

Arrhythmias after LVAD or heart transplantation

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Increasing number of patients with end-stage heart failure refractory to guideline-directed medical treatment need left ventricular assist device or ultimately, heart transplantation. Arrhythmias after LVAD or heart transplantation will be reviewed briefly.

1. Arrhythmia after LVD

Left ventricular assist device are used as a bridge to heart transplantation or as destination therapy. Patients with LVAD are at high risk for ventricular arrhythmia. Majority of ventricular arrhythmia ablation can be approach either retrograde or transeptally. In 10% of ventricular arrhythmia, ventricular tachycardia are related to heart mate II cannula.

2. Arrhythmia after heart transplantation

Arrhythmias after heart transplantation includes sinus node dysfunction, atrioventricular block, atrial arrhythmia and ventricular arrhythmia. Sinus node dysfunction resulting in bradycardia is common in the early postoperative period following standard orthotopic cardiac transplantation. Bradycardia tends to remit spontaneously but there are no factors that accurately identify patients who will need long-term pacing. Patients in whom bradycardia persists beyond the second postoperative week despite treatment with theophylline require permanent pacemaker implantation. Pacing that restores chronotropic competence improves exercise capacity. As in other settings, pacing that preserves atrioventricular (AV) synchrony results in increased cardiac output. For these reasons DDDR mode (AAIR if intact AV nodal conduction is present) is recommended. Development of sinus node dysfunction and resulting requirement of permanent pacemaker were decreased after widespread use of bicaval anastomosis during heart transplantation rather than biatrial anastomosis. Development of first degree AV block raises possibility of rejection or transplant coronary artery disease. Presence of second or third degree AV block is consequence of surgical or catheter intervention (endocardial biopsy). Mechanisms of atrial arrhythmia include donor to recipient conduction, cavotricuspid isthmus-dependent flutter and focal atrial tachycardia from donor atria. Other kinds of supraventricular tachycardia can rarely develop from donor heart with atrioventricular bypass tract or atrioventricular reentrant tachycardia. Catheter ablation of atrial arrhythmia guided by electroanatomic mapping is feasible and highly effective. Among long-term survivors of heart transplantation graft atherosclerosis can lead to left ventricular dysfunction. In selected patients with left ventricular dysfunction after heart transplantation prophylactic defibrillator should be considered.