

Cardiac MRI versus Echocardiographic Study in Postoperative Tetralogy of Fallot Repair

Thesis

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Figure 1. PC-VENC in Pulmonary Artery

List of Abbreviations

2C:	Two Chamber
2D:	Two Dimensional
3C:	Three Chamber
3D:	Three Dimensional
4C:	Four Chamber
AAO:	Ascending Aorta
ASD:	Atrial Septal Defect
AUC:	Area Under the Curve
AV:	Aortic Valve
BF:	Backward Flow
BSA:	Body Surface Area
BT:	Blalock Taussig
C/T:	Cardiothoracic Ratio
CE:	Contrast Enhancement
CHD:	Congenital Heart Disease
CI:	Cardiac Index
cm:	Centimeter
CMRI:	Cardiac Magnetic Resonance Imaging
CT:	Computed Tomography
CW:	Colored Wave

CXR:	Chest X-ray
DE-MRI:	Delayed Enhancement - Magnetic Resonance Imaging
DSTVI:	Diastolic Systolic Time Velocity
ECG:	Electrocardiogram
ED:	End Diastolic Dimension
EDV:	End Diastolic Volume
EDVI:	Indexed End Diastolic Volume
EF:	Ejection Fraction
ESD:	End Systolic Dimension
ESV:	End Systolic Volume
ESVI:	Indexed End Systolic Volume
FF:	Forward Flow
FS:	Fractional Shortening
HR:	Heart Rate
IR:	Inversion Recovery
Kg:	Kilogram
LGE:	Late Gadolinium Enhancement
LV:	Left Ventricle
m:	Meter
MAPCAS:	Multiple Aortopulmonary Collaterals
Max:	Maximum
Min:	Minimum
ml:	Milliliter

Mm:	Millimole
MPA:	Main Pulmonary Artery
MRA:	Magnetic Resonance Angiography
MV:	Mitral Valve
PA:	Pulmonary Atresia
PC:	Phase Contrast
PHT:	Pulmonary Pressure Half Time
PPU:	Peripheral Pulse Unit
PR:	Pulmonary Regurge
PRi:	Pulmonary Regurge Index
PRV:	Pulmonary Regurge Volume
PV:	Pulmonary Valve
PVR:	Pulmonary valve replacement
Qp:Qs:	Pulmonary : Systemic Output Ratio
RBBB:	Right Bundle Branch Block
RF%:	Regurgitation Fraction
ROC:	Receiver Operating Characteristic
ROI:	Region of Interest
RV:	Right Ventricle
RVOT:	Right Ventricular Outflow Tract
S/N:	Signal to Noise
SA:	Short Axis
SD:	Standard Deviation

SE:	Spin Echo
Sec:	Second
SPGR:	Spoiled Gradient Echo
SSFP:	Steady State Free Precession
SV:	Stroke Volume
SVI:	Indexed Stroke Volume
T:	Tesla
TDI:	Tei Index
TE:	Time of Echo
TOF:	Tetralogy of Fallot
TR:	Time of Repetition
TR:	Tricuspid Regurge
TSE:	Turbo Spin Echo
TV:	Tricuspid Valve
VENC:	Velocity Encoding
VSD:	Ventricular Septal Defect

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Abstract

Cardiac MR imaging (CMRI) also does not expose the patient to ionizing radiation and is therefore ideal for serial post-surgical follow-up. The exact implementation of MRI in patient management and therapeutic consequences of the provided parameters need to be evaluated in large follow-up studies. Goals of MRI in TOF patients are: Quantification of the amount of pulmonary regurgitated volume allows for a more accurate selection of patients who may benefit from surgical treatment. Imaging the anatomy of the right ventricular outflow tract (e.g., ventricular septal defect and RVOT patches). Quantification of tricuspid regurgitation, and pulmonary-to-systemic flow ratio. It is recommended that all patients with TOF undergo anatomic and functional evaluation using MRI at least once.

Keywords

- **MRI**
- **CMRI**
- **DE-MRI**
- **ASD**
- **SPGR**