The Conjoint Role of Echocardiogram and Cardiac Magnetic Resonance Imaging in Follow up of Patients Post Tetralogy of Fallot Repair

Thesis

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بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي
أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ وَأَنْ أَعْمَلَ
صَالِحًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي
عِبَادِكَ الصَّالِحِينَ

صدق الله العظيم

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Abla Ali Ahmed

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List of Abbreviations

Abb.	Full term
Ao	*Aorta*
AP	*Anteroposterior*
AR	*Aortic regurgitation*
ASD	*Atrial septal defect*
ASE	*American society of echocardiography*
CHD	*Congenital heart disease*
CM	*Centimeter*
CMR	*Cardiac magnetic resonance*
DT	*Deceleration time*
ECG	*Electrocardiogram*
EDV	*End diastolic volume*
EDVi	*End diastolic volume indexed to body surface area*
EF	*Ejection fraction*
ESV	*End systolic volume*
ESVi	*End systolic volume indexed to body surface area*
FAC	*Fractional area change*
FIG	*Figure*
Fr	*French*
GLS	*Global longitudinal strain*
ICD	*Implantable cardioverter defibrillator*
IEC	*Infective endocarditis*
IVC	*Inferior venae cava*
IVS	*Interventricular septum*
Kg	*Kilograms*
LAD	*Left anterior descending coronary artery*
LGE	*Late gadolinium enhancement*
LPA	*Left pulmonary artery*

List of Abbreviations (Cont...)

Abb.	Full term
LV	*Left ventricle*
Mesc	*Milli-second*
MPA	*Main pulmonary artery*
MRA	*Magnetic resonance angiography*
MRI	*Magnetic resonance imaging*
MV	*Mitral valve*
No	*Number*
PA	*Pulmonary artery*
PAs	*Pulmonary arteries*
PC	*Phase contrast*
PDA	*Patent ductus arteriosus*
PHT	*Pressure half time*
PR	*Pulmonary regurgitation*
PRV	*Pulmonary regurgitant fraction*
PS	*Pulmonary stenosis*
PV	*Pulmonary valve*
PVR	*Pulmonary valve replacement*
PW	*Posterior wall*
RA	*Right atrium*
RPA	*Right pulmonary artery*
RV	*Right ventricle*
RVOT	*Right ventricular outflow tract*
RVOTi	*Right ventriculat out flow tract dimeter indexed to body surface area*
RVOTO	*Right ventricular outflow tract obstruction*
RVSP	*Right ventricular systolic pressure*
SSFP	*Steady state free precession*
SV	*Stroke volume*
TAP	*Transannular parch*

List of Abbreviations (Cont...)

Abb.	Full term
TAPSE	*Tricuspid annular plane systolic excursion*
TEE	*Transesophageal echocardiography*
TOF	*Tetralogy of Fallot*
TR	*Tricuspid regurgitation*
TSE	*Turbo spin echo*
TTE	*Transthoracic echocardiography*
TV	*Tricuspid valve*
VSD	*Ventricular septal defect*

INTRODUCTION

Tetralogy of Fallot (TOF) is the most common form of cyanotic congenital heart disease. Total repair for TOF has been available for 50 years, with a favorable outcome in most patients ***(Nollert et al., 1997).***

Survivors of TOF repair constitute a large and growing population of patients. Although postsurgical outcome is generally favorable, as these patients move into adulthood, late morbidity is becoming more prevalent and the notion that TOF has been "definitively repaired" is increasingly being challenged ***(Helbing et al., 2000).***

Surgical repair can be performed during the first months of life, ideally at the age of 3 to 4 months, with low perioperative mortality. Then the survival curve seems to deteriorate after 25 years post TOF repair, and significant residual findings may occur resulting in significant morbidity during follow-up ***(Nollert et al., 1997).***

Surgical repair of TOF may be followed by various conditions and residual findings, early postoperatively or late during follow-up. Most of these conditions affect the right ventricular outflow tract and the pulmonary arteries and thus, indirectly, the right ventricle (RV) leading to RV dilatation and dysfunction, atrial and ventricular arrhythmias, congestive heart failure, and sudden death ***(Taussig et al., 1947).***