For accurate measurement of the QT interval, the relationship between QT and ~~the~~ R–R intervals should be repeatable~~. This issue is important~~ particularly when the heart rate is <-50 -bpm and >120 bpm. Moreover, a~~A~~ccurate measurement of the QT interval is ~~also~~ important in athletes and children who have a significant beat-to-beat variability of the R–R interval. In such cases, prolonged and numerous recordings may be necessary. The l~~L~~ongest QT interval is generally observed in the right precordial leads.

Long QT syndrome (LQTS) is a congenital disorder characterized by~~, which shows~~ a protracted QT interval on the electrocardiogram~~ECG~~. LQTS ~~This condition~~ influences ventricular tachyarrhythmia~~s to~~ development in ~~people~~patients, which may lead to syncope, cardiac arrest, or sudden cardiac death. Additionally~~In LQTS~~, QT prolongation can lead to polymorphic ventricular tachycardia, which is also referred to as torsade de pointes. This condition itself may ~~lead to~~ cause ventricular fibrillation and sudden cardiac death.

Torsade de pointes is widely thought to be triggered by calcium channel reactivation, ~~a~~ delayed sodium current reactivation, or a diminished outward potassium current that results in early afterdepolarization (EAD). This leads to enhanced transmural dispersion of repolarization (TDR) and is usually associated with a prolonged QT interval. TDR serves as a functional reentry background to maintain torsade de pointes. It~~TDR~~ provides a reentry background ~~for reentry~~ and increases the likelihood of EAD, the trigger for torsade de pointes, by ~~the extension of~~extending the time window for calcium channels to remain open. Any additional condition accelerating the reactivation of calcium channels (e.g., increased sympathetic tone)~~,~~ increases the risk of EAD.

Prolonged recovery from excitation increases the probability ~~chance~~ of dispersion of refractoriness~~,~~ when some parts of the myocardium are refractory to subsequent depolarization. From a physiological viewpoint, dispersion occurs with repolarization of the three layers of the heart~~,~~ and the repolarization

Comment [A1]: An abbreviation is generally defined at its first use in the text and the abbreviated form is consistently used thereafter.

Comment [A2]: Some singular nouns refer to one specific thing (the only one of its kind), and therefore, "the" is placed before the noun. Here, the has been used to denote specificity.

phase tends to be prolonged in the myocardium. ~~This is the reason why~~Therefore, the T wave is usually wide and the interval from the peak of the T -wave to its end (Tp-e) represents ~~the transmural dispersion of repolarization (~~TDR~~)~~. In ~~long QT syndrome (~~LQTS~~)~~, TDR increases and creates a functional background for transmural reentry.