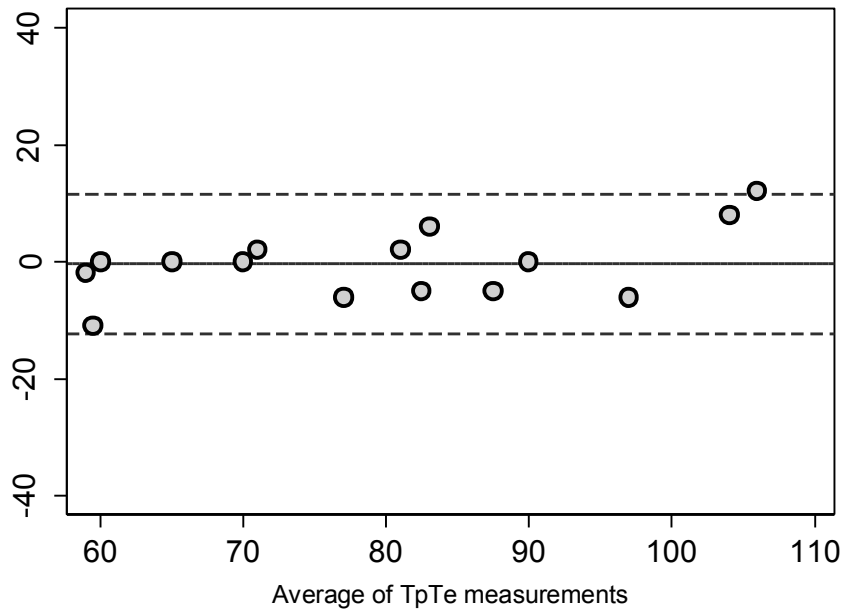


SUPPLEMENTAL MATERIAL

Figure S1. Bland-Altman analysis results for T-peak to T-end measurements by two independent investigators



The Bland-Altman plot demonstrates that mean difference in TpTe measurements by 2 independent investigators is small (-0.33 ms), indicating no significant bias.

Diastolic dysfunction (DD) is associated with increased mortality in the general population, predicts future development of heart failure, and is present in the majority of patients with heart failure. The presence of electromechanical coupling in systolic dysfunction is well known; however, our understanding of electromechanical coupling in diastole is less well understood. Transmural dispersion of repolarization (TDR), frequently described among patients with inherited or acquired long QT syndrome (LQTS), is associated with mechanical dispersion of left ventricular relaxation. We previously reported the independent association of increased QT interval with DD in patients without LQTS. We hypothesized a potential mechanism for this relationship may be diastolic electromechanical coupling in the setting of TDR. Since the interval from the peak to the end of the T wave (TpTe) on electrocardiography is a measure of TDR of the left ventricle, we performed a cross-sectional study of 84 patients, and evaluated the association between TpTe and DD. We found an independent association between increased TpTe interval and decreased tissue Doppler e' velocity (a marker of DD). The association between increased TpTe and reduced e' velocity persisted after adjusting for age, QTc, left ventricular mass index, and exercise-induced myocardial ischemia. In addition, increased TpTe at rest was associated with exercise-induced DD. We propose diastolic electromechanical coupling as a potential mechanism linking TDR and abnormal myocardial relaxation even among unselected patients without known LQTS. Such a mechanism requires further investigation as it may represent a novel target for therapy to improve DD in patients with heart failure syndromes.