O11-5

Biventricular function in Ebstein Patients. Intermodality feasibility and reproducibility between feature tracking cardiac magnetic resonance and speckle tracking echocardiography.

Marcora S. (1), Valsangiacomo Buechel E.R. (2,3), Attenhofer C.H. (4,5), Oxenius A. (2,3), Weber R.W. (2,3)
Azienda Ospedaliera Papa Giovanni XXIII , Bergamo, Italy (1)
Children's Heart Center, University Children's Hospital, Zurich, Switzerland (2);
Children's Research Center, University Children's Hospital, Zurich, Switzerland (3);
University Heart Center, University Hospital Zurich, Zurich, Switzerland (4);
Cardiovascular Center, Klinik im Park, Zurich (5)

Objectives: Quantification of biventricular function in Ebstein anomaly (EA) is challenging, due to the different degrees of displacement of the tricuspid valve (TV) , correct segmentation of the functional right ventricle (fRV) and often abnormal geometry of left ventricle (LV) squeezed by the enlarged RV. Speckle tracking (ST) echo has been validated in literature, also for right ventricle. Feature tracking (FT) cardiac magnetic resonance (CMR) has recently been introduced for functional evaluation in complex congenital diseases affecting the right ventricle. We sought to compare the strain values obtained by FT CMR versus ST echo as the gold standard.

Methods: Ebstein patients with and without TV reconstruction prospectively underwent ST echo and FT CMR in one core lab, when possible at the same day. Intermodality differences were assessed using correlation coefficient (Pearson r) and Bland-Altmann analysis (% mean difference ± standard deviation; 95% limits of agreement) .

Results: Seventeen patients underwent ST echo and FT CMR. FT analysis of biventricular function was feasible in all patients both for longitudinal (LGS) and circumferential global strain (CGS). Because of bad quality image, ST was feasible in 100%, 64% and 76% of the patients , respectively for left ventricle (LV) GLS, LV GCS and fRV GLS. Despite some agreement was found for fRV GLS between FT and SP (r = 0.6) the mean difference was significant and limits of agreement wide (14.8 ±29.57 ; -43/72). For LV GLS and GCS measurements by FT and ST differed even more (7 ±31; -68/54 and 22 ± 45 ; -67/111) with poor correlation for both (r=0.3).

Conclusions: FT CMR is more feasible than ST echo in Ebstein patients,due to better image quality and the complex geometry of the heart in EA. FT measurements and echi value show wide limit of agreements, meaning that these two techniques are not interchangeable. Therefore follow up assessment of Ebstein patients should be consistently performed by using the same modality.