Society for Cardiovascular Magnetic Resonance

Cardiac MRI Valvular Studies Template

This template is designed to provide a structured framework for reporting cardiac MRI valvular studies, based on the SCMR Reporting guidelines (2022)

Section I: General Information:

Administrative:

Site ID: ()

Site of Service: inpatient hospital, outpatient facility, free standing imaging center, ambulatory care office, or mobile unit, other (drop down)

Scanner: Manufacturer, Field strength (Drop down and free text)

Demographics:

Patient Identifiers:

Patient's full name,
Date of birth,
Medical record number

Scheduling and performance of study

1. Date of procedure ()
2. Primary indication for test ()
3. Study quality ()

History and risk factors – (pulled directly from EMR)

1. Height
2. Weight
3. **Clinical Indication for the Study:** State the clinical reason for performing the cardiac MRI study. **Optional: Other Relevant Investigations:** Relevant cardiac investigations, such as electrocardiogram (ECG), echocardiography reports, or nuclear imaging results

Non-imaging findings associated with examinations:

1. Contrast agent
    a. Name,
    b. Dose, and
    c. Administrative route (default to IV)

Section II: General Techniques:

Listing of sequences used (drop down to pick and choose)

i. Cine
ii. Tagged and other strain-encoding cine
iii. T1- and T2-weighted imaging (T1w; T2w)

iv. Quantitative T1 and T2 mapping
v. T2* mapping
vi. Early gadolinium enhancement
vii. Late gadolinium enhancement
viii. Velocity-encoded / phase contrast cine
ix. MR angiography
x. Myocardial perfusion

Method of acquisition: Study was performed using above listed sequences with imaging in short axis, long axis planes using 2D/ 3D data sets.
Study was analyzed using: Medis/ Circle/ Neosoft/ Other (Drop down with free text option)

Section III: Findings:

Left Ventricle:

Size: Small, Normal, Dilated - (drop down to pick and choose)
Wall thickness: Thin, Normal Hypertrophied - (drop down to pick and choose)
Systolic function: Normal, Decreased, Mildly decreased, Moderately decreased, Severely decreased. (drop down to pick and choose)
Regional wall motion: described according to the 17-segment model. It is recommended that each segment be classified qualitatively as normal, hyperkinetic, hypokinetic, akinetic, dyskinetic, dyssynchronous, not evaluable due to artifact, or not assessed. Can consider including Bulls eye or table for 17 segment model if reporting software allows.
Aneurysms: If present, should be defined as true or false and described further

Quantitative Assessment of Left Ventricle:

- LV end-diastolic volume (LVEDV):
- LV end-systolic volume (LVESV):
- LV stroke volume (LVSV):
- LV ejection fraction (LVEF):
- LV cardiac output (LVCO):
- Indexed LV volumes
- LVEDV index=LVEDV/body surface area (BSA):
- LVESV index=LVESV/BSA:
- LVSV index=LVSV/BSA:
- LVCO index=LVCO/BSA:
- LVM index=LVM/BSA:

Right ventricle:

Size: Small, Normal, Dilated - (drop down to pick and choose)
Wall thickness: Thin, Normal, Hypertrophied

Systolic function: Normal, Decreased, Mildly decreased, Moderately decreased, Severely decreased. (drop down to pick and choose)
Regional wall motion: described qualitatively at the apex, septal and anterior wall and midventricular levels of the RV free wall. Regions should be identified as normokinetic, hyperkinetic, akinetic, dyskinetic, dyssynchronous, not evaluable, or not assessed
Aneurysms: If present, should be defined as true or false and described further

Quantitative Assessment of Right Ventricle:

- RV end-diastolic volume (RVEDV):
- RV end-systolic volume (RVESV):
- RV stroke volume (RVSV):
- RV ejection fraction (RVEF):
- RV cardiac output (RVCO):
- Indexed LV volumes
- RVEDV index=RVEDV/body surface area (BSA):
- RVESV index=RVESV/BSA:
- RVSV index=RVSV/BSA:
- RVCO index=RVCO/BSA:

Atria: (drop down to pick and choose)
Left atrium: Size (normal/ dilated) based on (area/ indexed volume), Measurement (cm2/ ml/m2)
Right atrium: Size (normal/ dilated) based on (area/ indexed volume), Measurement (cm2/ ml/m2)
Interatrial septum if visualized: Intact, aneurysmal, septal defect, patent foramen ovale, lipomatous hypertrophy or other

Valves: - (drop down to pick and choose)
Mitral Valve: Normal/increased thickness, Normal/decreased mobility, No/mild/moderate/ severe regurgitation visually. No stenosis visually
Aortic Valve: Tricuspid/ Bicuspid/ functionally bicuspid/ other, Normal/increased thickness, Normal/decreased mobility, No/mild/moderate/ severe regurgitation visually. No stenosis visually
Tricuspid Valve: Normal/increased thickness, Normal/decreased mobility, No/mild/moderate/ severe regurgitation visually. No stenosis visually
Pulmonic Valve: Normal/increased thickness, Normal/decreased mobility, No/mild/moderate/ severe regurgitation visually. No stenosis visually

Valvular flow quantification:
Velocity encoding, or VENC setting meters/sec.

Flow measurements: milliliters or liters, per heartbeat or per minute
Peak and mean velocities m/sec
Corresponding estimates of peak and mean pressure gradients.

Masses/ Thrombus: None/ Present
If present,

1. Location
2. Size
3. Relationship with adjacent structures
4. First-pass perfusion and LGE, if performed
    a. Present or absent
    b. Pattern (homogenous or heterogeneous)

Pericardium: (drop down to pick and choose)
Thickness – normal/ increased
Effusion – None/ trivial/ small/ moderate/ large

Pleural effusion: (drop down to pick and choose)
Present/ Absent
If Present,
Size: Trivial/ Small/ Moderate/ Large
Location: Right/ Left

Late gadolinium enhancement (LGE): (drop down to pick and choose)
Late gadolinium enhancement imaging of the myocardium is normal. No evidence of scar, infiltration or infarction.
(Or)
Late gadolinium enhancement imaging of the myocardium is abnormal.
Subepicardial/ intramural/ subendocardial/ transmural enhancement is present, involving (i. ≤25% ii. 26% to≤50% iii. 51% to≤75% iv. 76% to 100%) of the transmural thickness in the (segments) in Location: Reference location of segments for LV and RV.
Total mass of LGE tissue (optional): grams (g) and () percentage relative to the total myocardial mass.
Pattern of involvement is:
Subendocardial/ Transmural and is indicative of Ischemic injury (myocardial infarction)
Subepicardial/ intramural and is indicative of Non ischemic injury or infiltration (myocarditis, hypertrophic cardiomyopathy, sarcoidosis, etc.)

Advanced tissue characterization if performed: (drop down)

i. Global or regional native myocardial T2*: decreased/ normal, absolute value (%)- optional measured in the mid septum/ global/ other, normal ranges

ii. Global or regional native myocardial T1: increased/ decreased/ normal value, absolute value (%)- optional measured in the mid septum/ global/ other, normal ranges

iii. Global or regional native myocardial T2: increased/ decreased/ normal value, absolute value (%)- optional measured in the mid septum/ other, normal ranges

iv: Global or regional ECV (extra cellular volume fraction): increased/ normal value, absolute value (%)- optional, normal ranges

Findings are within normal limits, suggestive of myocardial iron overload, myocardial edema, infiltrative cardiomyopathy, other - (drop down to pick and choose)

Extra-cardiac findings: None/ Other

Section IV: Impression:

1. LV assessment: (Normal/mildly increased/moderately increased/ severely increased) LV size with (Normal/mildly decreased, moderately decreased/severely decreased LV function (with/without) regional dysfunction. Include segmental information if regional dysfunction is present.
2. (Normal/mildly increased/moderately increased/ severely increased) RV size with (normal/mildly reduced/moderately reduced/severely reduced) RV function (with/without) presence of regional dysfunction.
3. Aortic valve is bicuspid/ tricuspid with evidence of/ no evidence of stenosis/regurgitation. Mean and peak gradients are… Regurgitant fraction by flow quantification is.. Aortic valve are by planimetry is..
4. Mitral valve is normal/ abnormal with thickened leaflets/ mitral valve prolapse involving … with evidence of/ no evidence of stenosis/regurgitation. Mean and peak gradients are… Regurgitant fraction by flow quantification is.. Late gadolinium enhancement is normal/ abnormal with papillary muscle involvement. Mitral annular disjunction is present/ absent.