

Operative Details and Early Postoperative Outcomes of Mitral Valve Replacement With or Without Left Atrial Size Reduction

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Abstract:

Background: Rheumatic mitral valve disease is common in developing countries and is often associated with progressive left atrial enlargement, leading to atrial fibrillation and thromboembolic complications. This study aims to compare operative details and early postoperative outcomes of mitral valve replacement with and without concomitant left atrial size reduction.

Methods: This prospective observational study at the Department of Cardiac Surgery, BMU and Al-Helal Specialized Hospital, Dhaka (July 2014-June 2016), included 30 patients with mitral valve disease and giant left atrium (LA >55 mm), aged 18-60 years. Patients were randomized to mitral valve replacement alone (Group A) or with left atrial reduction (Group B). Preoperative, operative, and postoperative data-including LA diameter, ejection fraction, arrhythmias, and ICU/hospital stay-were recorded, and follow-up included clinical assessment, ECG, chest X-ray, and echocardiography. Data were analyzed using SPSS v22, with $p < 0.05$ considered significant.

Results: Baseline characteristics were similar. Preoperative AF was 80.0% vs 73.3% (Group A vs B), decreasing to 73.3% vs 33.3% at 3 months ($p=0.028$). LA diameter fell from 60.2 ± 52.3 mm vs 62.1 ± 43.2 mm ($p<0.001$); EF rose $53.8 \pm 55.8\%$ vs $52.7 \pm 63.9\%$ ($p<0.001$). ACC and CPB times, ICU stay, and hospital stay were slightly higher in Group B but not

significant. Other complications were rare; no deaths occurred.

Conclusion: Concomitant left atrial reduction during mitral valve replacement is a safe and effective adjunct that improves rhythm outcomes and promotes atrial remodeling without increasing early postoperative risk.

Key words: Mitral Valve Replacement, Left Atrial Enlargement, Left Atrial Size Reduction, Atrial Fibrillation, Postoperative Outcomes.

Introduction

Rheumatic fever involves all cardiac valves at the microscopic level; however, clinically significant involvement is predominantly seen in the mitral valve. Rheumatic mitral valve disease, including mitral stenosis and mitral regurgitation, continues to be one of the most frequently encountered cardiac conditions in developing countries. The mitral valve is affected in nearly 99% of cases.^{1,2} On a global scale, rheumatic heart disease affects more than 15 million individuals, with approximately 233,000 deaths annually and around 282,000 new cases reported each year.³ Despite advances in cardiac surgery, the management of mitral valve lesions remains a significant challenge in contemporary practice.⁴

Left atrial enlargement is frequently observed in patients with mitral valve disease as well as other cardiac valvular disorders.⁵ Structural damage to the

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