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The Quality Outcome of End-stage Heart Failure Patients with Mechanical Circulatory Support (MCS) for Bridging to Heart Transplantation

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Introduction

Heart transplantation has been recognized as a standard therapy for end-stage cardiac diseases. However, the demand for donor organs far exceeds the supply. MCS was introduced for these patients who hope for bridging to transplantation. Our department has been the only heart transplantation center in Hong Kong, and to provide MCS therapy since 2010. It does not only extend the patient's survival time but also enhance their quality of life.

Objectives

To examine the outcome of end-stage heart failure patients with MCS for bridging to heart transplantation in Queen Mary Hospital (QMH).

Methodology

Retrospective analysis of data was used to review the patients who had successfully undergone heart transplantation with MCS in QMH between 2010 and 2015. HeartMate II, HeartWare, Centrimag, Berlin Heart and Extracorporeal Membrane Oxygenation (ECMO) were used for MCS therapy.

Result

55 patients received MCS for bridging to heart transplantation from 2010 to 2015. 15 patients (27%) successfully received heart transplantation, 17 patients (31%) passed away before transplantation and 22 of them (40%) are still using MCS and awaiting transplant. Among these heart transplanted patients, nine (60%) were male, and six (40%) were female. Their age ranged from 14 to 58-year-old. Mean age was 41-year-old. The causes of end-stage heart failure include dilated cardiomyopathy (n=9, 60%), ischemic heart diseases (n=3, 20%), acute myocarditis (n=2, 13%) and hypertrophic obstructive cardiomyopathy (n=1, 6%). The MCS used in this study includes HeartMate II (n=6, 40%), BiVAD Centrimag (n=3, 20%), RVAD Centrimag (n=1, 7%), HeartWare (n=1, 7%) and Berlin Heart (n=2, 13%). Three patients had two types of MCS before transplantation. Two of them (13%) were inserted VA ECMO

then BiVAD Centrimag, and one (7%) was inserted VA ECMO then LVAD Centrimag. The length of the patients using MCS ranged from 14 days to 4 years and 10 months, with mean length 1 year and 4 months. To conclude, MCS as bridge to heart transplantation is an evolutionary treatment for end stage heart failure patients. It provides good temporary support for the long organ waiting time before transplantation. Furthermore, it improves the quality of life and survival rate which makes it widely accepted in the past decade.