Example of essay on ekg rhythm

Define the measurement of both the small and larger divisions on the graph paper used for rhythm strips.

The smaller box measures 1 mm in width and is equal to 0. 04 seconds.

The larger box is made of 5 smaller boxes, making it 5 mm in width and is equal to 0. 20 seconds.

Describe the methods used to calculate the heart rate of a rhythm strip.

Using a caliber, measure the distance between two R waves. Then, keeping that measurement on the caliber, measure each R to R interval to make sure they are all equal.

If all the QRS complexes are of equal distance between each other, measure the number of small boxes between the R waves and divide this number into 1500.

If the rhythm is irregular and the QRS complexes are not all equidistance from one another, count the number of R waves in a 6 second strip and multiply by 10.

Define what the PR interval reflects, the landmarks used to measure it, and what constitutes a normal PR interval in order to calculate this.

The PR interval is the distance between the P wave and the beginning of the QRS complex. The normal PR interval is between 0. 12 and 0. 20 seconds. To measure this, calculate how many small boxes are between the beginning of the P wave and beginning of the QRS complex and multiply this by 0. 04. This is the time it takes for the electrical impulse to travel between the atria and the ventricles.

For the following rhythms, write out the definition that explains each rhythm

and list the normal heart rates and measurements (PR interval, QRS complex) that are part of their criteria:

Normal sinus rhythm

Normal rhythm. R waves and P waves are equidistance from each other. Heart rate measures between 60 and 100 beats per minutes. There is one P wave for each QRS complex and they are upright and uniform in size. The PR intervals are all the same, measuring between 0. 12 and 0. 20 seconds. The QRS complex measures between 0. 06 and 0. 10 seconds. The QT interval measures less than half the R to R wave interval.

Sinus bradycardia

Normal rhythm. R waves and P waves are equidistance from each other. Heart rate measures less than 60 beats per minute. There is one P wave for each QRS complex and they are upright and uniform in size. The PR intervals are all the same, measuring between 0. 12 and 0. 20 seconds. The QRS complex measures between 0. 06 and 0. 10 seconds. The QT interval measures less than half the R to R wave interval.

Sinus tachycardia

Normal rhythm. R waves and P waves are equidistance from each other. Heart rate measures greater than 100 beats per minute. There is one P wave for each QRS complex and they are upright and uniform in size. The PR intervals are all the same, measuring between 0. 12 and 0. 20 seconds. The QRS complex measures between 0. 06 and 0. 10 seconds. The QT interval measures less than half the R to R wave interval.

Junctional rhythm

The SA node is not controlling the heart rhythm and the impulse is conducted from the AV node. The heart rate is between 40 and 60 beats per minute. And the rhythm is regular. The P waves are absent, inverted, buried, or retrograde. There is no PR interval or the PR interval is short. The QRS is normal measuring between 0. 06 and 0. 10 seconds.

First degree AV block

The rate depends on underlying rhythm. The rhythm is regular. The P waves are normal, upright, and uniform. The PR interval is prolonged, measuring greater than 0. 20 seconds. The QRS is normal, measuring between 0. 06 and 0. 10 seconds.

Second degree AV block, Type I

The PR intervals become longer until a P wave is dropped, thus producing no QRS complex. The rate depends on the underlying rhythm. The atrial rhythm is regular while the ventricular rhythm is irregular. The P waves are normal, upright, and uniform. However, there are more P waves than QRS complexes. The PR interval is long and continues to grow longer until a P wave is blocked. The QRS is normal, measuring between 0. 06 and 0. 10 seconds.

Second degree AV block, Type II

The atrial rate measures between 60 and 100 beats per minute. The atrial rhythm is regular while the ventricular rhythm is slower than that of the atrial rhythm. The P waves are normal, upright, and uniform and there are

more P waves than QRS complexes. The PR interval is normal or prolonged. The QRS may be normal or wide.

Third degree AV block

There is a complete block of the electrical impulse between the atria and the ventricles. The causes the atria and ventricles to contract independent of one another. The atrial rate is between 60 and 100 beats per minute while the ventricular rate is between 40 and 60 beats per minute. The rhythm is usually regular. The P waves are normal, upright, and uniform but may be buried within the QRS complexes or T waves. The PR intervals vary. The QRS complexes are of normal or wide length.

Atrial fibrillation

This rhythm is recognized as a rapid and electrical discharge in which multiple atrial cardiac cells are depolarizing and the atria is quivering instead of the healthy strong contraction. The atrial rate is greater than 350 beats per minute while the ventricular rate is variable. The rhythm is irregular. There are no true P waves. There is no PR interval. The QRS complex is normal measuring between 0. 06 and 0. 10 seconds.

Atrial flutter

The AV nodes conducts the impulse at irregular ratios of 2: 1, 3: 1, 4: 1 or greater, meaning there is more than one P wave (2 or more) for each QRS complex. The atrial rate is between 250 and 350 beats per minute while the ventricular rate is variable. The PR interval is variable, meaning not every interval measures the normal amount of time. The QRS complex is usually normal, measuring between 0. 06 and 0. 10 seconds.

Ventricular fibrillation

No ventricular depolarization/contraction occurs. The ventricles are quivering and are unable to perfuse the body. The rate cannot be determined. The rhythm is chaotic. There are no P waves, and thus not PR intervals. Likewise, there are no QRS intervals.

Ventricular tachycardia

The heart rate is between 100 and 250 beats per minute. The rhythm is regular. The P waves are absent an not associated with the QRS complexes. There are no PR intervals. The QRS is wide a bizarre and measuring greater than 0. 10 seconds.

Define the criteria used to identify a premature contraction that originates in the:

Atria (PAC) – The atrial impulse fires earlier than expected and then the normal sinus rhythm continues the rate. This looks like a P wave that is early in the cycle, closer to the previous T wave.

Ventricle (PVC) – The contraction results from irritable, sensitive ventricular cardiac cells. The contractions can be uniform, meaning they are the same form and originate in the same area, or multiform, meaning they are in different heights and originate from different areas of the ventricle. The PVC is usually followed by a compensatory pause so the next impulse is regular and on time. The PVC looks like an exaggerated Q wave following a normal T wave.

Junction (PJC) – This occurs when there is an irritable site within the AV junction that fires before the next SA node impulse is fired. This in turn interrupts the normal sinus rhythm. The QRS complex usually measures 0.

11 seconds or less. A noncompensatory/incomplete pause usually follows the PJC.

Reference

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