



Service Priorities and Programmes
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The Effective Outcome of using Mechanical Circulatory Support (MCS) to extend Survival Rate for End-stage Heart Failure Patients bridging to Heart Transplantation

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Introduction

Heart transplantation is the golden standard therapy for end-stage heart failure patient. Our department is the only heart transplantation center in Hong Kong, MCS was introduced since 2010 for patients to buy time waiting for heart transplant as the demand for organ far exceeds its supply. Not only extends patients' survival time but also enhances their quality of life.

Objectives

To evaluate the outcome of end-stage heart failure patients with MCS for bridging to heart transplantation in Queen Mary Hospital

Methodology

Retrospective data analysis illustrated patients who had successfully undergone heart transplantation with MCS between 2010 and 2016 including HeartMate II, HeartWare, Centrimag, Berlin Heart and Extracorporeal Membrane Oxygenation (ECMO).

Result

A total of 72 end-stage heart failure patients had undergone MCS from 2010 to 2016, with 70% survival rate. Twenty (28%) of them received heart transplantation successfully. Thirty patients (42%) are still using MCS and awaiting transplant. Twenty two (30%) of them died. Among those transplant patients, thirteen (65%) were male and seven (35%) were female. The causes of end-stage heart failure include dilated cardiomyopathy (n=9, 45%), ischemic heart diseases (n=6, 30%), acute myocarditis (n=4, 20%) and hypertrophic obstructive cardiomyopathy (n=1, 5%). Length of MCS ranged from 8 days to 4 years and 10 months, with mean length 1 year and 2 months. MCS patients included HeartMate II (n=6, 30%), BiVAD Centrimag (n=3, 15%), RVAD Centrimag (n=1, 5%), HeartWare (n=1, 5%), ECMO (n=1, 5%) and Berlin Heart (n=3,

15%). Some patients used two types of MCS, (n=5, 25%) inserted with VA ECMO then Centrimag. For the HeartMate II and HeartWare group, patients are allowed to be discharged home while awaiting transplantation (n=41, 93%). By enhancing their self-efficacy, most of them were empowered to return to their near complete independent daily living activities. They are able to resume occupational work, enjoy social and family life, and even travel overseas with some precautions. In conclusion, MCS demonstrates excellent survival rate while patients waiting to receive organ donation, as well as positively impacting quality of life for end-stage heart failure patients. It has been proven as an evolutionary bridge to heart transplantation.