



Indications for ICD Placement

Class I Indications for ICD Placement

Conditions for which there is evidence and/or general agreement that a given procedure or treatment is beneficial, useful, and effective

Cardiac arrest due to VF or VT not due to a transient or reversible cause (*Level of evidence: A*)

Spontaneous sustained VT in association with structural heart disease (*Level of evidence: B*)

Syncope of undetermined origin with clinically relevant, hemodynamically significant sustained VT or VF induced at EPS when drug therapy is ineffective, not tolerated, or not preferred (*Level of evidence: B*)

Nonsustained VT in patients with coronary disease, prior MI, LV dysfunction, and inducible VF or sustained VT at EPS that is not suppressible by a Class I antiarrhythmic drug (*Level of evidence: A*)

Spontaneous sustained VT in patients without structural heart disease not amenable to other treatments (*Level of evidence: C*)

Class II Indications for ICD Placement

Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment

Class IIa

Weight of evidence/opinion is in favor of usefulness/efficacy

Patients with left ventricular ejection fraction $\leq 30\%$ at least 1 month post-MI and 3 months post-coronary artery revascularization surgery (*Level of evidence: B*)

Class IIb

Usefulness/efficacy is less well established by evidence/opinion

Cardiac arrest presumed to be due to VF when electrophysiologic testing is precluded by other medical conditions (*Level of evidence: C*)

Severe symptoms (e.g., syncope) attributable to ventricular tachyarrhythmias in patients awaiting cardiac transplantation (*Level of evidence: C*)

Familial or inherited conditions with a high risk for life-threatening ventricular tachyarrhythmias such as long QT syndrome or hypertrophic cardiomyopathy (*Level of evidence: B*)

Nonsustained VT with coronary artery disease, prior MI, LV dysfunction, and inducible sustained VT or VF at EPS (*Level of evidence: B*)

Recurrent syncope of undetermined origin in the presence of ventricular dysfunction and inducible ventricular arrhythmias at EPS when other causes of syncope have been excluded (*Level of evidence: C*)

Syncope of unexplained origin or family history of unexplained SCD in association with typical or atypical right bundle-branch block and ST-segment elevations (Brugada syndrome) (*Level of evidence: C*)

Syncope in patients with advanced structural heart disease in whom thorough invasive and noninvasive investigations have failed to define a cause (*Level of evidence: C*)

Class III Indications for ICD Placement

Conditions for which there is evidence and/or general agreement that a procedure/treatment is not useful/effective and in some cases may be harmful.

Syncope of undetermined cause in a patient without inducible ventricular tachyarrhythmias and without structural heart disease (*Level of evidence: C*)

Incessant VT or VF (*Level of evidence: C*)

VF or VT resulting from arrhythmias amenable to surgical or catheter ablation; for example, atrial arrhythmias associated with the Wolff-Parkinson-White syndrome, right ventricular outflow tract VT, idiopathic left ventricular tachycardia, or fascicular VT (*Level of evidence: C*)

Ventricular tachyarrhythmias due to a transient or reversible disorder (e.g., MI, electrolyte imbalance, drugs, or trauma) when correction of the disorder is considered feasible and likely to substantially reduce the risk of recurrent arrhythmia (*Level of evidence: B*)

Significant psychiatric illnesses that may be aggravated by device implantation or may preclude systematic follow-up (*Level of evidence: C*)

Terminal illnesses with projected life expectancy <6 months (*Level of evidence: C*)

Patients with coronary artery disease with LV dysfunction and prolonged QRS duration in the absence of spontaneous or inducible sustained or nonsustained VT who are undergoing coronary bypass surgery (*Level of evidence: B*)

NYHA class IV drug-refractory congestive heart failure in patients who are not candidates for cardiac transplantation (*Level of evidence: C*)

Evidence supporting current recommendations is ranked as level A if the data were derived from multiple *randomized* clinical trials involving a large number of individuals. Evidence was ranked as level B when data were derived from a limited number of trials involving comparatively small numbers of patients or from well-designed data analysis of *nonrandomized* studies or *observational* data registries. Evidence was ranked as level C when consensus of expert opinion was the primary source of recommendation. For certain conditions for which no other therapies are available, the indications for device therapies are based on years of clinical experience as well as expert consensus and are thus well supported, even though the evidence was ranked as level C.

EPS = electrophysiologic study; ICD = implantable cardioverter-defibrillator; LV = left ventricle; MI = myocardial infarction; NYHA = New York Heart Association; SCD = sudden cardiac death; VF = ventricular fibrillation; VT = ventricular tachycardia.

Data from: Gregoratos G, Abrams J, Epstein AE, Freedman RA, Hayes DL, Hlatky MA, et al. ACC/AHA/NASPE 2002 guideline update for implantation of cardiac pacemakers and antiarrhythmia devices: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/NASPE Committee on Pacemaker Implantation). Bethesda, MD: American College of Cardiology Foundation and the American Heart Association, Inc.; 2002.