MRI Heart for Morphology and Function

CPT: 75557 through 75564, C9762, C9763

1. Acute aortic dissection suspected – CTA or TEE preferred modalities1
2. Arrhythmogenic right ventricular dysplasia/cardiomyopathy suspected based on any one of the following: echocardiographic evidence of regional RV akinesia, dyskinesia, or aneurysm; repolarization abnormalities on electrocardiogram (e.g. inverted T waves in right precordial leads in individuals>14 years of age in the absence of complete right bundle branch block); depolarization abnormalities on electrocardiogram (e.g. epsilon waves in right precordial leads); arrhythmia (e.g. non-sustained or sustained ventricular tachycardia of left bundle branch block morphology or >500 ventricular extrasystoles/24 hours on Holter monitoring); or family history2
3. Cardiac tumor suspected on other imaging3
4. Coarctation of the aorta – CTA, MRA, or echocardiography preferred modalities
5. Congestive heart failure3 [One of the following]
    - 5.1 Evaluate left ventricular function if echocardiography is not adequate
    - 5.2 Distinguish between ischemic, hypertrophic, or restrictive cardiomyopathy
    - 5.3 Distinguish between constrictive pericarditis and restrictive cardiomyopathy
    - 5.4 Cardiac amyloidosis suspected and endomyocardial biopsy is not planned or was non-diagnostic
    - 5.5 Cardiac sarcoidosis suspected
- Documented myocardial ischemia, revascularization contemplated3

7 Evaluation of congenital heart disease seen on other imaging or if other imaging non-diagnostic3

- 7.1 Anomalous left pulmonary artery
- 7.2 Atrial septal defect, including sinus venosus defect
- 7.3 Double aortic arch
- 7.4 Ebstein's anomaly
- 7.5 Eisenmenger syndrome
- 7.6 Endocardial cushion defect
- 7.7 Left sided aortic arch with aberrant right subclavian artery
- 7.8 Single left ventricle
- 7.9 Tetralogy of Fallot
- 7.10 Total anomalous pulmonary venous return
- 7.11 Transposition of the great vessels
- 7.12 Truncus arteriosus
- 7.13 Vascular rings and other congenital anomalies of the great vessels
- 7.14 Ventricular septal defect
- 7.15 Evaluation of surgical or palliative shunts or conduits for
  - 7.15.1.1 treatment of congenital heart disease (e.g. Fontan)
- 7.16 Anatomic assessment before percutaneous closure of ASD or VSD

8 Marfan's syndrome (MRA preferred modality for assessment of thoracic aortic aneurysm)

9 Mass on other imaging3

10. Evaluation of LV thrombus4 [BOTH]

- 10.1 Contrast-enhanced echocardiography non-diagnostic for thrombus
- 10.2 Prescription for anticoagulation depends on detection of thrombus

11 Myocardial viability assessment for planned revascularization with documentation of ischemia AND/OR obstructive (or hemodynamically significant) coronary artery disease 3

12 Myocarditis3

13 Evaluation of suspected left ventricular compaction cardiomyopathy when echocardiography is non-diagnostic 5

14 Pericarditis or pericardial pathology3

15 Valvular disease when echocardiography is non-diagnostic3

16 Venous mapping3 [BOTH]

16.1 Radiofrequency ablation for atrial fibrillation planned

16.2 Computed tomography is not planned and has not been performed

17 Characterization of aortic valve morphology (i.e. trileaflet or bicuspid) when not able to determine by echocardiography AND cardiac CT not planned3

18 Identification and evaluation of myocardial scar6 [One of the following]

18.1 Assessment of myocardial scarring would inform insertion of implantable cardioverter-defibrillator (ICD)

18.2 Ventricular tachycardia ablation is planned

19 Risk stratification in hypertrophic cardiomyopathy when the detection of delayed gadolinum enhancement would directly influence the decision for insertion of implantable cardioverter-defibrillator (ICD)7

References

1. Li JZ, Eagle KA. Vaishnava. P. Hypertensive and Acute Aortic Syndromes. Cardiol Clin. 2013;31(4):493-501.
2. Marcus FI, McKenna WJ, Sherrill A, et al. Diagnosis of Arrhythmogenic Right Ventricular Cardiomyopathy/Dysplasia. Circulation. 2010;121:1533-41.
3. Kitagawa K, Choi BW, Chan C, et al. ASCI 2010 Appropriateness Criteria for Cardiac Magnetic Resonance Imaging: A Report of the Asian Society of Cardiovascular Imaging Cardiac Computed Tomography and Cardiac Magnetic Resonance Imaging Guideline Working Group. Int J Cardiovasc Imaging. 2010;26(Suppl 2):173-86.
4. Srichai MB, Junor C, Rodriguez LL, et al. Clinical, Imaging, and Pathological Characteristics of Left Ventricular Thrombus: A Comparison of Contrast-Enhancd Magnetic Resonance Imaging, Transthoracic Echocardiography, and Transesophageal Echocardiography with Surgical or Pathological Validation. Am Heart J. 2006;152:75-84.
5. Zuccarino F, Vollmer I, Sanchez G, Navallas M, Pugliese F, Gayete A. Left ventricular noncompaction: Imaging findings and diagnostic criteria. Am J Roentgenol. 2015;204(5):W519-30.
6. Klem I, Weinsaft JW, Bahnson TD, et al. Assessment of Myocardial Scarring Improves Risk Stratification in Patients Evaluated for Cardiac Defibrillator Implantation. J Am Coll Cardiol. 2012;60(5):408-20.
7. Gersh BJ, Maron BJ, Bonow RO, et al. 2011 ACCF/AHA Guideline for the Diagnosis and Treatment of Hypertrophic Cardiomyopathy. J Am Coll Cardiol. 2011;58(25):e212-60.