

**Correlation between Basic Echocardiogram and Cardiac Magnetic Resonance Parameter for the Right Ventricle Evaluation in Repaired Tetralogy of Fallot**

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Background: Cardiac magnetic resonance (CMR) has become a standard tool to evaluate the right ventricle (RV). In repaired tetralogy of Fallot (rTOF), the right ventricular volume load is considered to be one of the key criteria for the pulmonary valve replacement. The objective of this study is to define whether the conventional echocardiographic measurement could be used as a parameter to define the right ventricular dilatation in comparison with the CMR measurement.

Methods: Patients with rTOF underwent CMR and echocardiogram. From the 4-chamber view, the RV and LV dimensions were measured in long axis and short axis during diastole and indexed by body surface area. The RV and LV echocardiographic measurements and the RV/LV ratio were compared and correlated with the RV volume index obtained from CMR. The sensitivity and specificity of the echocardiographic threshold value to predict the RV volume were determined.

Results: A total of 99 patients (16.2± 5.5 years, 69 male) were recruited. The echocardiographic measurement of RV end diastolic diameter (RVEDD) index, RV long-axis length index, and RV/LV long axis length ratio (RV/LV ratio) were correlated with the RV end diastolic volume index (RVEDVi) obtained by CMR. The RV/LV ratio is more correlated with the RVEDVi ( $r=0.71$ ,  $p<0.001$ ) in comparison with the RVEDD and RV long axis ( $r=0.47$ ,  $p=0.01$  and  $r=0.27$ ,  $p=0.01$ ).

Conclusion: The basic echocardiogram parameter of the RV dimension could be used to assess the right ventricle volume load in rTOF with reasonable CMR correlation. The RV/LV ratio has a better prediction of the RV volume in comparison with the RVEDD and RV long-axis length index.