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Percutaneous mitral edge-to-edge valvuloplasty in end-stage heart failure as a bridge to heart transplant: a case series from a single tertiary referral center

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Background: Improved outcomes after percutaneous edge-to-edge mitral valvuloplasthy with MitraClip implantation were recently observed in patients with heart failure (HF) and functional severe mitral regurgitation (MR). Nonetheless, its efficacy in end-stage heart failure (HF) are lacking.
Purpose: Our aim was to investigate feasibility, preliminary efficacy on hemodynamics and follow-up of MitraClip implantation in a cohort of patients with very advanced HF.
Methods: Patients were retrospectively included in the present analysis if already in HT list, unsuitable for HT despite optimal medical and device therapy, or if implantation was a "bridge-to-candidacy".
Results: Baseline and procedural characteristics are listed in Table 1; MR etiology was predominantly functional (n=7). No major complications were observed in the peri-operative period. At 6-month follow-up, invasive hemodynamics was available for 8 patients. A significant increase in cardiac index was observed (Least Square Mean Difference, LSMD = +0.47 L/min/m^2; p=0.03; Figure 1), in conjunction with a numerical reduction in pulmonary vascular resistance (LSMD = –1.02 WU; p=0.3), a trend towards lower mean pulmonary arterial pressure (LSMD = –6.5 mmHg; p=0.053) and lower ejection fraction (LSMD = –6.5%; p=0.053). At a median follow-up of 772 days (IQR 156–1,578), all three patients unsuitable for HT at baseline could be eligible to HT list and one of them received LVAD. Moreover, two patients were transplanted, four experienced unplanned rehospitalization for HF, and one died of non-cardiac cause.
Conclusions: Percutaneous edge-to-edge mitral valvuloplasty with MitraClip appears safe and effective in end-stage patients, impacts on clinical decision-making and therefore might be considered as a "bridge" towards a more definite strategy.

Table 1. Baseline clinical evaluation (n=10)

Age (y)	53.67±8.43	HF Etiology – post ischemic	4 (40)
Male sex	6 (60)	HF Etiology – no CAD	4 (40)
Body Surface Area (m^2)	1.76±0.22	HF Etiology – other	2 (20)
Chronic Resynchronization Therapy	5 (50)	Euroscore II	6.00±2.74
Baseline MR grade (+)	4 (40)	STS mortality	1.71±2.65
Residual MR grade (+)	1.71±0.49	Clips implanted (number)	1.78±0.67

Data are expressed as mean ± SD or count (valid %). MR scored on a scale from 0+ to 4+. STS, Society of Thoracic Surgeons.

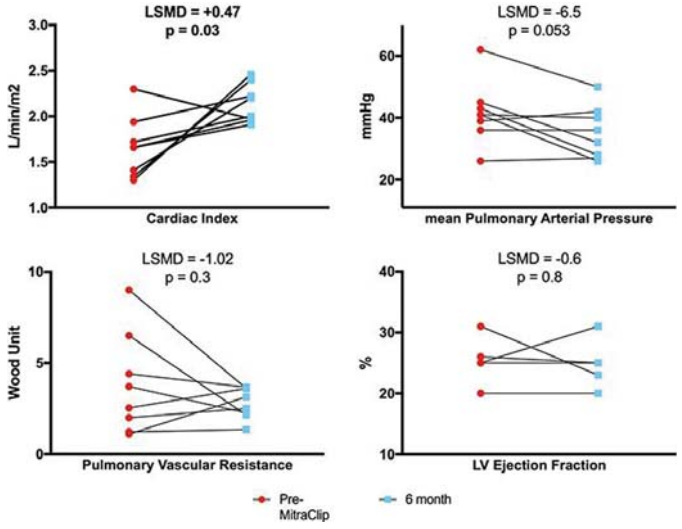

Figure 1