Evaluation of left atrial dysfunction by speckle tracking echocardiography in systolic and diastolic heart failure

The study aimed to assess the accuracy of two-dimensional speckle tracking echocardiography (2DSTE) to evaluate the left atrial (LA) function in patients with heart failure. Additionally, if 2DSTE can differentiate accurately between heart failure preserved ejection fraction (HFpEF, HF with mid-range ejection fraction (HFmrEF=EF 41-49%) and heart failure with reduced ejection fraction (HFrEF= EF≤40%). The study included 186 patients of heart failure who were classified into 74 patients with HFpEF (LVEF≥50%), 56 patients with HFmrEF (LVEF 41-49%), 56 patients with HFrEF (LVEF<40%), and 50 normal matched subjects. B-type natriuretic peptide (BNP) was more than 35 pg/mL for all patients. The conventional echocardiography evaluated left ventricle systolic and diastolic functions. The 2DSTE evaluated the LV global strain (LVGS), and strain and strain rate (SR) in each phase of LA function. LVGS was -19.3±2.3%, -18.0±1.7%, 16.1±2.0%, and -14.3±2.2 in controls, HFpEF, and HFmrEF, and HFrEF, respectively (p<0.0001); GPALS was 34.1±6.7%, 27.5±4.7%, 21.7±4.8% and 16.9±4.9% in controls, HFpEF, HFmrEF, HFrEF, respectively (p<0.0001); the GPACS was 14.8±4.3%, 12.3±2.2%, 9.7±2.3%, and 7.5±2.6% in controls, HFpEF, HFmrEF, and HFrEF, respectively (p<0.0001); the PALSPACS was 19.4±3%, 15.1±4.4%, 12.0±3.4%, and 9.3±3.3% in controls, HFpEF, HFmrEF, and HFrEF (p<0.0001). Therefore, early LA dysfunction in heart failure can be detected accurately and easily by speckle tracking technique that could be a promising independent tool to better understand of heart failure and its classification.

- **مكان نشر البحث**: **Monaldi Archives for Chest Disease** journal
  2022 Jan 27;92(4). doi: 10.4081/monaldi.2022.2109
  ISSN: 11220643, 25325264
- **تاريخ نشر البحث**:Jan,2022