World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:17, No:04, 2023

Closed Mitral Valvotomy: A Safe and Promising Procedure

Authors : Sushil Kumar Singh, Kumar Rahul, Vivek Tewarson, Sarvesh Kumar, Shobhit Kumar

Abstract : Objective: Rheumatic mitral stenosis continues to be a major public health problem in developing countries. When the left atrium (LA) is unable to fill the left ventricle (LV) at normal LA pressures due to impaired relaxation and impaired compliance, diastolic dysfunction occurs. The assessment of left ventricular (LV) diastolic function and filling pressures is of clinical importance to identify underlying cardiac disease, its treatment, and to assess prognosis. 2D echocardiography can detect diastolic dysfunction with excellent sensitivity and minimal risk when compared to the gold standard of invasive pressure-volume measurements. Material and Method: This was a one-year study consisting of twenty-nine patients of isolated rheumatic severe mitral stenosis. Data was analyzed preoperative and post operative (at one month follow-up). Transthoracic 2D echocardiographic parameters of the diastolic function are transmitral flow, pulmonary venous flow, mitral annular tissue doppler, and color M-mode doppler. In our study, mitral valve orifice area, ejection fraction, deceleration time, E/A-wave, E/E'-wave, myocardial performance index of left ventricle (Tei index), and Mitral inflow propagation velocity were included for echocardiographic evaluation. The statistical analysis was performed on SPSS Version 15.0 statistical analysis software. Result: Twenty-nine patients underwent successful closed mitral commissurotomy for isolated mitral stenosis. The outcome measures were observed pre-operatively and at one-month follow-up. The majority of patients were in NYHA grade III (69.0%) in the preoperative period, which improved to NYHA grade I (48.3%) after closed mitral commissurotomy. Post-surgery mitral valve area increased from 0.77 ± 0.13 to 2.32 ± 0.26 cm, ejection fraction increased from 61.38 ± 4.61 to 64.79 ± 3.22. There was a decrease in deceleration time from 231.55 ± 49.31 to 168.28 ± 14.30 ms, E/A ratio from 1.70 ± 0.54 from 0.89 ± 0.39, E/E' ratio from 14.59 ± 3.34 to 8.86 ± 3.03. In addition, there was improvement in TIE index from 0.50 ± 0.03 to 0.39 ± 0.06 and mitral inflow propagation velocity from 47.28 ± 3.71 to 57.86 ± 3.19 cm/sec. In peri-operative and follow-up, there was no incidence of severe mitral regurgitation (MR). There was no thromboembolic incident and no mortality.

Keywords : closed mitral valvotomy, mitral stenosis, open mitral commissurotomy, balloon mitral valvotomy
Conference Title : ICCRD 2023 : International Conference on Cardiovascular and Rhythm Disorders
Conference Location : Cape Town, South Africa
Conference Dates : April 13-14, 2023

Open Science Index, Biomedical and Biological Engineering Vol:17, No:04, 2023 publications.waset.org/abstracts/154961.pdf