Minimally Invasive Mitral Valve Surgery: Comparison of Outcomes in Single Procedure Versus Multi-Procedure Patients

M.G. Moront MD, M.L. Kuehne Ph.D, PAC, D.G. Crescenzo MD, MBA, W. J. Rachwal MD, C. J. Riordan MD MBA, T.A. McCoy PAC

Division of Cardiothoracic Surgery
The Toledo Hospital
Toledo, Ohio, USA
Minimally Invasive MV Surgery

Disclosures

✴ Michael Moront MD-Medtronic, St. Jude, Baxter, I-Flow
✴ Michael Kuehne Ph.D, PAC-Medtronic
✴ Tim McCoy PAC-Medtronic
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Objective

The purpose of this retrospective study was to compare the clinical outcomes of minimally invasive mitral valve (MV) surgical patients undergoing isolated MV repair or replacement versus those patients having minimally invasive MV surgery with concomitant procedures.
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Methods

- May 2006 to December 2010
- 121 Pts. Underwent Minimally Invasive MV Procedures

**Group A (N=66)**
- Isolated MV Repair or Replacement

**Group B (N=55)**
- MV Surgery with Concomitant Procedures
  - Tricuspid Valve Repair (TVR), Maze Procedure, Atrial Septal Defect (ASD) or Patent Foramen Ovale (PFO)
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**Group A**

(N=66)
62% Female
Mean Age 62.2+-14.6 yrs.
MV Repair-41 Pts. (66%)
63% Complex MV Repair
MV Replacement-25 Pts.(34%)
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**Group B**

(N=55)

65% Female

Mean Age 65.0 +/- 12.8 yrs. MV Repair 28 Pts. (51%)

43% Complex Repair

MV Replacement 27 Pts. (49%)

MAZE 34 Pts. (62%)

TV Repair 23 Pts. (42%)

ASD/PFO 19 Pts. (33%)
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#### Results

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<thead>
<tr>
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<th>Group A</th>
<th>Group B</th>
<th>p Value</th>
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<tbody>
<tr>
<td>Mean Total Cardiopulmonary Bypass Time (Minutes)</td>
<td>108.2+/−31.1 Range (66-257)</td>
<td>123.8+/−28.7 Range (80-227)</td>
<td>p&lt;0.01</td>
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<tr>
<td>Mean Total Aortic Cross Clamp Time (Minutes)</td>
<td>71.5+/−26.2 Range (42-175)</td>
<td>84.8+/−23.8 Range (54-134)</td>
<td>p&lt;0.01</td>
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## Results

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<tr>
<td><strong>Mean Time to Extubation</strong></td>
<td>16.5 +/- 37.5</td>
<td>21.2 +/- 42.5</td>
<td><strong>NS</strong></td>
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<td>(Hours)</td>
<td>Range (2.8 - 289.6)</td>
<td>Range (1.6 - 237.1)</td>
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<td><strong>Mean ICU Length of Stay</strong></td>
<td>61.2 +/- 74.4</td>
<td>59.0 +/- 61.8</td>
<td><strong>NS</strong></td>
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<tr>
<td>(Hours)</td>
<td>Range (18.6 - 505.1)</td>
<td>Range (16.4 +/-314.2)</td>
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### Minimally Invasive MV Surgery Results

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<tr>
<td><strong>Mean Hospital Stay</strong></td>
<td><strong>6.8 +/- 4.2</strong> Range (3-28)</td>
<td><strong>7.0 +/- 3.4</strong> Range (3-21)</td>
<td><strong>NS</strong></td>
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Complications

Group A
- 4 Pts. Re-Entry for Postoperative Bleeding
- 1 Pt. Conversion to Sternotomy
- 1 Pt. Lt. Femoral Thrombectomy
- 2 Pts. Acute Renal Failure Requiring Hemodialysis

Group B
- 4 Pts. Re-Entry for Postoperative Bleeding
- 1 Pt. Conversion to Sternotomy
- 1 Pt. Acute Renal Failure Requiring Hemodialysis
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Mortality

- Overall Study Cohort Mortality 2/121 (1.7%)
- 2 Mortalities-Both in Group A
- 75 WF s/p MV Repair-Annuloplasty Ring. Developed Severe LVOT Obstruction POD #1. Underwent MV Replacement with Bioprosthesis-Expired POD #4
- 63 WF s/p MV Replacement-Bioprosthesis. Ruptured Ilio-Hypogastric Artery Intraoperatively. Patient developed acute renal failure and patient refused hemodialysis-Expired POD #24
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This retrospective study demonstrates that minimally invasive MV surgery with concomitant procedures can be performed safely with similar outcomes compared to those undergoing isolated minimally invasive MV repair or replacement.

The data suggests that more complicated patients can be treated successfully with a minimally invasive approach with excellent efficacy and safety.