

Subject Physiology lab #2 (C.V.S)

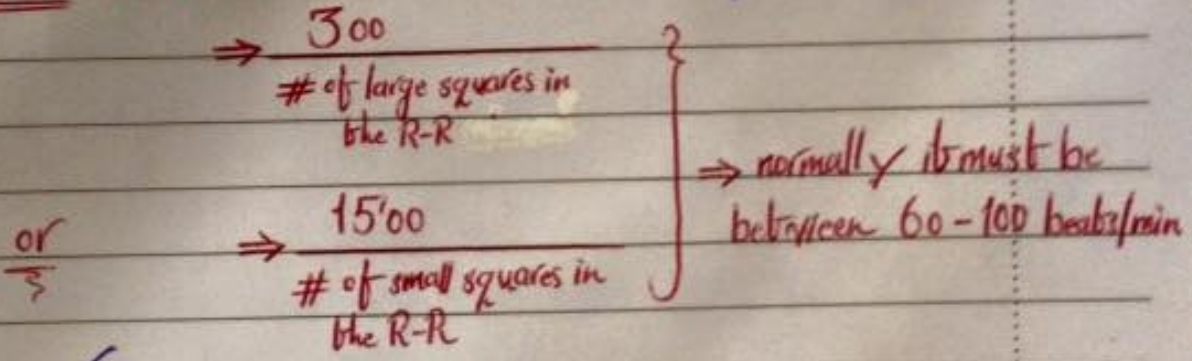
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thanks to Hamzeh Salameh for
Date his helpful No. notes.

①

Interpretation of ECG:

R-R interval determines irregular rhythm (must be with a constant distance - not more than 5 large squares nor less than 3 - & each QRS is preceded by a P wave).

✓ There is an easy way for measuring the heart rate which is:



Abnormally, sinus bradycardia < 60
or sinus tachycardia > 100

* Rule of thumbs 👍

Here we compare the directions of P waves between leads I & II, then:

✓ if both are up ⇒ normal

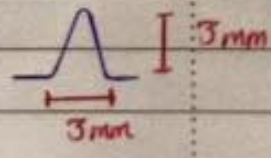
I
 II

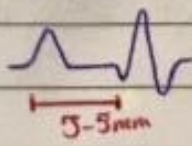
✓ if both are right (boward) \Rightarrow right axis
 to each other deviation I \checkmark
 II \wedge

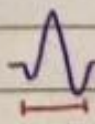
✓ if both are opposite to \Rightarrow left axis
 each other deviation I \wedge
 II \checkmark

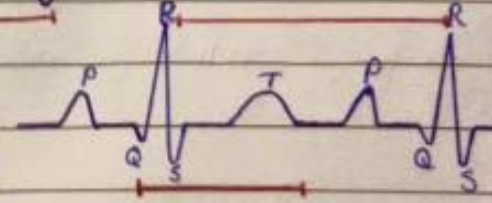
✓ if both are down \Rightarrow Severe deviation
 I \checkmark
 II \checkmark

Normal ECG

✓ P wave: not more than 3 small squares (0.120s) (3mm)
 in height nor in width. 

✓ P-R interval: 3-5 small squares. 

✓ QRS: < 3 small squares. 

✓ QT interval: less than half
 the preceding R-R
 interval, or less than 11 small squares. 

Or. (QT_c) corrected

QT interval - which estimates the QT interval \Rightarrow $QT_c = QT / \sqrt{RR}$ must equal 0.44s or less (in seconds)
 at heart rate of 60 bpm -

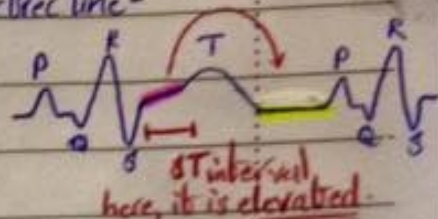
✓ ST segment: we compare it with the next T-P segments, normally it must be at its level - at isoelectric line -

abnormally:

- in limb lead $> 1\text{mm}$ ←

- in chest lead $> 2\text{mm}$

- if it was elevated or depressed this means that there is ischemia or pericarditis.



✓ T wave: its height must

be less than 10 small squares. ⇒ it might be inverted due to previous MI.

Some notes about P wave:

- it is best seen in lead II

- it is negative (normally) in these cases:

1) in aVR

2) $V_1 + V_2$

2) Leads II + III in black people.

✓ in case of hyper acute T wave there will be an increase in its height & width.


✓ flat T wave (—) shows hypocalcemia

To measure the heart's rate in case

of irregular rhythm we do the following:

✓ we take 30 large squares & count the number of R-R interval there, then we multiply them by 10 ⇒ $\#R-R \times 10 = HR$

- In right atrial hypertrophy ⇒ P wave of RA is more than 3mm

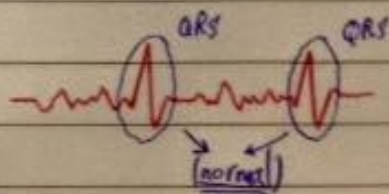
- In left atrial hypertrophy ⇒ P wave of LA is notched 

In case of shortened P-R interval

↳ This means there is a decrease in AV delay

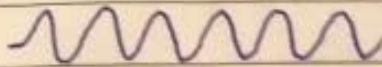
↳ due to accessory pathways.

✓ If you find an ECG with a confused P & T waves (you find it hard to differentiate between them) → then look to the QRS if it was normal → then the cause usually is due to a supraventricular abnormality (above the ventricles) → in AV bundle or the atria → so it is Atrial fibrillation.



✓ LBBB (Left Bundle Branch Block) → in the left ventricle.
⇒ seen in V5 & 6

✓ RBBB (Right Bundle Branch Block) → in the right ventricle.
⇒ seen in V1

⇒ Ventricular tachycardia 

Best of luck