Negative→LAD→Look at L II if negative→ LAFB

I: Negative aVF: Positive→ RAD

I:Positive aVF: Positive→ Normal Axis

I: Negative aVF: Negative→ Indeterminate Axis

5-Hypertrophy: LVH= -S V1 or V2+ R V5 or V6 equal or more than 35 mm (7 boxes)

-R in lead aVL equal or more than 12mm

P-Pulmonale= Prominent P wave (more than 2.5mm)in L II

P-Mitrale= -notched wide(0.12) M shaped P wave in L II

-Biphasic P-wave in V1 with more negative component.

RVH: consider if (RAD,Tall R V1, P-Pulmonale, R vent strain)

6- Infarction: **Q** wave-**R** wave progression-**ST** segment changes- **T** wave changes

Inf leads=II,III,aVF→ RCA Anterior Septal=V1 to V4→LAD

Lat :High Lat =I-aVL Lat precordial=V4 to V6 → CCA

Pericarditis: Diffuse upsloping smiley face ST elevation

Hyperkalemia : peaked T wave Hypokalemia: flat T wave- U wave

