**Introduction**: The interval from the peak to the end of the T wave (Tpeak – Tend), a new electrocardiographic marker of ventricular repolarization, have been recently proposed to predict ventricular arrhythmic events and sudden cardiac death. It represents an index of transmural dispersion of repolarization (TDR). The prolongation of the interval of Tpeak – Tend, of the 12-lead electrocardiogram is a marker of ventricular arrhythmogenesis. Some researchers have shown an increase in mortality in patients with acute coronary syndrome, especially with ST-segment elevation myocardial infarction (STEMI).

**Methods**: This cross-sectional study was designed in STEMI patients who were underwent primary PCI that fulfilled the inclusion and exclusion criteria. We analyze Tpeak – Tend interval in ECG which impacts the survival rate of the patient by using Kaplan-meier analysis.

**Result**: We conducted study for a total 40 patients who diagnosed as STEMI (34 males and 6 females) with mean age was 58±11.04. From T-Test analysis, there is no significant difference of Tpeak – Tend interval between survived patient and inhospital mortality patient group (p=0.07) with the mean are 104.5 and 139.2 respectively. However in mantel-cox analysis, the Tpeak – Tend interval prolongation are significantly associated with inhospital mortality (p=0.048).

**Conclusion**: There is a significant impact of Tpeak – Tend interval prolongation in ECG to inhospital mortality rate in patient with ST Elevation Myocardial Infarction Treated with Primary Percutaneous Coronary Intervention.