The primary results of the trial showed significantly higher rates of freedom from death, surgery for MV dysfunction, or grade 3+ or 4+ MR at 12 months in those who were randomized to surgery (73%) versus 55% in the percutaneous arm (p=0.007); however, there was no difference in death (a component of the primary endpoint; 6% in each group). Surgery also achieved a greater reduction in MR (p<0.001). When stratified by MR type, patients with degenerative MR did better with surgery, with a significantly higher rate of freedom from the primary endpoint (82% surgery vs 56% percutaneous; p for interaction=0.02). The primary safety endpoint of major adverse events at 30 days was significantly lower in the percutaneous arm (15% percutaneous vs 48% surgery; p<0.001).

The 2-year results showed stability in the outcomes between Year 1 and Year 2. In the 2-year analysis, the rates of the primary composite endpoint were similar to those that were observed in Year 1 (66% surgery vs 52% percutaneous; p=0.04). In addition, the proportion of patients in the percutaneous group who remained free from MV surgery at Year 2 (78.2%) was similar to that at Year 1 (78.8%). There was no difference in mortality between groups at 2 years (11%). MR grade remained stable in both groups, with the more favorable reduction in MR observed in the surgical group at Year 1, persisting through Year 2 (Table 1). Interestingly, NYHA functional class showed a more favorable outcome at both times for the percutaneous group. Importantly, there were no events of device embolization, fracture, erosion, or migration that were reported, and there was no additional occurrence of single leaflet device attachment between 1 and 2 years (6.3% at 1 year).

While the primary ITT analysis favored surgery and counted subsequent MV surgery following percutaneous repair as an "endpoint" event, a second analysis that evaluated the percutaneous strategy was also presented, in which subsequent MV surgery within 90 days of the percutaneous procedure was not considered an endpoint. In this secondary analysis, the differences between treatments were no longer significant (63% percutaneous vs 66% surgery; p=0.67; Figure 1). The presenter observed that "the need for surgery in patients in the clip group was almost entirely in the first several months after therapy, and after 6 months the curves overlapped at 1 and 2 years."

The Year 1 results of this trial showed that percutaneous repair was less effective at reducing MR than conventional surgery but that the procedure was associated with superior safety and similar improvements in clinical outcomes. The Year 2 results demonstrate overall stability in outcomes over the second year of follow-up and are reassuring, in that no device failures were observed over this period. Longer-term follow-up information will be helpful in assessing the durability of catheter-based MV repair.

Figure 1. Primary Effectiveness Analysis at 1 and 2 Years.

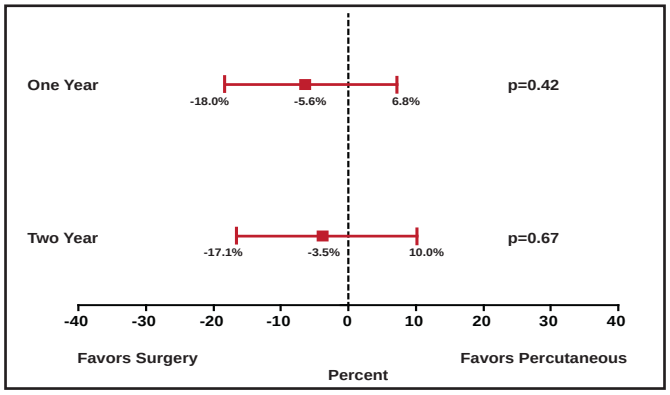

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Table 1. LV Volumes: Intention-to-Treat.

	LV End Diastolic Volume		LV End Systolic Volume	
	Percutaneous	Surgery	Percutaneous	Surgery
Baseline (mL)	157*	158*	62*	60*
Year 1 (mL)	133*†	119*†	57*	55*
Year 2 (mL)	124*‡	110*‡	55*	50*

*within group difference p<0.05; †between group difference at 1 year p<0.05; ‡between group difference at 2 years p<0.05; LV=left ventricular.

Targeted LV Lead Placement Is Feasible and Associated With Enhanced CRT Response

Results from the Targeted Left Ventricular Lead Placement to Guide Cardiac Resynchronization Therapy Study (TARGET; ISRCTN19717943), presented by Fakhar Z. Khan, MD, Addenbrooke's Hospital, Cambridge, UK, show that targeted left ventricular (LV) lead placement not only is feasible but results in enhanced cardiac resynchronization therapy (CRT) response. Concordant LV lead placement, baseline dyssynchrony, and pacing away from areas of the scar are strongly related to improved CRT outcomes.

CRT has become part of the standard treatment for patients with advanced heart failure (HF) symptoms, impaired LV systolic function, and intraventricular conduction delay. Lead placement has emerged as a determinant of response. The objective of the TARGET Study was to prospectively assess the feasibility of a targeted approach to LV lead placement and the impact of LV lead targeting on CRT outcomes. The hypothesis was that targeting LV lead placement to the latest site of

contraction using speckle tracking echocardiography would enhance CRT response when compared with standard unguided treatment.

TARGET was a single-blind, prospective, randomized, controlled trial in patients with New York Heart Association (NYHA) Class III–IV, left ventricular ejection fraction <35%, and QRS width >120 ms, despite maximally tolerated doses of standard HF treatment (eg, diuretics, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, beta-blockers, and aldosterone antagonists).

Subjects were randomly assigned to receive targeted LV lead placement using speckle tracking echocardiography [Goffinet C & Vanoverschelde J-L. *Eur Cardiology* 2007] to identify the optimal site for LV lead placement (n=110; Target Group) or standard (unguided) lead placement (n=110; Control Group). All underwent the echo procedure to identify an optimal pacing site, but in the control group, the leads were positioned with blinding to the echo data. Each placement was categorized as to whether the LV lead was positioned at the optimal site.

All CRT devices were optimized using echo following implantation. The primary endpoint was a >15% reduction in left ventricular end systolic volume (LVESV) at 6 months. Secondary endpoints were a ≥1-step improvement in NYHA Class, all-cause mortality, and a combination of mortality and HF hospitalization.

Data for 207 subjects (103 subjects in the Target Group and 104 controls) were available for analysis. Subjects had a mean age of 70 years, approximately 86% were men, and about 94% of subjects were NYHA Class III/IV. More than half (56%) of subjects had underlying cardiomyopathy.

Reduction in LVESV at 6 months (the primary endpoint) was significantly higher in subjects who received targeted lead placement compared with those who received standard lead placement (70% vs 55%; p=0.031). The group who used echo guidance had had the lead placed in an optimal position significantly more often than those who did not have echo guidance (p=0.011). Subjects in the Target Group also showed significant improvements in NYHF Class (p=0.002), the 6-minute walk test (p=0.01), and improved scores on the Minnesota Living with Heart Failure questionnaire (p=0.02). There was a significant (p=0.03) difference in the combined secondary endpoint of death and HF hospitalization, favoring the Target Group. All-cause mortality did not differ.

Targeted LV lead placement using speckle tracking 2D is feasible and associated with greater LV reverse remodeling, clinical response, and freedom from death and HF-related hospitalization. Concordant LV lead placement, baseline dyssynchrony, and pacing away from areas of the scar are strongly related to improved CRT outcomes. The speckle tracking echo technique is available for clinical use, making these results applicable to a wide range of clinical centers.

Comparison of 6 and 12 Months of DAT after Implantation of a DES

Six months of dual antiplatelet therapy (DAT; aspirin and clopidogrel) was noninferior to 12 months of DAT after percutaneous coronary intervention (PCI) with implantation of a drug-eluting stent (DES). Hyeon-Cheol Gwon, MD, Sungkyunkwan University School of Medicine, Seoul, Korea, presented the findings of the EXCELLENT trial.

The Randomized Comparison of 6-Month versus 12-Month Duration of Dual Antiplatelet Therapy after Implantation of Drug-Eluting Stent: From Comparison of Everolimus- versus Sirolimus-Eluting Stents for Coronary Revascularization (EXCELLENT; NCT00698607) Trial was designed to prospectively test the hypothesis that 6 months of DAT after DES is as safe and effective as the current guideline recommendations of at least 12 months.

This open-label trial of 1443 South Korean patients with myocardial ischemia and at least 50% coronary stenosis who were undergoing PCI randomly assigned patients in a 2 × 2 factorial design to a type of DES (3:1, everolimus-eluting:sirolimus-eluting) and 1:1 to 6 versus 12 months of DAT. Subjects were stratified by the presence of diabetes and the index coronary lesion length. The primary results of the comparison of the two types of stents for in-segment late luminal loss at 9 months were presented at TCT in 2010 and showed that everolimus-eluting stents were noninferior to sirolimus-eluting stents (p for non-inferiority=0.023).

The primary endpoint for the comparison of duration of DAT was the incidence of target vessel failure (TVF) at 12 months, defined as a composite of cardiac death, myocardial infarction (MI), or target vessel revascularization (TVR). The noninferiority margin (one-sided 97.5% confidence limit) was set at a 4% absolute difference. Several secondary endpoints were evaluated, including individual components of the primary outcome, stroke, stent thrombosis, TIMI major bleeding, and a composite safety endpoint. The trial was powered, based on an estimated rate of the primary endpoint occurring in the 12-month DAT group of 10%.

The mean subject age was 63 years, one-third were women, about 40% were diabetic, and there was an even split of presentation with either stable or acute coronary syndrome. Approximately half of the patients had single-