

Mitral Valve Repair Using Chordal Replacement: Single-centre Experience Of More Than Consecutive 900 Patients

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Background

- Short- and mid-term studies comparing chordal replacement with resection demonstrate promising results.
- Long-term data reports are scarce.

Aim

In this single-centre retrospective, observational cohort study, we aim to provide our long-term outcomes, spanning a period of >20 years, of mitral valve repair using neochordae.

Methods

- Between 2001 and 2022
- Over 900 consecutive patients
- who received chordal replacement and annuloplasty for mitral valve repair
- at the University Hospital for Cardiac Surgery in Innsbruck were reviewed.
- Short- and long-term survival, re-operation and recurrent mitral regurgitation were analysed.

Table 1. Patient characteristics at baseline.

Characteristic	
Age – yr	63.0 [53.0;70.0]
Female sex – no.	395 (38.3%)
Body-mass index †	24.7 [22.2;27.2]
Hypertension – no.	465 (46.4%)
Diabetes – no.	40 (4.0%)
Dyslipidemia – no.	277 (27.6%)
Smoking – no.	79 (7.9%)
COPD – no.	32 (3.2%)
Dialysis – no.	4 (0.4%)
NYHA functional classification – no.	
I	162 (16.2%)
II	401 (40.0%)
III	425 (42.4%)
IV	15 (1.5%)
Mitral Valve Disease Etiology – no.	
Degenerative	758 (75.6%)
Functional	137 (13.7%)
Rheumatic	97 (9.7%)
Endocarditis	11 (1.1%)

Table 2. Patient characteristics at follow-up.

Characteristic	
Perfusion time – minutes	196.0 [160.0;234.0]
Cross clamp time – minutes	109.0 [88.0;133.0]
Technical Success	934 (93.6%)
Redo for early failure	8 (0.8%)
In-hospital Mortality	10 (1.0%)
Residual MR	
0	715 (71.6%)
1	267 (26.8%)
2	16 (1.6%)

Limitations

- non-comparative analytical study
- no conclusions on the superiority of any technique can be made.

Results

- A total of 974 patients were evaluated.
- Chordal replacement showed excellent short- and long-term results.
- **conversion rate** to full sternotomy was 2.9%
- **repeated cross-clamping** due to residual MR was 3.9%.
- **In-hospital mortality** was 1.0%
- Clinically relevant **mitral insufficiency at discharge** was diagnosed in 1.6% of patients
- **Long-term device-related survival** was 99.2%
- 4.7% had to be **re-hospitalized within five years** of follow-up.

Conclusions

This single-centre experience on long-term outcomes of chordal replacement for mitral regurgitation shows excellent results in a real-life cohort. However, we emphasise that our study is regarded as hypothesis-generating because although our findings provide valuable data chordal replacement, comparative studies are urgently needed to investigate their superiority compared to resection techniques.