LVAD or Heart Transplantation: Determination of Destination Therapy

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Heart failure is a major public health epidemic with more than 500,000 new cases annually and a prevalence of more than 5 million patients. The burden to the health system is considerable. Hospital admissions for heart failure have tripled over the last 30 years. Heart failure is now the single largest admission diagnosis to Medicare and results in more than $34 billion in annual costs. Beyond these unsettling concerns, heart failure carries a grim prognosis, with a 1-year mortality approaching 40% after a hospital admission, and contributes to 1 in 8 deaths in this country. Heart transplantation (HT) remains the gold standard therapy for end-stage heart failure. Unfortunately, only 2,200 heart transplants are performed annually in US. Because 75% of patients with heart failure are more than 65 years old, the vast majority are ineligible for cardiac transplantation. Device therapy could be the remained therapy for high-risked, especially old-aged, patients. The overall Indication of left ventricular assisted device for destination therapy (VAD-DT) is listed. "Patients with have chronic end-stage HF Class 4 end-stage LV failure > 90 days with a life expectancy < 2 years are not candidates for HT and meet all of the following conditions:1. Class 4 HF symptoms & failed response to optimal medical management (>30 days), 2. LVEF <25%, 3. VO2max <12~14mL/kg/min and a continued need for IV inotropic therapy, 4. Body size (BSA ≥1.5m2)". Many clinical trials revealed the outcomes of VAD-DT continued to be improved as the development of miniaturization of devices and more efficient support of cardiac output of devices. Compared to the results from the first LVAD-DT trial "REMATCH" (below 10% of 2-year survival), the recent 2-year survivals of VAD-DT are about 60% which came from applying 2nd generation of device and nowadays, the results of the 3rd generation devices are reporting with better survival. In some series, the comparison date between extended criteria HT (marginal donor, renal failure, high dose inotropic support, recipient age>65) and VAD-DT showed the comparable

survival in HT and extended criteria HT had benefits such as, shortening hospital stay, readmission and prevention of postoperative stoke instead of decreased GFR due to immunosuppressive agents. Furthermore, some patients suffer from the serious complications of VAD therapy, such as RV failure, GI bleeding, stroke, and the need of pump exchange from pump failure. VAD could be a life-prolonging therapy for patients illegible to HT. However, HT might be still safer than VAD-DT. Patient selection and timing of implantation are the most crucial factors in determining outcomes and team approach for determination of treatment modality for heart failure is essential