Abstract: 1633

Final non-invasive echo-guided assessment of left atrial pressure after percutaneous edge-to-edge procedure for mitral regurgitation

Authors:
M Gavazzoni¹, MZ Zuber¹, AP Pozzoli¹, MT Taramasso¹, FM Maisano¹, ¹University Hospital Zurich - Zurich - Switzerland,

Topic(s):
Intraoperative and Interventional Echocardiography

Citation:

Background/Introduction. Recently the central role of hemodynamic invasive monitoring during MitraClip (Abbott Vascular, Santa Clara, CA, USA) procedure has been raised. After removal of Steerable Guide Catheter (SGC) at the end of procedure, iatrogenic interatrial septum defect determines acute sub-clinical hemodynamic changes depending on right atrial (RA) and left atrial (LA) pressures. The possibility to assess LAP non-invasively by Doppler-echocardiography at the end of the procedure allows to quantify real hemodynamic impact of reduction of MR and leaves the door open to further therapeutic decisions (such as closure of iatrogenic IASd).

Purpose: This prospective study aimed to assess the role of evaluation of post-procedural mean trans-atrial gradient with continuous-wave (CW) Doppler (DPmean-IAS) in estimating final m-LAP after removal of SGC.

Methods: We prospectively performed the computation of trans-atrial CW-Doppler tracing for estimation of mean-transatrial gradient (meanGp-LA-RA) in patients treated with MitraClip; we added the estimation of central venous pressure (CVP) according to: i) dilatation of superior vena cava (IVC, mm); ii) presence or not of systolic excursion of IVC (end-inspiratory excursion was not evaluable in patients under sedation); iii) hepatic vein dilatation. The sum of CVP estimated and meanGp-LA-RA (mmHg) represents the m-LAP-Echo-measured at the end of procedure. This value has been compared with m-LAP measured invasively before removal of SGC. We tested the inter-rater reliability with the Intra-class Correlation Coefficient for comparing this method with the gold standard (invasive assessment of LAP).

Results: we included 19 patients; aetiology of MR was degenerative in 89% of cases. Basal m-LAP was 15±13.3 mmHg and decreased by 32% by the end of procedure (mean-LAP at the end: 10.1 ± 3.3 mmHg, p < 0.001). At the end of the procedure mean Gp-LA-RA was 2.5 ± 1.2 mmHg and CVP 7.5 ± 3.5; the m-LAP-Echo-measured was 9.6 ± 2.4. The delay in time of computation of m-LAP by echocardiography with respect to last invasive assessment available was computed and settled around 5 minutes (IQR 3-9 min). The inter-rater reliability with the Intra-class Correlation Coefficient was high: 0.8, (CI95% 0.647-0.948, p < 0.01); with Bland-Altman test we could assess that bias of measures was acceptable for this clinical context with upper concordance limit of 2.7 mmHg and lower of 4.7 mmHg, with a bias of 0.9 mmHg, not relevant for this clinical purpose.

Conclusions: The present study represents the first validation of a Doppler-based method for non invasively assessing post-procedural LAP in percutaneous mitral valve interventions requiring transeptal approach. Follow up is needed for correlate this value with clinical outcomes.