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Devices for patients with Heart Failure
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Despite substantial advances in medical therapy for heart failure with reduced ejection fraction (HFrEF) and more recent advances in the medical therapy of heart failure with preserved EF (HFpEF), heart failure remains a progressive medical condition. A number of devices have been developed and approved for the treatment of heart failure with both the number and diversity of targets these devices address increasing rapidly. Despite improved morbidity and mortality in both HFpEF and particularly HFrEF, both morbidity and mortality remain high. Furthermore, medical therapy requires constant patient compliance, titration of beneficial medical therapies is often limited by hypotension, and the patient's tolerance for taking additional medications may also be limited. In addition there are a number of manifestations of heart failure and/or targets for heart failure that medical therapy alone cannot completely address. These include treating ventricular tachycardia or fibrillation, synchronizing cardiac contraction, improving cardiac contractility, reducing severe secondary mitral regurgitation, improving autonomic imbalance characteristic of heart failure monitoring pulmonary artery pressures to recognize and prevent exacerbation of heart failure. In addition to FDA approved devices for heart failure the use of devices to shunt blood from the left atrium to the right atrium and reduce pulmonary pressures during exercise in order to reduce exercise dyspnea is an exciting new potential device therapy. Some devices may be beneficial but have important effects that could be addressed to improve outcomes. I will review the ongoing benefits of the following devices: Implantable cardiac defibrillator (ICD's), cardiac resynchronization therapy, transcatheter edge-to-edge repair for severe secondary mitral valve replacement, devices to monitor pulmonary artery pressures allowing therapeutic management, devices that improve autonomic imbalance and more recently intra-atrial shunts. I will also review the vascular remodeling that occurs with left ventricular assist devices that may be a target for improving outcomes with these devices.

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