

What is the rhythm?

See Over

What is the rate?

Bradycardia <60/min (>5 large squares between each QRS)

Tachycardia >100/min (<3 large squares between each QRS)

What is the axis?

Lead	I	II
Normal	+	+
RAD	-	+ or -
LAD	+	-

Is the P normal?

Should be upright in all except aVr. Tall, broad or bifid (double component) P waves indicate atrial abnormality



What is the PR interval?

> 1 large square ⇒ 1 degree block
< 3 small squares ⇒ ?WPW



Are there delta waves?

Upslurring of start of QRS in several/all leads ⇒ WPW

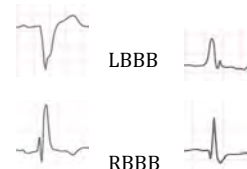
Are there pathological Q Waves?

Definition: 1st deflection of QRS is negative, >1 small square wide & >1/3 amplitude of QRS (normal in aVr) – suggests previous MI

Is the QRS normal?

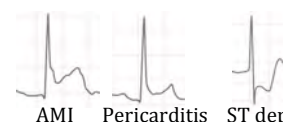
>3 small squares ⇒ bundle branch block. RBBB may be normal, LBBB always abnormal

WiLLiaM
MoRRoW
V1 V6



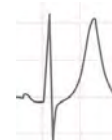
Is the ST segment normal?

ST elevation ⇒ consider AMI (some leads will have depression), pericarditis (saddle shape in most leads), "high take off" (usually V2/3)
ST depression ⇒ consider ischaemia/LVH/digoxin



Are the T waves normal?

May be tall (high K), small (low K) or inverted (ischaemia, drugs)



What is the QTc?

>0.44 (440msec) ⇒ long QT (drugs or long QT syndrome)

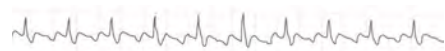
Arrhythmias

No p waves?

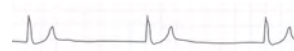
Irregular/chaotic baseline – atrial fibrillation



“Saw tooth” baseline (esp inferior leads)
– atrial flutter



Flat baseline – junctional rhythm

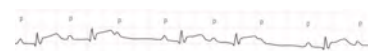


What is the relationship of p waves with QRS?

1:1 prolonged PR (>1 large square) – 1^o block



progressive PR prolongation and then dropped QRS – 2^o wenckebach

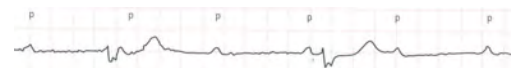


≥2:1 regular association – 2^o block*



Dissociated complete heart block (usually broad QRS)*

* - urgent referral required

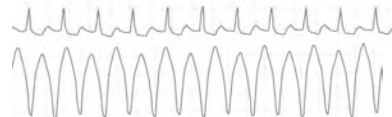


Tachycardia

P wave before each QRS – sinus tachycardia

Narrow complex & no obvious P wave – SVT

Broad complex & no obvious P wave - VT



Miscellaneous

LVH - large complexes across chest leads, some times associated with ST/T wave changes
- height (V1 or V2) + (V5 or V6) > 40mm ⇒ LVH [can be normal in young, thin males]

Ectopics - same shape as QRS = supraventricular, different shape = ventricular
- benign in context of structurally normal heart (consider echo)
- bigeminy (alternating ectopics) is benign if heart normal (echo)

Small complexes - low amplitude complexes (particularly over limb leads) maybe indicative of heart failure, hypothyroidism or obesity

Heart Failure - the ECG is almost always abnormal in the context of significant heart failure



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