Abstract: MitraClip treatment of functional mitral regurgitation - A meta-analysis

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Citation:
Moderate-to-severe or severe functional mitral regurgitation (FMR) is associated with higher rates of
hospitalizations and with increased mortality in heart failure with reduced left ventricular ejection fraction
(HFrEF). Transcatheter mitral valve repair by MitraClip® implantation (TMVrMC) may effectively reduce
severe MR, and is associated with symptomatic improvement. However, the long-term clinical effects of this
procedure are not well defined.

Aims: We analyzed outcomes for rehospitalization and survival in heart failure patients with moderate-to-severe
or severe functional mitral regurgitation (FMR) treated by either medical treatment (MT) only TMVrMC+MT
by meta-analysis.

Methods & Results: By systematic search of bibliographic databases, we evaluated publications comparing
heart failure patients with FMR treated by MT only versus treatment by MT combined with TMVrMC. Studies
with a minimum of 25 enrolled patients and a follow-up period of at least 12 months were deemed eligible for
this meta-analysis. We identified n=7 studies enrolling 2,884 HFrEF patients, divided into two study arms:
TMVrMC+MT (n=1,618), versus FMR patients receiving MT only (n=1,266). At 12 months, there was a
significant reduction in all-cause mortality favoring TMVR+MT (OR: 0.67; CI 95% 0.55-0.81), as well as a
reduction of unplanned rehospitalizations (OR: 0.69; 95%; CI 0.53-0.89), compared with the MT only
patients. At 24 months, there was a significant reduction of all-cause mortality in the TMVrMC+MT patient
group (OR: 0.50; CI: 95%; 0.38-0.66; p<0.001). TMVrMC+MT was associated with significantly lower rates
of unplanned re-admissions for heart failure compared with MT only at 12 months (OR: 0.69; 95% CI: 0.53-
0.89; p<0.001) and at 24 months (OR: 0.53; 95% CI: 0.39-0.71; p<0.001). In one publication, a survival
benefit of TMVrMC+MT over MT alone was shown at 5 years post intervention (HR: 0.75; 95% CI: 0.69–
0.94; p=0.012) after weighting for propensity score and controlling for age.

Conclusions: This meta-analysis on n=2,884 patients with moderate-to-severe or severe FMR reveals that
TMVrMC+MT, as compared with MT alone, is associated with a significant reduction of rehospitalizations and
improvement of survival. These data imply additional evidence for TMVrMC in eligible heart failure patients
with relevant FMR, which might be important for an update of the corresponding guidelines.