**Biventricular Endocardial Pacing Is Superior to Triventricular Epicardial Pacing in an Ischemic Canine Heart Failure Model**

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**Introduction:** Left ventricular (LV) endocardial (Endo) and triventricular (TriV) epicardial (Epi) pacing have been proposed as alternatives to biventricular (BiV) pacing for cardiac resynchronization therapy (CRT) but it is unknown which is approach is superior. We determined which approach most improved hemodynamics in ischemic canines with heart failure. **Methods:** The left bundle branch was ablated in 7 canines and epicardial electrodes were placed at 4 sites. Multiple microembolizations were performed until LV ejection fraction reduced to less than 35%. A right atrial (RA) and right ventricular (RV) were implanted. An atrial transseptal Endo lead was placed at the 4 sites. LV dP/dtmax was measured during BiV Endo, BiV Epi and TriV Epi at 3 AV delays. Percent change from RA pacing was calculated and the greatest improvement with each approach was compared with repeated measures ANOVA. **Results:** BiV Endo pacing increased dP/dtmax more than BiV Epi and TriV Epi pacing (26.1 ± 11.6% vs. 20.7 ± 10.5% and 22.7 ± 9.2%, p < .05). There was no significant difference between BiV Epi and TriV Epi pacing. **Conclusion:** BiV Endo pacing was superior to BiV Epi and TriV Epi pacing. BiV Endo pacing is a promising approach to improve CRT and does not require additional leads. Further exploration of Endo pacing in humans is warranted.

**Keywords:** triventricular, CRT, endocardial