

ABSTRACT

Introduction: Post TOF repaired patients should have been continuously evaluating of cardiac function especially Right Ventricle (RV). Pulmonary Regurgitation (PR) is a major cause of RV failure. Currently, Cardiac Magnetic Resonance Angiography (MRA) is considered the clinical reference method for RV assessment. Echocardiogram is an alternate tool for evaluating cardiac anatomy and function.

Objective: Assessment the RV parameters by using echocardiogram compare to cardiac MRA.

Method: Twenty patients (mean age 14 ± 2 years) after TOF repaired were recruited from June, 2011 to March, 2012. The RV was evaluated by cardiac MRA and followed by echocardiogram. The echocardiographic parameters were Tricuspid Annular Plane Systolic Excursion (TAPSE), Fractional Area Change (FAC), Area of Right Ventricle End Diastolic index (area RVEDi), RV free wall Myocardial Performance Index (MPI) and severity of PR and the cardiac MRA parameters were Right Ventricular Ejection Fraction (RVEF), Right Ventricular End Diastolic Volume index (RVEDVi) and severity PR. Comparative analysis were assessed by Pearson's sample correlation coefficient, Crosstab Kappa, sensitivity and specificity of area RVEDi from ROC curve analysis.

Results: There are correlation between RVEDVi to area RVEDi ($R = 0.768$, $P < 0.01$), RVEF with FAC ($R = 0.759$, $P < 0.01$) and RVEF with TAPSE ($R = 0.688$, $P < 0.01$). 100% correlation of moderate to severe degree of PR assessment by echocardiogram versus cardiac MRA (Crosstab Kappa = 0.912). Abnormal MPI by Echocardiogram was not correlated with NYHA classification, Chest X-ray and EKG (Crosstab Kappa = -0.10, 0.15, -0.04). The area RVEDi ≥ 20.43 cm^2/m^2 from echocardiogram was correlated with RVEDVi ≥ 160 ml/m^2 from Cardiac MRA (sensitivity = 64% and specificity = 83%) from ROC curve analysis.

Conclusions: Compare to Cardiac MRA, Echocardiogram is an effective method for RV assessment in post TOF repaired by measure area RVEDi, FAC, TAPSE and degree of PR.