Assessment Of Atria Function After Percutaneous Closure of Atrial Septal Defect Using 2d Speckle Tracking Echocardiography

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OBJECTIVE:

Evaluate atria function by quantifying longitudinal strain in patients with chronic right ventricular (RV) volume overload due to ASD before and after percutaneous closure using 2D- speckle tracking echocardiography (STE).

METHODS AND RESULTS:

28 consecutive patients underwent percutaneous closure of ASD (18 female, 10 male) were examined, clinical and echocardiographic evaluation one day before, 1 day and one month after percutaneous closure of ASD. Peak longitudinal strain and peak systolic strain rate of both atria were analyzed by 2D-STE. The mean age of the patients was (15.07+ 8.39 years), mean diameter of ASD was (16.01 + 2.78 mm), right atrium (RA) diameter and RV end diastolic dimension were significantly decrease after ASD closure, left atrium (LA) diameter was increased significantly after closure of the defect, peak longitudinal strain of RA increased significantly one day and one month after ASD closure (48. 77 ± 4.40, vs .55.36 ± 3.70 and, vs. 62.13 ± 3.81 %, p=0.001). LA longitudinal strain significantly decreased after ASD closure (42.55 ± 4.57, vs. 34.79 ± 3.20 and vs. 35.16 ± 3.23%, p=0.001). Furthermore, the size of the ASD negatively correlated with the changes at LA longitudinal strain after ASD closure. And positively correlated with delta RA strain and strain rate.

CONCLUSION:

2D-STE can be considered a feasible and simple technique for assessment of atrial deformation in ASD patients, it useful to assess the effect of percutaneous ASD closure on atria reservoir function by measuring peak atrial longitudinal strain.

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