

**P147. Epicardial Treatment Of Functional Mitral Regurgitation With Bace Device In Experimental Animals**

Jaishankar Raman<sup>1</sup>; Megumi Mathison<sup>2</sup>; Arthur Hill<sup>3</sup>; Thomas M. Beaver<sup>4</sup>; Lishan Aklog<sup>5</sup>

<sup>1</sup>University of Chicago, Chicago, Illinois, United States; <sup>2</sup>St Josephs Translational Research Institute, Atlanta, Georgia, United States; <sup>3</sup>University of California San Francisco, San Francisco, California, United States; <sup>4</sup>University of Florida, Gainesville, Florida, United States; <sup>5</sup>St Josephs Hospital, Scottsdale, Arizona, United States

**OBJECTIVES:** Functional mitral regurgitation (FMR) is primarily due to abnormalities of the ventricular muscle which current surgical treatment do not address. A novel method of treating FMR is outlined.

**METHODS:** Functional mitral regurgitation was induced in seven sheep with rapid ventricular pacing over 8 to 10 weeks. BACE (Basal Annuloplasty of the Cardia Externally) was performed with a customized silicone device, applied epicardially without cardiopulmonary bypass. Circumferential implantation was performed at the atrioventricular groove with coverage the subannular ventricular muscle. The device was then adjusted by inflating one to four chambers that subtended the mitral annulus, remotely through silicone tubing connected to subcutaneous ports. This dynamically corrected MR under echocardiographic guidance. The animals were followed up clinically and echocardiographically.

**RESULTS:** All sheep developed severe MR on a combination of echocardiographic parameters after 8 to 10 weeks of pacing with a mean mitral annular diameter of 5.03±0.47 cms. Epicardial application of the BACE device effectively reduced from Grade 4 to 0 (measured by a combination of jet penetration, PISA, Continuous Wave jet intensity, left atrial size), p=0.001 (Wilcoxon Rank) and reduced mitral annular diameter to 4.17±0.46 cm (p=0.016, ANOVA). This effect was sustained at one and three months post-operatively, despite ongoing pacing. Terminal studies showed no adhesion to the silicone band.

**CONCLUSIONS:** Epicardial application of the BACE device along with its adjustment can be performed safely without the use of cardiopulmonary bypass with effective treatment of FMR. The device does not form significant adhesions, allowing ease of explant.