

## Clinical and haemodynamic effects of percutaneous edge-to-edge mitral valve repair in atrial versus ventricular functional mitral regurgitation

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**Background:** Atrial functional mitral regurgitation (A-FMR) is a novel entity characterized by a MR due to atrial remodeling but with preserved left ventricular (LV) systolic function.

**Purpose:** To assess the clinical and haemodynamic impact of percutaneous edge-to-edge mitral valve repair with MitraClip in patients with A-FMR as compared to ventricular (V)-FMR.

**Methods:** MR grade, functional status (NYHA class), and major adverse cardiac events (MACE= all-cause mortality or hospitalization for heart failure (HF)) were evaluated in 52 A-FMR patients (pts.) and in 307 V-FMR pts. who underwent MitraClip implantation in 7 Belgian centers. In a subgroup of 56 pts (10 A-FMR and 46 V-FMR) haemodynamic assessment during a symptom-limited exercise echocardiography was performed before and 6-month after intervention.

**Results:** MitraClip implantation resulted in similar MR reductions in A-FMR and V-FMR (MR grade  $\leq 2$  at 6-month in 94% versus 82%, respectively

( $p=0.08$ )) and was associated with improvement of functional status in both groups (NYHA class  $\leq 2$  at 6 months in 90% versus 80%, respectively ( $p=0.2$ )). Serial haemodynamic assessment revealed that the cardiac output at 6-month was significantly higher in A-FMR pts. both at rest ( $5.1 \pm 1.5$  L/min versus  $3.8 \pm 1.5$  L/min,  $p=0.002$ ) and during peak exercise ( $7.9 \pm 2.4$  L/min versus  $6.1 \pm 2.1$  L/min,  $p=0.02$ ). Also the reduction in systolic pulmonary artery pressure (sPAP) was more pronounced in A-FMR:  $\Delta$  sPAP at rest –  $13.1 \pm 15.1$  mmHg versus –  $2.2 \pm 13.3$  mmHg ( $p=0.03$ ). During a follow-up period of  $1.3 \pm 1.2$  years MACE rate was significantly lower in A-FMR versus V-FMR with an adjusted OR of 0.46 (95% CI 0.24–0.88, see figure), which was mainly driven by a reduction in HF hospitalization.

**Conclusion:** Percutaneous edge-to-edge mitral valve repair with MitraClip is at least as effective in A-FMR as in V-FMR in reducing MR. But, the haemodynamic and clinical impact is stronger in A-FMR pts.

