

A randomized surgical trial of mitral valve repair with leaflet resection versus leaflet preservation on functional mitral stenosis – primary results of the CAMRA CardioLink-2 trial

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Background: The gold standard treatment for mitral valve regurgitation due to prolapse involves surgery with annuloplasty and either leaflet resection or leaflet preservation, with placement of artificial neochordae. It has been suggested that leaflet resection may be prone to functional mitral stenosis, whereby a patient may have a higher mitral gradient at peak exercise compared to a leaflet preservation strategy. Although both techniques are widely used, there has been no prospective randomized study conducted to compare these two techniques, particularly in regard to functional mitral stenosis.

Methods: A total of 104 patients with posterior leaflet prolapse were randomized to undergo mitral repair with either leaflet resection (N=54) or leaflet preservation (N=50) at 7 specialized Canadian cardiac centers. Patient age, proportion of female patients, and mean Society of Thoracic Surgeons risk score was 63.9±10.4 years, 19%, and 1.4% for those who underwent leaflet resection, and 66.3±10.8 years, 16%, and 1.9% for those who underwent leaflet preservation, respectively. The primary endpoint

was the mean trans-mitral repair gradient at peak exercise 12-months after repair.

Results: Baseline characteristics were similar between the groups. At 12-months, the mean trans-mitral repair gradient at peak exercise in patients who underwent leaflet resection and preservation was 9.1±5.2 and 8.3±3.3 mmHg (P=0.4), respectively. The two groups had similar mean mitral valve gradient at rest (3.2±1.9 mmHg following resection and 3.1±1.1 mmHg following leaflet preservation, P=0.7). There was no between-group difference for the 6-minute walk distance (451±147 m and 481±95 m for the resection and preservation groups, respectively, P=0.3).

Conclusion: We report the first prospective surgical randomized trial to evaluate commonly used mitral valve repair strategies for posterior leaflet prolapse. Leaflet resection and leaflet preservation both yield acceptable results with no difference in postoperative valve gradient and functional status 12-months after surgical mitral valve repair.