

Left ventricular remodelling patterns after MitraClip implantation: Do ischemic patients have the same benefit?

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Introduction: Percutaneous mitral valve repair has shown to prevent and even reverse adverse LV remodelling in most patients with moderate to severe mitral regurgitation (MR). This effect is, however, highly variable and may differ according to the MR etiology.

Objectives: The aim of the present study is to evaluate cardiac remodelling patterns and clinical outcomes after MitraClip implantation (MI) in ischemic and non-ischemic patients (P).

Methods: A standardized registry was prospectively performed between 2013 and 2019 for all P who underwent MitraClip insertion in a single tertiary care centre. Transthoracic echocardiographic information was assessed at baseline and 1, 6, 12 and 18 months after MI. Student's t-test was used to assess the procedure's effect on several variables. Clinical outcomes were compared with the use of Fisher's exact test or the chi-square test, as appropriate.

Results: 46 P, 61% male, mean age 65 ± 14 years. 39% had ischemic MR. Dyslipidemia was more frequent in ischemic P (52% versus 93%, $p=0.002$) as well as history of smoking (32% versus 67%, $p=0.022$). Atrial fibrillation was significantly associated with non-ischemic etiology (75% versus 44%, $p=0.036$). MI success rate was 87% (proper placement and reduction in MR to grade 2 or less), with an average of 1.5 clips. Considering the 37 P that completed 18 months of follow-up (FU), the echocardiographic parameters at baseline were: left ventricular ejection fraction (LVEF) $36 \pm 12\%$, LV end-diastolic diameter (LVEDD) $68.2 \pm 10.2\text{mm}$, LV end-systolic diameter (LVESD) $52.2 \pm 13.5\text{mm}$ and left atrial diameter (LAD) $53.1 \pm 6.7\text{mm}$; there were no significant differences between groups. After MI, a compelling difference in LVEDD was noticeable early in the first month, with significant lower dimensions in non-ischemic P (66.6 ± 11.4 versus 72.8 ± 5.4 , $p=0.039$). Sustained differences in LVEDD were consistent at 6, 12 and 18 months (62.4 ± 12.3 versus 73.5 ± 7.4 , $p=0.025$). There was also a reduction in LVESD that became apparent in the sixth month (45.5 ± 15.1 versus $55.3 \pm 9.8\text{mm}$, $p=0.047$) and that was sustained after 18 months from MI (45.4 ± 11.7 versus 58.3 ± 8.9 , $p=0.012$). No significant differences in LVEF or LAD were noticed over time. Regarding clinical outcomes at 18 months, overall mortality (M) was 24% (9P) and 51% (19P) died or were hospitalized due to heart failure (MH). No difference was found between groups: M ($p=0.119$), MH ($p=0.091$).

Conclusion: This study reports better LV reshape effects after MI in P with non-ischemic etiology, with sustained improvement over time. However, no differences regarding mortality or hospitalization due to HF were apparent at the 18-month FU. Larger long-term studies are required to evaluate these results.

Abstract Figure. LV remodelling pattern

