

## **Evaluation of the effects of transvenous pacing site on left ventricular function and synchrony in healthy anesthetized dogs**

Maisenbacher HW, Estrada AH, Prosek R, Shih AC, Vangilder JM. *Am J Vet Res.* 2009 Apr;70(4):455-63. doi: 10.2460/ajvr.70.4.455.

**OBJECTIVE**-To compare the acute effects of cardiac pacing from various transvenous pacing sites on left ventricular (LV) function and synchrony in clinically normal dogs. **ANIMALS**-10 healthy adult mixed-breed dogs. **PROCEDURES**-Dogs were anesthetized, and dual-chamber transvenous biventricular pacing systems were implanted. Dogs were paced in single-chamber mode from the right atrial appendage (RAA) alone and in dual-chamber mode from the right ventricular apex (RVA), from the left ventricular free wall (LVFW), and simultaneously from the RVA and LVFW (BiV). Standard ECG and echocardiographic measurements, cardiac output measured with the lithium dilution method (LiDCO), and tissue Doppler-derived measurements of LV synchrony were obtained during each of the pacing configurations. **RESULTS**-Placement of the biventricular pacing systems was possible in 8 of the 10 dogs. The QRS duration was significantly different among all pacing sites, and the order of increasing duration was RAA, BiV, LVFW, and RVA. Pacing sites did not differ with respect to fractional shortening; however, pacing from the RVA resulted in a significantly lower ejection fraction than pacing from all other sites. During RVA and LVFW pacing, LiDCO was significantly lower than that at other sites; there was no significant difference between RAA and BiV pacing with respect to LiDCO. Although the degree of dyssynchrony was significantly lower during pacing from the RAA versus other ventricular pacing sites, it was not significantly different among sites. **CONCLUSIONS AND CLINICAL RELEVANCE**-Ventricular activation by RAA pacing provided the best LV function and synchrony. Pacing from the RVA worsened LV function, and although pacing from the LVFW improved it, BiV pacing may provide additional improvement.