The following Protocol contains medical necessity criteria that apply for this service. It is applicable to Medicare Advantage products unless separate Medicare Advantage criteria are indicated. If the criteria are not met, reimbursement will be denied and the patient cannot be billed. Preauthorization is not required. Please note that payment for covered services is subject to eligibility and the limitations noted in the patient’s contract at the time the services are rendered.

Description

Catheter ablation is a technique for eliminating cardiac arrhythmias by selectively destroying a portion of myocardium or conduction system tissue that contains the arrhythmogenic focus. A variety of different energy sources can be utilized with catheter ablation, such as radiofrequency and/or cryotherapy.

Background

Catheter ablation has been used as a treatment for cardiac arrhythmias for several decades. Radiofrequency energy is the most commonly used source for ablation of cardiac arrhythmias, although other energy sources such as cryoablation have also been used. The technique treats supraventricular tachycardias by partially or fully ablating the atrioventricular (AV) node or accessory conduction pathways, thus ablating the arrhythmogenic focus. It controls idiopathic ventricular or re-entrant ventricular tachycardias (VTs) by eliminating the focus.

Ablation is preceded by preprocedural imaging and mapping of the focus during electrophysiologic studies. Imaging and anatomic mapping systems recreate the three-dimensional structure of the cardiac chambers. This assists the electrophysiologist in defining the individual anatomy, locating the electroanatomic location of arrhythmogenic foci, and positioning the ablation catheter for delivery of radiofrequency energy. There are a variety of approaches to preprocedural imaging and mapping. Most commonly computed tomographic angiography and/or magnetic resonance imaging are used for initial imaging. Mapping can be done by an electroanatomic technique, by using multielectrode arrays, or by variations of these approaches.

Anticoagulation is indicated for some patients undergoing ablation. In general, ablations involving the right side of the heart for supraventricular arrhythmias do not require anticoagulation. Ablations in the left side of the heart are often combined with anticoagulation during and/or after the procedure. There are no standardized guidelines for which patients should receive anticoagulation or for the duration of therapy.

Catheter ablation is invasive in that a catheter is passed into the heart via an arm or leg vein. The risks of catheter ablation vary with the specific type of procedure performed and whether or not there are underlying structural abnormalities of the heart. A variety of complications have been documented; these include:

- Vascular injury. Injury can occur to the peripheral vessels at the site of vascular access, with resulting hemorrhage, AV fistula, and/or pseudoaneurysm formation. Venous injury may lead to deep venous thrombosis, with the attendant risk of pulmonary embolism. Significant vascular injury has been estimated to occur in approximately 2% of ablation procedures.
• Cardiac tamponade. Perforation of the myocardium can lead to bleeding into the pericardial space and cardiac tamponade. This complication is estimated to occur in approximately 1% of ablation procedures and may require pericardiocentesis for treatment.
• Myocardial ischemia/infarction. Ischemia or infarction can result from damage to the coronary arteries during the procedure or from demand ischemia as a result of the procedure. The rate of these complications is not well characterized.
• Thromboembolism. Destruction of tissue by radiofrequency energy promotes thrombus formation. Thromboembolism following ablation most commonly leads to stroke or transient ischemic attack (TIA). The estimated incidence of stroke or TIA following catheter ablation is 1.3%.
• Heart failure. Heart failure can be precipitated by “stunning” of myocardium following ablation and/or by the saline administration required during the procedure. Patients who are at risk for this complication are mostly those with pre-existing left-ventricular dysfunction. Patients undergoing large ablations of the left ventricle are at greatest risk.
• Radiation exposure. In any ablation procedure using radiofrequency energy, the patient (and possibly the treating clinicians) is exposed to radiation from fluoroscopy. Systems intended to reduce radiation exposure, such as the use of electroanatomic mapping and remote navigation systems, are available.

Various catheter-based systems have been cleared for U.S. Food and Drug Administration marketing via the 510(k) process; e.g., the Cardioblate® system (Medtronic, Inc.) has been cleared for “[ablation] of cardiac tissue during general surgery using radiofrequency energy.”

Related Protocols
Radiofrequency Catheter Ablation of the Pulmonary Veins as Treatment for Atrial Fibrillation
Implantable Cardioverter Defibrillator (ICD)

Policy (Formerly Corporate Medical Guideline)
Catheter ablation may be considered medically necessary for the treatment of supraventricular tachyarrhythmias, as follows:

• Treatment of paroxysmal supraventricular tachycardia due to AV nodal re-entry tachycardia
• Treatment of paroxysmal supraventricular tachycardia due to accessory pathways
• Treatment of atrial flutter
• Treatment of focal atrial tachycardia.

Catheter ablation using radiofrequency energy may be considered medically necessary for the treatment of chronic, recurrent, ventricular tachycardia that is refractory to implantable cardioverter-defibrillator treatment and antiarrhythmic medications, and for which an identifiable arrhythmogenic focus can be identified.

Catheter ablation for ventricular tachycardia “storm” (see Policy Guidelines), may be considered medically necessary when pharmacologic treatment has been unsuccessful in controlling the arrhythmia.

Catheter ablation for all other ventricular arrhythmias is considered investigational.

Policy Guideline
Catheter ablation may be considered first-line therapy for treatment of the supraventricular tachyarrhythmias noted above; that is, patients do not need to have failed medical therapy to be considered for catheter ablation.
Permanent pacemaker implantation might be necessary following catheter ablation for supraventricular arrhythmias.

Ventricular tachycardia “storm,” also known as incessant ventricular tachycardia (VT), is defined as at least three episodes of sustained VT in a 24-hour period. This is considered a life-threatening situation that requires prompt attention and treatment.

Services that are the subject of a clinical trial do not meet our Technology Assessment Protocol criteria and are considered investigational. For explanation of experimental and investigational, please refer to the Technology Assessment Protocol.

It is expected that only appropriate and medically necessary services will be rendered. We reserve the right to conduct prepayment and postpayment reviews to assess the medical appropriateness of the above-referenced procedures. Some of this Protocol may not pertain to the patients you provide care to, as it may relate to products that are not available in your geographic area.

References

We are not responsible for the continuing viability of web site addresses that may be listed in any references below.


24. Aliot EM, Stevenson WG, Almendral-Garrote JM et al. EHRA/HRS Expert Consensus on Catheter Ablation of Ventricular Arrhythmias: developed in a partnership with the European Heart Rhythm Association (EHRA), a Registered Branch of the European Society of Cardiology (ESC), and the Heart Rhythm Society (HRS); in
collaboration with the American College of Cardiology (ACC) and the American Heart Association (AHA). Europace 2009; 11(6):771-817.


27. Pediatric, Congenital Electrophysiology S, Heart Rhythm S et al. PACES/HRS expert consensus statement on the management of the asymptomatic young patient with a Wolff-Parkinson-White (WPW, ventricular preexcitation) electrocardiographic pattern: developed in partnership between the Pediatric and Congenital Electrophysiology Society (PACES) and the Heart Rhythm Society (HRS). Endorsed by the governing bodies of PACES, HRS, the American College of Cardiology Foundation (ACCF), the American Heart Association (AHA), the American Academy of Pediatrics (AAP), and the Canadian Heart Rhythm Society (CHRS). Heart Rhythm 2012; 9(6):1006-24.