THE RELATIONSHIP BETWEEN THE MAGNITUDE OF REDUCTION IN MITRAL REGURGITATION SEVERITY AND LEFT VENTRICULAR AND LEFT ATRIAL VOLUMES POST-TREATMENT WITH THE MITRACLIP DEVICE

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Authors: Paul Grayburn, Chithra Sangli, Joseph Massaro, Laura Mauri, Neil Weissman, Donald Glower, Ted Feldman, Elyse Foster, on behalf of the EVEREST II Investigators, Baylor Univ Medical Center, Dallas, TX, USA

Background: In EVEREST II RCT, MitraClip reduced mitral regurgitation (MR) severity safely but to a lesser degree than surgery. A premise of the trial was that a lower degree of MR reduction with MitraClip provides meaningful clinical benefit. Few data exist on the magnitude of MR reduction necessary to provide reverse left ventricular (LV) and left atrial (LA) remodeling in patients with severe MR.

Methods: 389 MitraClip patients (178 EVEREST II RCT, 211 High Risk Cohort) are included in this analysis. All had severe (3-4+) MR at enrollment. MR severity, LVEDV, LVESV, and LAV were measured by an independent echo core lab. A linear repeated measures model was developed and included effects of MR severity and time of measurement post-index procedure on longitudinal LV and LA volumes. Separate models were fit for functional (F) and degenerative (D) MR.

Results: Reduction of MR in both FMR and DMR was significantly associated with reduction in LVEDV, LVESV and LA volume. Fig. 1 shows relationship of reduction in MR to reduction in LVEDV in FMR and DMR (p<0.0001 in both). MR reduced to 1+ or 2+ was associated with significant LV remodeling. Greater reduction in MR was associated with greater reduction in LV and LA volumes.

Conclusions: This model systematically evaluates the effect of reduction in MR on LV and LA volumes without the confounding effects of sternotomy or cardiopulmonary bypass. Reduction of LV and LA volumes in FMR and DMR demonstrates the clinical benefit of reduction in MR severity following MitraClip therapy.