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**Right ventricular deformation analysis after cardiac transplantation: can we predict functional recovery?**

**Authors:**
L Halmai¹, S Kaul², O Dar³, N Banner³, S Rahman Haley⁴, ¹Milton Keynes Hospital NHS Trust, Department of Cardiology - Milton Keynes - United Kingdom, ²Harefield Hospital, Adult Intensive Care Unit - London - United Kingdom, ³Harefield Hospital, Department of Transplant Medicine and Circulatory Support - London - United Kingdom, ⁴Harefield Hospital, Department of Cardiology - London - United Kingdom,

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Variable degree of right ventricular (RV) dysfunction can occur in up to 25-50% of cardiac transplant (OCTx) recipients and it can remain a key determinant of outcome as RV failure (RVF) accounts for 19% of early deaths in the post-transplant period. Therefore, accurate assessment of RV mechanical function after OCTx has a significant impact on postoperative management strategies. **AIMS:** We wanted to assess if Myocardial Deformation Imaging (MDI) by Speckle Tracking Analysis can provide incremental prognostic information and predict functional recovery of the RV function in those OCTx recipients, who develop early postoperative RVF. **METHODS:** 16 transplant recipients were enrolled from June 2016 to this pilot study (45.8±18.6yrs, 9 males, 6 ischaemic), who developed RVF after OCTx. Standard Echo, 3D-Full Volume and MDI Analysis, right heart catheter (RHC) measurements made on 1st, 6th postoperative week and after 3 months of OCTx. Indexed EDV, ESV and RV-EF, Free-Wall Longitudinal and Circumferential Strain (FW-LS, -CS), Twist angle and Recoil Rate (Rec), Mechanical Functional Dispersion as SD of time-to-peak Strain was calculated after standard Echo analysis was completed. The Vasoactive Inotropic Score was calculated at 48 hrs. **RESULTS:** The postoperative RV function remained mild-to-moderately impaired despite normal RV-sizes. The RV-EF increased (50.1±4.8 vs 45.8±4.7%) from the 2nd postoperative assessment and the 3D-measurements at 3rd stage were used as reference for correlation analysis. The FW-LS increased (-12.1±1.9 vs -10.8±2.1%, p<0.001), the CS increased (-26.4±2.6 from -20.4±3.9%), the Twist angles increased (5.6±0.2 vs 3.4±0.9º, p<0.03), the Rec rate became faster at each stage (26.3±2.5 vs 22.5±2.4º/s), the degree of mechanical RV-dispersion reduced (75±10.2, 67.4±8.6 vs 81.1±10.5ms, p<0.001) continuously. The baseline RV-S`, FW-LS, CS, Rec indices correlated well with the final 3D-RV-EF, ESVi and FAC (r²=0.96, p<0.001). The Twist angle correlated with the VIS score in <48-hours and with the RAP/PCWP data provided by the RHC measurements. **Conclusions:** We found the standard Echo measurements to have limited value to predict recovery of RV function in the acute phase of OCTx. The FW-LS, CS, Twist and Recoil mechanics, the Dispersion of RV-contraction however, showed early improvement after OCTx with good correlation with the level of inotropic support, the pulmonary pressures and the final RV-EF, while the standard echo-indices still have not changed. It appears the 3D-Full Volume and MDI methods are able to predict functional recovery of the RV systolic function after OCTx. These measurements may have an advantage over the standard Echo indices to provide data of prognostic value and may have implications in different forms of post-operative RV impairment and therefore may guide therapeutic strategies.