

جامعة الانبار

كلية : الصيدلة

قسم : فرع الادوية والسموم

اسم المادة باللغة العربية: فسلجة عملي

اسم المدة باللغة الإنكليزية: **physiology lab.**

المرحلة: الثانية

التدريسي: مروة شكيب ذنون

عنوان المحاضرة باللغة العربية: تخطيط كهربائية القلب

عنوان المحاضرة باللغة الإنكليزية: ECG basics

محتوى المحاضرة ECG basics

The apparatus used for recording the electrical activities of the heart is called electrocardiograph or ECG •ECG

apparatus consists of; 1. Recording galvanometer 2.

Electrodes 10 and 12 records .

ECG useful in diagnosis of

1. Cardiac Arrhythmias
2. Myocardial ischemia and infarction

3. Pericarditis
4. Ventricular (Chamber) hypertrophy (LVH) (RVH)
5. Electrolyte disturbances
6. Drug effects and toxicity

ECG is a record of the electrical activities of the cardiac muscle

- The spread of excitation through myocardium produces local electrical potential
- This low-intensity current flows through the body, which acts as a volume conductor.
- This current can be picked up from surface of the body by using suitable electrodes and recorded in the form of electrocardiogram
- discovered by Dutch physiologist, Einthoven Willem

Normal ECG Waves

1- P wave: represents atrial depolarization.

2- QRS complex: represents ventricular depolarization.

T wave: represents ventricular repolarization - 3

Normal ECG Waves

There are several important characteristics of the ECG.

First, the firing of the SA node, which initiates the heartbeat, precedes atrial depolarization. Therefore, it should be apparent immediately prior to the P wave.

However, due to its small size, it does not generate enough electrical activity to spread to the surface of the body and be detected by the electrodes. Therefore, there is no recording of the depolarization of the SA node. Second, the area under the curve of the P wave is small compared with that of the QRS complex. This is related to the muscle mass of the chambers. The ventricles have significantly more muscle than the atria and, therefore, generate more electrical activity. Furthermore, although it may not appear to be the case given the spike-like nature of the QRS complex, the areas under the QRS complex and the T wave are approximately the same. This is because these recordings both represent electrical activity of the ventricles even though one is caused by depolarization and the other is caused by repolarization. Either way, the muscle mass involved is the same. Normal ECG Waves

There are several important characteristics of the ECG. Third, there is no recording during the PR segment. The electrical impulse is being conducted through the AV node and, as with the SA node, there is not enough tissue involved to generate sufficient electrical activity to be detected by the electrodes. The length of the PR segment is determined by the duration of the AV nodal delay. Finally, there is no recording during the ST segment. This is the period between ventricular depolarization and ventricular repolarization. In other words, the ventricles are completely depolarized and the muscle cells are in the plateau phase of the action potential. As mentioned earlier, unless current is flowing through the myocardium, there is no recording. N

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ECG machine amplifies the electrical signals produced from the heart and records these signals on a moving ECG paper.

- Electrocardiographic grid refers to the markings (lines) on ECG paper.
- ECG paper has horizontal and vertical lines at regular intervals of 1 mm.
- Every 5th line (5 mm) is thickened