

Selection of the Best of 2016 in MitraClip Therapy for the Treatment of Functional Mitral Regurgitation



Selección de lo mejor del año 2016 en el tratamiento de la insuficiencia mitral funcional mediante implante de MitraClip

To the Editor,

Treatment of functional mitral regurgitation (FMR) is currently a challenge for the clinician. The association of severe FMR and heart failure significantly increases mortality. Although the risk of surgical valve repair is often high in patients with these 2 conditions, the valve anatomy rarely impedes MitraClip implantation. Nonetheless, even though more than 35 000 MitraClip devices have been implanted worldwide, FMR is not an accepted indication due to a lack of randomized studies in these patients. Only 1 study has included patients with mitral regurgitation of largely organic origin. On the basis of the results of that study, only patients with

organic mitral regurgitation are accepted for implantation of the MitraClip device as an alternative to surgery. The European clinical practice guidelines do not give a strong recommendation for this indication (IIB with level of evidence C). However, in Europe, FMR has been the main reason for MitraClip implantation. According to data provided by the manufacturer, of 25 000 patients treated with this technique up to 2016, 65% had FMR. In Spain, the proportion is even higher (78%). This large number of procedures is due to the good outcomes obtained in observational studies (Figure). Two large European registries, ACCESS-EU¹ and TRAMI,² which included 567 and 749 patients, respectively, with high surgical risk reported incidences of FMR of 77% and 71%. The MitraClip was effective in these patients, with low rates of mortality and adverse effects.

Similar results were obtained in a Spanish registry that included patients with a high incidence of FMR (85%) and high surgical risk.³ The procedure was safe, reduced mitral regurgitation, and improved patients' functional capacity.

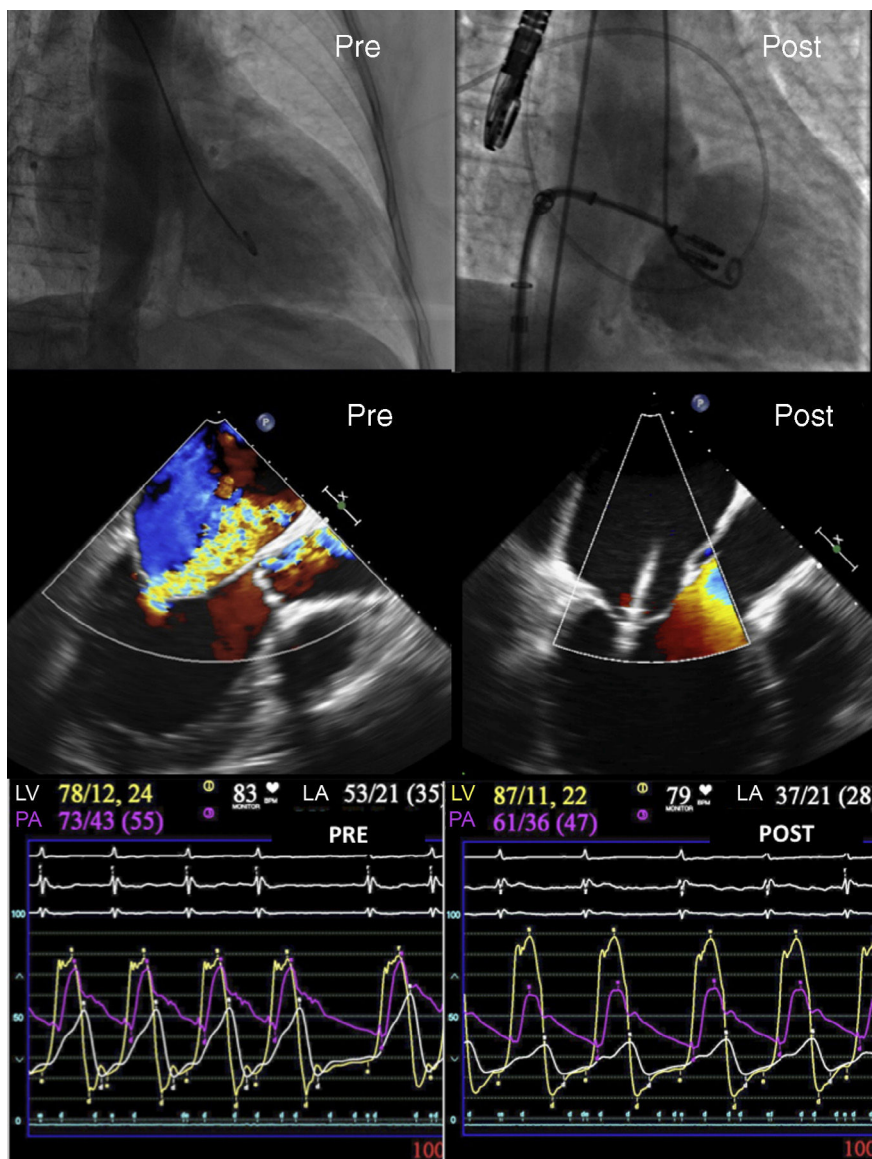


Figure. Angiographic, echographic, and hemodynamic changes after MitraClip implantation in a patient with congestive heart disease and functional mitral regurgitation. LA, left atrium (white); LV, left ventricle (yellow); PA, pulmonary artery (magenta).

Table
Ongoing Randomized Studies of the MitraClip and Functional Mitral Regurgitation.

Study	COAPT	RESHAPE-HF2	MITRA-FR	MATTERHORN
Patients/hospitals, n	430/75	800/50	288/18	210/1
Control group	Medical treatment	Medical treatment	Medical treatment	Mitral repair surgery
FMR severity	≥ 3+ (EROA ≥ 30 mm ² or Rvol > 45 mL according to CLE)	≥ 3+ (EROA ≥ 30 mm ² or Rvol > 45 mL according to CLE)	Severe (EROA > 20 mm ² + Rvol > 30 mL)	Severe (according to guidelines)
NHYA functional class	II, III, or ambulatory IV	III or ambulatory IV	II–IV	III–IV
Other inclusion criteria	Admission for HF in last 12 mo or BNP ≥ 300 pg/mL or NT-proBNP ≥ 1500 pg/mL in the last 12 mo. No indication for surgery in the center	Admission for HF in last 12 mo or BNP ≥ 350 pg/mL or NT-proBNP ≥ 1400 pg/mL in 90 d. Not apt for surgery	Admission for HF in last 12 mo. Not apt for surgery	Clinically symptomatic FMR. High surgical risk, but acceptable for surgery
LVEF	≥ 20%–≥ 50%	≥ 15%–≥ 40%	≥ 15%–≥ 40%	≥ 20%–≥ 45%
Ventricular size	LVEDD ≥ 70 mm	LVEDD ≥ 55 mm	–	–
Primary outcome measure	Admission for HF in last 12 mo	Death or need for admission for HF in last 12 mo	Death or need for admission for HF in last 12 mo	Death, readmission for HF, repeat procedure, VSD implantation, or stroke in 12 mo
Follow-up	5 y	2 y	2 y	1 y

BNP, brain natriuretic peptide; ECL, echocardiography core laboratory; EROA, effective regurgitant orifice area; FMR, functional mitral regurgitation; HF, heart failure; LVEDD, left ventricular end-diastolic diameter; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association; Rvol, regurgitation volume; VSD, ventricular support device.

In a nonrandomized study, Giannini et al.⁴ reported decreased mortality with the use of this device vs medical treatment in patients with FMR.

Finally, a recent meta-analysis evaluated all available experience with MitraClip in FMR.⁵ The study included 875 patients from 9 observational studies. The meta-analysis concluded that the MitraClip is an effective strategy for patients with heart failure and severe mitral regurgitation. The procedure significantly improves functional class and cardiac remodeling.

Although the efficacy of the device in reducing the degree of mitral regurgitation is beyond question (Figure), mortality in patients with severe mitral regurgitation remains high. Azzalini et al.⁶ reported a probability of survival at 3 years of close to 30% and an ejection fraction of less than 27% in patients with FMR treated with MitraClip. For this reason, some clinicians have considered mitral valve repair at earlier stages of the disease and have sought treatment alternatives for patients with highly deteriorated function.

Accordingly, the criteria for device implantation vary for different hospitals and randomized studies are required for a well-established indication. In patients with less advanced disease and better ventricular function, the clinical outcomes of the technique would likely be better but, at the same time, the natural course of the disease with medical treatment would be more benign; therefore, randomized trials are needed. Four large multicenter studies have been designed (Table). The first is the COAPT study (NCT01626079), which plans to randomize 430 patients with FMR 1:1 to MitraClip or medical treatment. The second is the RESHAPE-HF2 study (NCT02444338), which will enroll 800 patients with FMR, randomized 1:1 to optimal medical treatment or MitraClip. The third, also currently ongoing, is the MITRA-FR study (NCT01920698), which will enroll 288 patients with a similar primary outcome measure to the previous studies. Finally, the MATTERHORN study (NCT02371512) will randomize 210 patients to mitral repair surgery or a MitraClip procedure (Table).

In conclusion, the best of 2016 with regard to the MitraClip in the treatment of FMR will actually come in 2017, with the availability of the results of the ongoing studies. The device effectively reduces mitral regurgitation and improves clinical and hemodynamic parameters (Figure). With the currently available

results, a change is already needed to the guidelines and, if the ongoing studies are positive, a recommendation will no doubt be established with a higher degree of evidence.

CONFLICTS OF INTEREST

M. Pan has received minor payments from Abbott for presentations.

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Selection of the Best of 2016 in Interventional Cardiology: Expansion of TAVI Indications to Intermediate-risk Patients



Selección de lo mejor del año 2016 en cardiología intervencionista: extensión de las indicaciones de TAVI a pacientes con riesgo intermedio

To the Editor,

Transcatheter aortic valve implantation (TAVI) is a technique that was first introduced more than 10 years ago and has since become established as an alternative to surgery in the treatment of severe symptomatic aortic valve stenosis. Since the pioneering valve prosthesis implantation of Dr. A. Cribier in 2002, it is estimated that more than 200 000 TAVI procedures have been performed throughout the world. The first studies of TAVI included inoperable patients and those at high surgical risk and compared the outcomes with medical treatment and surgery, respectively. In the studies of patients with high surgical risk, TAVI appeared to be a superior alternative to surgery¹; these findings have since been confirmed in numerous registries. The initial studies also

highlighted the weaknesses of the technique when compared with surgery. For example, these studies detected increased incidences of vascular complications, cerebrovascular accidents (CVAs), need for pacemaker implantation, and the presence of significant aortic regurgitation after implantation. These weaknesses have served as a guide for technical improvements to the initial platforms and the design of new prostheses (Figure). Examples of these improvements include reduction of the deployment system size to reduce the incidence of vascular complications and disabling CVAs. Another important technical advance has been the addition of an outer skirt to the stent to improve prosthesis sealing and thus prevent moderate-severe perivalvular leakage. This is crucial because the presence of such leaks is an unfavorable prognostic factor. For example, in the case of the Edwards valve, the incidence of moderate-severe paravalvular leakage has decreased from between 12% and 24% to 2% with the latest generation of this valve. Another important aspect, above all if the technique is to be used in patients with lower risk, is the rate of pacemaker implantation, which varies between 12% and 30% according to the type of valve used (Table).^{1–5}

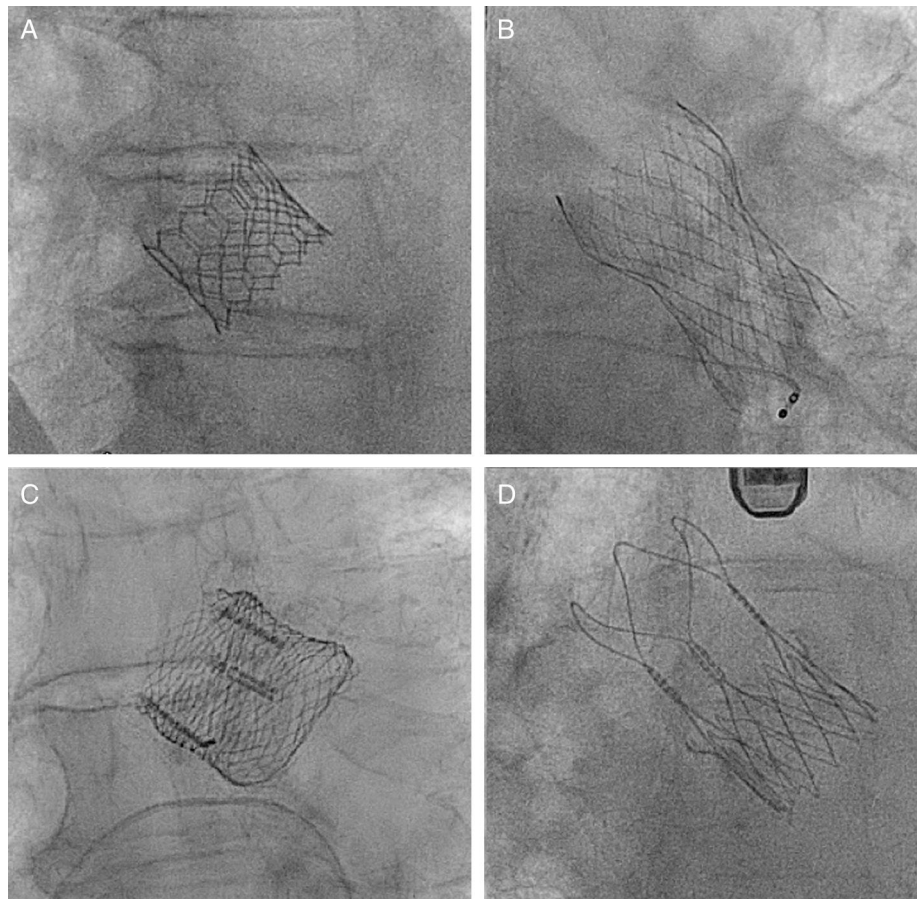


Figure. Examples of latest-generation valves. A, Edwards SAPIEN 3 valve (Edwards Lifesciences; Irvine, California, United States). B, CoreValve Evolut R valve (Medtronic; Minneapolis, Minnesota, United States). C, Lotus valve (Boston Scientific; Natick, Massachusetts, United States). D, ACCURATE neo valve (Symetis; Ecublens, Switzerland).