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Title: Assessment of Improvement in Left Atrial Volume Index after Percutaneous Transvenous Mitral Commissurotomy

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Background & Aims: Left atrial volume index (LAVI) is an independent prognostic factor in cardiac diseases. Therefore, the aim of this study was to evaluate the improvement in LAVI after 30 days of successful Percutaneous Transvenous Mitral Commissurotomy (PTMC) in patients with severe mitral stenosis (MS).

Methods: This prospective observational study was conducted at the National Institute of Cardiovascular Diseases, Karachi, Pakistan. We included consecutive patients of either gender, age ≥ 15 years, diagnosed with severe MS, and undergone successful PTMC. Patients with post-procedure severe mitral regurgitation (MR) were excluded. The LAVI was assessed on transthoracic echocardiography (TTE) before and after 30 days of PTMC and pre and post-difference in LAVI was evaluated

Results: A total of 44 patients were included out of which 72.7% (32) were females and mean age of the study sample was 34.3 ± 12.1 years. The median LAVI improved significantly from a pre-PTMC median of 62 [52.5 - 75.5] ml/m² to 50 [43.5 - 66] ml/m² after 30 days of PTMC ($p < 0.001$). A median improvement of 11.6 [5.2 - 17.5] ml/m² has been observed in LAVI after 30 days of PTMC as compared to the baseline. The LAVI was ≤ 40 ml/m² in 4.5% (2) at baseline TTE and 18.2% (8) after 30 days of PTMC ($p < 0.001$). Also, PASP was also improved from 50 [35 - 65] mmHg to 35 [25 - 40] mmHg after 30 days of PTMC as compared to the baseline.

Conclusions: There is significant improvement seen in LAVI at one-month follow-up after PTMC. Considering the prognostic significance of LAVI, close monitoring, and follow-up are required for patients with raised LAVI, and early anticoagulation can be considered to prevent subsequent thromboembolic events and arrhythmias.