

1500 arrhythmia for precise localization or because the origin of the VT is from a site that is inaccessible or in close proximity to a coronary artery. Complications are infrequent but can include perforation with cardiac tamponade, atrioventricular block due to injury to the conduction system, and coronary artery injury for foci in proximity to a coronary vessel.

In patients with scar-related VT due to prior infarction or cardiomyopathy, ablation targets abnormal regions in the scar. Because these scars often contain multiple reentry circuits over relatively large regions, extensive areas of ablation are required, and these areas are often identified as regions of low voltage displayed on anatomic reconstructions of the ventricle (Fig. 277-5). If the circuits are not confined to the subendocardial scar, epicardial mapping and ablation can be performed via a subxiphoid pericardial puncture, similar to a pericardiocentesis. Epicardial mapping and ablation are often required for VTs due to nonischemic cardiomyopathy, but also have potentially greater risks of bleeding, coronary injury, and post-procedure pericarditis, which is usually transient. For drug-refractory VT due to prior MI, ablation abolishes VT in approximately half of patients and reduces the frequency of VT in an additional 20%. More than one procedure is necessary in up to 30% of patients. Ablation can be lifesaving for patients with very frequent or incessant VT. Procedure-related mortality is in the range of 3%, with most mortality due to continued uncontrollable VT when the procedure fails. In nonischemic heart disease, the arrhythmia substrate locations are more variable and outcomes are less well defined.

Catheter ablation can also be lifesaving for rare patients with recurrent polymorphic VT and VF that is repeatedly initiated by a uniform PVC. The initiating ectopic beat often originates from the Purkinje system or the right ventricular outflow tract and can be targeted for ablation.

When antiarrhythmic drug therapy and catheter ablation fail or are not options, surgical cryoablation, often combined with aneurysmectomy, can be effective therapy for recurrent VT due to prior MI and has also been used successfully in a few patients with nonischemic heart disease. Few centers now maintain the expertise for this therapy. Injection of absolute ethanol into the coronary arterial blood supply of the arrhythmia substrate has also been used for ablation in a small number of patients who have failed catheter ablation and drugs.

SUMMARY

Patients with ventricular arrhythmias fall into three general groups. The first are those who have associated structural heart disease that must be detected. The risk of life-threatening arrhythmias causing sudden death is indicated by the nature of the arrhythmia—sustained (or causing cardiac arrest) or nonsustained, in which case the risk of life-threatening arrhythmias is assessed from the severity of the heart disease, usually the severity of ventricular dysfunction. ICDs provide the most protection from sudden arrhythmic death. The second group comprises those who do not have recognizable structural heart disease, but have a genetic syndrome associated with increased risk of sudden death. A family history of sudden death and abnormal electrocardiogram most frequently suggest the diagnosis. The third group includes individuals with benign idiopathic arrhythmias who may require therapy to control symptoms, but who are not at significant risk for life-threatening arrhythmias. The appropriate recognition of these patients is facilitated by thoughtful application of ECG and cardiac imaging. High-risk individuals benefit from specialized care for consideration of ICDs, catheter ablation, and antiarrhythmic drug therapy.