Mitraclip patient selection: what are the limits on good outcomes in FMR

Dr V. Ninios
Conflict of interests

• Proctor for Mitraclip Abbott Vascular
Percutaneous Mitral Repair With the MitraClip System
Safety and Midterm Durability in the Initial EVEREST (Endovascular Valve Edge-to-Edge Repair Study) Cohort

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Evanston, Illinois; Los Angeles, Sacramento, and San Francisco, California; Charlotte and Durham, North Carolina; Houston, Indianapolis, Indiana; Houston, Texas; Cleveland, Ohio; New York, New York; Philadelphia, Pennsylvania; and Charleston, Virginia

Objectives
We conducted a prospective multicenter single-arm study to evaluate the feasibility, safety, and outcomes of the MitraClip system (Edwards Inc., Menlo Park, California).

Background
Mitral valve repair for mitral regurgitation (MR) has been performed by the use of a surgically implanted annuloplasty device. Percutaneous repair based on this surgical approach has been developed by use of the MitraClip system to secure the mitral leaflets.

Methods
Patients with 3 to 4+ MR were selected in accordance with the American Heart Association/American College of Cardiology guidelines for intervention and a core echocardiographic laboratory.

Results
A total of 87 patients were treated. Ten (11%) had a major adverse event, including 1 nonprocedural death. Freedom from clip embolization was 100%. Partial clip detachment occurred in 10 (9%) patients. Overall, 79 of 101 (79%) patients achieved acute procedural success, and 51 (84%) were discharged with MR of 1+ or less. Thirty-two patients (30%) had mitral valve surgery during the 32 years after clip procedures. When repair was planned, 84% (21 of 25) were successful. Freedom surgical options were evaluated. A total of 84 of 76 (88%) successfully treated patients were free from death, mitral valve surgery, or MR 1+ or less at 12 months (primary efficacy and safety) Kaplan-Meier freedom from death was 99.0%, 94.0%, and 90.1%, and Kaplan-Meier freedom from surgery was 99.9%, 93.2%, and 93.2% at 1, 2, and 3 years, respectively. The 25 patients with functional MR had similar acute results and durability.

Conclusions
Percutaneous repair with the MitraClip system can be accomplished with low rates of mortality and morbidity and with acute MR reduction to < 1+ in the majority of patients, and with sustained freedom from death, surgery, or recurrent MR in a substantial proportion (EVEREST I: NCT00303339; EVEREST II: NCT00305274). (J Am Coll Cardiol 2009;4:C686-94) © 2009 by the American College of Cardiology Foundation.
Percutaneous interventional mitral regurgitation treatment using the Mitra-Clip system

<table>
<thead>
<tr>
<th>Optimal valve morphology</th>
<th>Conditionally suitable valve morphology</th>
<th>Unsuitable valve morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central pathology in Segment 2</td>
<td>Pathology in Segment 1 oder 3</td>
<td>Perforated mitral valve leaflet or cleft</td>
</tr>
<tr>
<td>No leaflet calcification</td>
<td>Mild calcification outside of the grip-zone of the clip system; ring calcification, post annuloplasty</td>
<td>Severe calcification in the grip-zone</td>
</tr>
<tr>
<td>Mitral valve opening area &gt;4 cm²</td>
<td>Mitral valve opening area &gt;3 cm² with good residual mobility</td>
<td>Haemodynamically significant mitral stenosis (valve opening area &lt;3 cm², MPG ≥ 5 mmHg)</td>
</tr>
<tr>
<td>Mobile length of the posterior leaflet ≥10 mm</td>
<td>Mobile length of the posterior leaflet 7–&lt;10 mm</td>
<td>Mobile length of the posterior leaflet &lt;7 mm</td>
</tr>
<tr>
<td>Coaption depth &lt;11 mm</td>
<td>Coaption depth ≥11 mm</td>
<td>Rheumatic leaflet thickening and restriction in systole and diastole(Carpentier IIIA)</td>
</tr>
<tr>
<td>Normal leaflet strength and mobility</td>
<td>Leaflet restriction in systole (Carpentier IIIB)</td>
<td>Barlow’s syndrome with multisegment flail leaflets</td>
</tr>
<tr>
<td>Flail-width &lt;15 mm Flail-Gap &lt;10 mm</td>
<td>Flail-width &gt;15 mm only with a large ring width and the option for multiple clips</td>
<td></td>
</tr>
</tbody>
</table>
Negative Predictors

- coaptation length <2.7 mm
- coaptation depth >6.3 mm
- distance between papillary muscles >32 mm
- thickening and calcification of the subvalvular apparatus
- cleft
- effective regurgitant orifice area (EROA)
- mitral valve orifice area (MVOA) <4cm²
- mean transmitial pressure gradient (TMPG)
- TAPSE <15mm
- TR>2+
- EF<25%
- PASP
- RV function
- Ischemic etiology
- NTPro BNP >10000
- NYHA Class 4
- CKD, Diabetes, Age >80
75 YEAR OLD FMR- MITRAL STENOSIS?
SEVERE STENOSIS
MOVE CLIP LATERALLY!
88 Y. OLD PATIENT-ISCHEMIC CARDIOMYOPATHY- RECENT PULMONARY OEDEMA
COMBINED PATHOLOGIES
FLAIL P3- TENTING A2-P2
PLAN: IMPLANT 2 CLIPS A3-P3 AND A2-P2
PROLAPSE A2-A3: ONE MONTH AFTER
INFERIOR MI - PULMONARY OEDEMA
CARDIAC MRI - POSTERIOR PAPILLARY MUSCLE SCAR
PLAN: IMPLANT 2 CLIPS A3-P3, A2-P2
The extreme case-History

• 78 y.old male
• Hypertention
• Previous posterior/ inferior MI, CABG
• AF
• Significant functional MR known for a few years
• Transferred from other Hospital
• Intubated upon arrival BP= 90/60, O2 sat 75%
• Lethargic, cachectic
• Started on i.v. inotropes, diuretic infusion
Anatomical challenges limitations
pre

post
Conclusions

- Mitraclip is an effective and versatile technique
- Good outcomes depend on accurate diagnosis, meticulous technique and thorough clinical and echocardiographic evaluation
- Major limitation is clip induced Mitral stenosis that may limit the number of implanted clips.
- LV remodelling, major LA and Mitral annular dilatation and severe RV dysfunction are significant limiting factors
- Alternative and/or complementary transcatheter methods may help overcome these limitations