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Last update: Friday, 02 Dec 2011 at 6.38 pm.

Description of Waves, Intervals and Segments [edit] P Wave P wave should be always before QRS complex, separated by PQ interval. P wave is a sign of normal atrial depolarization.

Parameters:

duration: 110 ms; amplitude: 0.25 mV; positivity: positive – always in leads I and II; negative – always in aVR lead. When is P wave missing? Atrial flutter or fibrillation, ...

[edit] PQ Interval PQ interval is a period of atrial contraction. The depolarization is delayed in AV node.

Parameters:

duration: 120–200 ms positivity: isoelectric [edit] QRS Complex QRS complex represents ventricular depolarization and contraction. There are two phases of ventricular depolarization:

1. depolarization of interventricular septum – the vector is oriented from left to right and anteriorly;
2. depolarization of ventricles – because the left ventricle is more massive than the right ventricle, the vector oriented from right to left and posteriorly[1]. There are three waveforms in QRS complex:

Q wave – the first negative wave following P wave, may not always be presented; R wave – the first positive wave following P wave or Q wave; S wave – the first negative wave following R wave. Parameters:

duration of QRS complex: 100 ms or less; amplitude of Q wave; amplitude of R wave; amplitude of S wave. ST Segment ST segment is isoelectric line, period of no electrical activity of the heart. Should be in the same level as PQ interval. Every elevation or depression of this line is pathological.

Physiological duration is 320 ms. T Wave T wave represents repolarization of ventricles. The positivity or negativity should be the same as the major vector of QRS complex.[1]

Physiological duration 160 ms. U Wave The U wave is ordinarily small and follows T wave and usually has the same polarity as T wave.[1]

Heart Rhythm Heart rhythm is physiologically generated by SA node. Sign of its healthy function is P wave and PQ interval. Rhythm generated in SA node is called sinus rhythm.

Heart Frequency Heart frequency or heart rate is based on frequency of ventricular contraction. Can be easily counted from ECG curve. It is necessary to compare two QRS complexes and measure the time interval between their R waves – RR interval (in seconds):

$HR = 60 / RR$

Normal heart rate is 55–90/min.